

**IMPROVING THE FEDERAL BRIDGE
PROGRAM: INCLUDING AN ASSESSMENT
OF S. 3338 AND H.R. 3999**

HEARING
BEFORE THE
COMMITTEE ON
ENVIRONMENT AND PUBLIC WORKS
UNITED STATES SENATE
ONE HUNDRED TENTH CONGRESS
SECOND SESSION

SEPTEMBER 10, 2008

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ONE HUNDRED TENTH CONGRESS
SECOND SESSION

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C O N T E N T S

	Page
SEPTEMBER 10, 2008	
OPENING STATEMENTS	
Boxer, Hon. Barbara, U.S. Senator from the State of California	1
Inhofe, Hon. James M., U.S. Senator from the State of Oklahoma	3
Klobuchar, Hon. Amy, U.S. Senator from the State of Minnesota	7
Barrasso, Hon. John, U.S. Senator from the State of Wyoming	9
Sanders, Hon. Bernie, U.S. Senator from the State of Vermont	9
Carper, Hon. Thomas R., U.S. Senator from the State of Delaware, prepared statement	172
Cardin, Hon. Benjamin L., U.S. Senator from the State of Maryland, prepared statement	172
WITNESSES	
Coleman, Hon. Norm, U.S. Senator from the State of Minnesota	10
Oberstar, Hon. James L., A Representative In Congress from the State of Minnesota	13
Madison, Hon. Thomas J. Jr., Administrator, Federal Highway Administra- tion	18
Prepared statement	21
Responses to additional questions from:	
Senator Lautenberg	31
Senator Cardin	33
Senator Sanders	36
Senator Inhofe	37
Siggerud, Katherine, Managing Director, Physical Infrastructure Issues United States Government Accountability Office	41
Prepared statement	43
Response to an additional question from Senator Lautenberg	67
Responses to additional questions from Senator Cardin	68
Response to an additional question from Senator Sanders	68
Responses to additional questions from Senator Inhofe	69
Herrmann, Andrew, P.E., F.Asce, Managing Partner, Hardesty And Hanover, Llp	91
Prepared statement	94
Response to an additional question from Senator Lautenberg	102
Response to an additional question from Senator Cardin	102
Responses to additional questions from Senator Sanders	103
Response to an additional question from Senator Inhofe	104
John Krieger, Staff Attorney, Federal Tax And Budget Policy, United States Public Interest Research Group	106
Prepared statement	108
Response to an additional question from Senator Cardin	145
Responses to additional questions from Senator Sanders	145
Gary Ridley, Director, Oklahoma Department of Transportation	147
Prepared statement	150
Responses to additional questions from:	
Senator Lautenberg	160
Senator Sanders	161
Senator Inhofe	162

IV

Page

ADDITIONAL MATERIAL

Article, Star-Tribune, Clue on 35W bridge might have been missed	174
Statements:	
Malcolm T Kerley, P.E., Chair, Highway Subcommittee on Bridged and Structures American Association of State Highway and Transportation Officials	177
Commonwealth of Pennsylvania Department of Transportation, Office of the Secretary of Transportation	183
Oklahoma Department of Transportation	187
American Association of State Highway and Transportation Officials	194

IMPROVING THE FEDERAL BRIDGE PROGRAM: INCLUDING AN ASSESSMENT OF S. 3338 AND H.R. 3999

WEDNESDAY, SEPTEMBER 10, 2008

U.S. SENATE,
COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS,
Washington, DC.

The full committee met, pursuant to notice, at 10 a.m. in room 406, Dirksen Senate Building, the Hon. Barbara Boxer (chairman of the full committee) presiding.

Present: Senators Boxer, Inhofe, Carper, Lautenberg, Cardin, Sanders, Klobuchar, Barrasso

**OPENING STATEMENT OF HON. BARBARA BOXER,
U.S. SENATOR FROM THE STATE OF CALIFORNIA**

Senator BOXER. Good morning, everyone. The Committee will come to order.

During rush hour, just over a year ago on August 1st, the I-35 West Bridge in Minneapolis collapsed, sending dozens of cars into the Mississippi. This tragedy claimed the lives of 13 people. It has also served as an urgent wake-up call that we cannot neglect our Nation's crumbling infrastructure.

I just want to say, we are so fortunate that Senator Klobuchar is on this Committee. We would never have not gone into this topic as deeply as we did because of what happened. But having her on this Committee has been a tremendous asset. I just want the people of her State to know that.

The National Transportation Safety Board has not yet issued the results of its investigation into the Minnesota bridge collapse. But we do know that additional resources are needed to repair and replace aging bridges and highways across our Nation. It shouldn't take a tragedy like the one in Minneapolis to remind us that the safety of our bridges, highways and other infrastructure can be a matter of life and death.

Yet today we are facing a crisis with the Highway Trust Fund that we use to repair our roads and bridges, as well as invest in new infrastructure. But this one, this particular crisis we can prevent, if we can restore the \$8 billion to the Highway Trust Fund and prevent cuts to highway spending nationwide. I have been trying to get that done, Senator Reid has been trying to get that done, Senator Murray has been trying to get that done, and I know we have strong bipartisan support. But we have several Republicans who have objected to making that fix. The Highway Trust Fund's

balances have dropped quickly over the past couple of months. According to FHWA, revenues have dropped from \$4.2 billion at the end of July to less than \$1.4 billion at the beginning of September. This drop is due to the fact that Americans are driving less, and the funds generated by the gas tax have been much lower than previously anticipated.

This leaves us with a precarious situation where the fund is now unable, where the FHWA is now unable to fully reimburse States for critical highway construction projects. FHWA is going to slow down the repayment of States if we can't come up with the funds to restore the shortfall. This means thousands of jobs are lost and important transportation improvements are stalled or canceled. If we don't fix the trust fund shortfall now, the highway account is expected to experience as much as a \$3.1 billion shortfall in 2009, which would result in an approximately 30 percent reduction in funds.

According to my California Department of Transit, if no action is taken to avert the shortfall, my State of California would experience a potential revenue reduction of \$930 million. This means a loss of 32,315 jobs in my State. And California is certainly not alone. Every one of our States will suffer.

That is why today, before we get to this hearing, I call upon all my colleagues, my Republican colleagues, who have objected to this, to focus on the communities that will lose jobs and the families that will be hurt if we don't fix this Highway Trust Fund. Today our specific focus is the State of repair of our bridges. Half of all our bridges in this Country were built before 1964. The average age of a bridge in the National Bridge Inventory is 43 years old.

Of approximately 600,000 bridges nationwide, 26 percent are considered deficient. This means we need to make significant investments just to maintain our bridges at safe functioning levels, followed by even larger investments over the next 20 to 30 years to completely replace aging bridges.

Since its creation, the Highway Bridge Program has provided approximately \$77 billion for bridge repair and replacement. The most recent highway reauthorization bill, SAFETEA-LU, included a total of \$21.6 billion in Federal funding for the Highway Bridge Program with an average of \$4.3 billion in Federal funding provided per year. Unfortunately, this amount of funding is not enough to maintain our bridges in a State of good repair. According to DOT's conditions and performance report, the average annual cost to eliminate the repair backlog and fix other problems that are expected to develop between now and 2024 will be \$12.4 billion annually from all levels of government.

Senator Klobuchar and Chairman Oberstar have worked together to address problems with our Nation's bridges by introducing legislation entitled The National Highway Bridge Reconstruction and Inspection Act of 2008. The House version of this legislation, H.R. 3999, was approved by an overwhelming bipartisan vote of 357 to 55 in the House of Representatives on July 24th. This legislation makes changes to the requirements set forth in the Highway Bridge Program, while authorizing a one-time additional \$1 billion for bridge repair and replacement.

I have to point out to you, Congressman Oberstar, that that \$1 billion is an interesting number. Because a few days ago, Vice President Cheney and President Bush announced they are sending \$1 billion to Georgia. That is not Atlanta, Georgia. That is the country of Georgia. And that is the cost of the war they just fought.

The reason I bring this up is it seems that there is no hesitation when there is a need abroad. Now, the fact is that war in Georgia cost \$1 billion. What about our friends in Europe pitching in? But no, we are sending \$1 billion. So frankly, I think the fact that your bill just picked that billion dollars for bridge repair is something America ought to understand. We need to start spending money here.

One key provision in the legislation is the requirement for the DOT to develop a national risk-based priority system for the repair, rehabilitation or replacement of each structurally deficient or functionally obsolete bridge. This Committee is releasing a GAO report today on the Highway Bridge Program entitled Clearer Goals and Performance Measures Needed for A More Focused and Sustainable Program. In this report, GAO found that the current Highway Bridge Program does not have clearly defined goals that encourages States to reduce their overall number of deficient bridges.

By developing national risk-based criteria and requiring each State to develop their own performance plans based on the risk-based priority system, the Federal Government should be able to focus investment on those bridges that are in most need of repair. There are States like California who have specific needs like seismic retrofitting, which should be considered a priority in a risk-based system. We need to invest more in our Nation's bridges, but we also need to insure that Federal funds dedicated to bridge repair and replacement are well spent and used as intended.

We all know we have great challenges before us. But at the end of the day, I believe we can come together to set these priorities. If we are going to keep our people safe, our economy strong and healthy, we need to make a serious investment in our infrastructure. And it begins with safety.

Now, here is the way we do our hearings. I just want to let everyone know. I would be calling on my Ranking Member, my friend, Senator Inhofe. Then we would go next to Senator Klobuchar, then we go next to a Republican and next to Bernie, then we would open it up.

Senator.

**OPENING STATEMENT OF HON. JAMES M. INHOFE,
U.S. SENATOR FROM THE STATE OF OKLAHOMA**

Senator INHOFE. Thank you, Madam Chairman.

I want to welcome our witnesses, and I will single out Congressman Oberstar. We go all the way back to when we served together on that committee in the House in 1987. At that time, if you remember, you were the chairman of the Aviation Subcommittee, I was, I think, the only commercial pilot on the committee. We really got busy and solved a lot of things and that has endured all the way to this day. I have to say to you, Madam Chairman, I have had extensive conversations just this week with Congressman

Oberstar, because we both share the concern, the crisis in the Highway Trust Fund. It is going to have to be resolved.

Also, welcome my colleague, Senator Coleman, who has been very busy the last week, and who worked tirelessly to secure emergency funding after the collapse of the I-35 bridge last year. I was honored to help him and his State in time of need. He is one of the primary requestors, along with the Chairman and me, of the GAO study that will be released today.

Also I want to extend my warm welcome to Gary Ridley. He will be on the third panel. Gary Ridley, hold your hand up and make sure they know who you are. He is unquestionably the best director anywhere in America. I recall when a Democrat Governor was elected, Madam Chairman, I called and said, I only have one request. You have the best director there, I don't know whether he is a Democrat or Republican, but he is the best, and of course he is still on the job. We work all kinds of hours, I have called him in the middle of the night, he has called me in the middle of the night. And he is very much concerned about this. We want to really bring this out. Even though this is a bridge hearing, I say to my good friend, Gary Ridley, we want to talk about the crisis that we are faced with right now and what our options are.

Finally, I want to welcome our new FHWA Administrator, Thomas Madison. I talked to him before this meeting. He may be having second thoughts right now. But this is his initial meeting and we are glad to have him here.

I am a little concerned. This hearing is a repeat of a hearing we had in September of last year. We have been having about one highway hearing a month as we gear up for reauthorization. This pace doesn't allow us the opportunity to retread the same territory. In fact, most of the organizations represented at the last bridge hearing are here again today. This hearing is designed to look at both the bridge program as a whole and Congressman Oberstar's bridge bill, which passed in the House and was introduced in the Senate by Senator Klobuchar.

Since this is otherwise the same hearing we had last year, I will focus my comments on this proposed legislation. I believe this is not the right bill at the right time. It adds, in my opinion, and I have talked to a lot of the people in our State of Oklahoma, more red tape, to a portion of the highway program that already has many bureaucratic hurdles that States don't like. In fact, some States transfer money, since I believe this happened in the State of Oklahoma, from that account, the bridge program, to other, more flexible programs in order to have more flexibility in fixing their bridges.

We are a year from the expiration of SAFETEA. Any major policy changes should be handled in the context of reauthorization. Otherwise, they distract from the overall goal of getting a comprehensive bill done on time. I agree the current bridge program needs revision. But this bill moves, I believe, in the wrong direction.

I am concerned that in the wake of the Minnesota tragedy and series of high profile news stories about the poor condition of the Nation's bridges that we are disproportionately focusing on a single aspect of the system. It is certainly true that our bridges are in ter-

rible disrepair. As I have noted before, my State of Oklahoma, I will wait until Director Ridley is testifying and ask him this question, I think today we have the largest number of structurally deficient and functionally obsolete bridges in the entire Country. We, I think, are now dead last in the condition of our bridges. We used to be tied with two other States. So we are very much concerned about this.

Let me emphasize again that I agree the existing bridge program needs work to make it more usable for States, but with all due respect to my colleagues, this bill doesn't do that and it should be done in the context of a larger reauthorization bill. I said the same thing, Madam Chairman, to some of my Republicans yesterday when I addressed the conference. I said, talking about the Highway Fund crisis that we have, they wanted to get other things accomplished by adding amendments to this. I said, that is fine, we need improvement. But in the wake of the 2009 reauthorization bill, that is where we ought to be addressing these new problems that exist.

In closing, I want to comment on the precarious situation as far as the Highway Trust Fund. Chairman Boxer and I have been working for several months to get a fix on the Senate floor. Despite our best efforts, we have officially bumped up against a hard deadline, because I understand that as early as this week, the Secretary will begin not fully reimbursing States. On Monday, the Oklahoma Transportation Commissioner has decided to delay \$80 million of ready to go projects, they have already been set out, and people hired, ready, picks and shovels, ready to go to work, and perhaps another \$40 million if Congress does not act this week on the shortfall. So it has to be done.

I suspect other States have the same problems. I know that in talking to Congressman Oberstar about this, he shares my concern over this crisis that we are faced with. Inaction not only means critical projects not getting done, but construction workers are going to be laid off. We don't want this to happen.

So those of us who have been around a while remember when we used to always have a surplus. You remember that, Congressman Oberstar, we had surpluses in the Highway Trust Fund up until the time, long after I left and came over to the Senate. I remember objecting very much, back in 1998, when they took \$8 billion out of the Highway Trust Fund and put it into the general fund in the 1998 Balanced Budget Act, I believe it was. I said at that time, this is a mistake. It is less than honest, because people, I think probably the most popular tax we have is the tax you pay at the pump, because people know and believe it is going to go to improve our road structure, our bridges and all these things. But it is totally dishonest to take money out of that, and those people are finding out now that that money is being used for other purposes.

So I think there is a fix there. I wholeheartedly endorse it. I have talked to my colleagues about it, and I think that we need to undo the damage that was done back in 1998. We have to at least temporarily fix, the crisis would be behind us, the immediate crisis. I am hoping we will be able to do that, Madam Chairman.

[The prepared statement of Senator Inhofe follows:]

STATEMENT OF HON. JAMES M. INHOFE, U.S. SENATOR
FROM THE STATE OF OKLAHOMA

Thank you Madame Chairman. I want to welcome our distinguished witnesses. I enjoy working with my good friend Jim Oberstar, who is here with us today, and I look forward to negotiating out the finer points of the next highway bill with him. When I was first elected to Congress back in 1987, Jim was my Chairman of the Aviation Subcommittee on what was then the Committee on Public Works and Transportation and as an aviator, I was a very active member of the subcommittee and got to know Jim pretty well. We may have even taken a few fact finding trips together.

I also would like to welcome my colleague Senator Coleman, who worked tirelessly to secure emergency funding for the collapsed I-35 bridge last year. I was honored to help him in his states time of need. He is also one of the primary requesters, along with the Chairman and me, of a GAO study being released today on how to improve the Highway Bridge program

Also, I want to extend a warm welcome to Gary Ridley, whom I believe is the best highway director in the country. I have had many a phone call with Gary at odd hours of the day and night and I can confirm that he is always available and on top of things. In fact, he and I have been in close contact since it became clear that the Highway Trust Fund could be broke as early as this week. This morning, he is representing the American Association of State Highway and Transportation Officials. His testimony on how a stand alone Bridge bill will negatively influence my State's capital bridge expenditures while ignoring the vast needs of the rest of highway system is consistent with comments I have received from other States.

Finally, welcome to our new FHWA Administrator Thomas Madison. I regret that your first appearance before our Committee as Administrator has to be under crisis circumstances, but I understand that you are drinking as fast as you can from the fire hose and I am confident that together we will find a satisfactory solution to the HTF crisis.

I'm a little concerned this hearing is a repeat of a hearing we had September of last year. We have been having about one highway hearing a month as we gear up for reauthorization. This pace does not allow us the opportunity to retread the same territory. In fact most of the organizations represented at the last bridge hearing are here again today. This hearing is designed to look at both the bridge program as a whole and Congressman Oberstar's bridge bill, which passed the House and introduced in the Senate by Senator Klobuchar. Since this is otherwise the same hearing we had last year, I will focus my comments on this proposed legislation.

I believe this is the wrong bill at the wrong time. It adds more red tape to a portion of the highway program that already has so many bureaucratic hurdles that states do not like to use this program to repair their bridges. In fact, some states transfer money from the bridge program to other more flexible programs in order to more effectively fix their bridges.

We are a year from the expiration of SAFETEA. Any major policy changes should be handled in the context of reauthorization. Otherwise they distract us from the overall goal of getting a comprehensive bill done on time. I agree the current bridge program needs revision, but this bill moves in exactly the wrong direction. It further handcuffs the states ability to address its greatest bridge priorities.

I'm concerned that in the wake of the Minnesota tragedy and a series of high profile news stories about the poor condition of the nation's bridges, we are disproportionately focusing on a single aspect of the system. It is certainly true our bridges are in terrible disrepair. As I have noted before, my State of Oklahoma has the distinction of having the greatest number of structurally deficient and functionally obsolete bridges in the country. I agree we must rework the bridge program, but we cannot let the needs of bridges overshadow the overwhelming needs of the rest of our highway system.

Let me emphasize once again that I agree the existing bridge program needs work to make it more useable for States, but with all due respect to my Minnesota colleagues, this bill does not do that and it should be done in the context of the larger reauthorization bill. It is, in my opinion, counterproductive to try and fix our crumbling infrastructure through piecemeal efforts. We need a comprehensive reform which should be done through a reauthorization bill next year.

In closing, I want to comment on the precarious situation we find ourselves in with respect to the solvency of the HTF. Chairman Boxer and I have been working for several months to get a fix to the Senate floor. Despite our best efforts, we have officially bumped up against a hard deadline because I understand that as early as this week the Secretary will begin not fully reimbursing States. On Monday, the Oklahoma Transportation Commissioners decided to delay \$80 million of ready to

go projects for at least a month with a possible additional \$40 million if Congress does not act this week to shore up the shortfall. I suspect that other States have had to make that difficult decision too. Inaction not only means critical projects are not getting done, but construction workers are going to be laid off. We must act this week and I am working to convince my colleagues of the urgency of the situation and would encourage all those listening who understand the importance of a robust transportation infrastructure program to contact their Senators and urge them to support H.R. 6532, which will restore \$8 billion taken from the HTF in 1998. This is not a long term fix but it will give us time to come up with a permanent funding fix.

Senator BOXER. Thank you so much.

Senator INHOFE. Were you going to go through with opening statements first?

Senator BOXER. Yes, I am.

Senator INHOFE. OK, that is fine.

Senator BOXER. I wanted to point out, since my dear friend, Senator Inhofe, said that this was a repeat, this is not a repeat of another hearing. We are considering legislation to address the problem of these bridges. And that legislation is S. 338 by Senator Klobuchar and H.R. 3999 by Congressman Oberstar. We are absolutely looking at specific legislation.

Now, it may not be that my friend wants to deal with this this year, but others of us do. So we will find out today where we stand on that, and we are going to go to Senator Klobuchar.

**OPENING STATEMENT OF HON. AMY KLOBUCHAR,
U.S. SENATOR FROM THE STATE OF MINNESOTA**

Senator KLOBUCHAR. Thank you very much, Madam Chair, for holding this important hearing. I want to welcome my two colleagues, Senator Coleman and then also Congressman Oberstar. You should know, Madam Chair, that Congressman Oberstar's dad and my grandpa were both miners in northern Minnesota, and when you think of Congressman Oberstar's strong advocacy on behalf of transportation, when you are up north, strong means boisterous, loud and with a lot of gritted teeth. And he gets things done.

I also want to thank you, Chairwoman, for the support you and the Committee have given me in the State of Minnesota, throughout our bridge collapse, and Senator Inhofe, of the 35W collapse. This led to the process of us bringing the companion bill to the House bill S. 3338 before you today.

Our bridge, as you can see, and everyone remembers this photo, fell down on August 1st, 2007. As I said that day, a bridge just shouldn't fall down in the middle of America, not an eight-lane highway and not a bridge that is six blocks from my house, not a bridge that I drive my 13 year old daughter over every single day.

I am pleased to share with the Committee that great progress has been made in rebuilding the 35W bridge. In fact, a new bridge already spans the river. It is expected to open as early as next week, well ahead of schedule, if you can imagine getting this done in this time, because of the help of Congress and the leadership we had here, we are going to see cars and trucks once again crossing the Mississippi River.

We must get to the bottom of why this bridge fell down. Evidence is accumulating that the bridge's condition has been deteriorating for years, that it was a subject of growing concern with the Min-

nesota Department of Transportation. This wasn't a bridge over troubled waters, this was a troubled bridge over water. I will say, as a former prosecutor, I know we must wait until the facts in evidence are in before we reach a verdict.

Mark Rosenker, the Chair of the NTSB, said the investigation is nearing completion and that a final report will be ready for public release within a couple of months. He has also recently said that photographs of the gusset plates which were one half inch thick and warped were stressed by the weight of the bridge and should have been a key indicator to the dangerous State of the I-35W bridge.

We look forward to this report, giving us a definitive answer of why it collapsed, but also how inspections could have been improved, which gets to the bill we are talking about today. I would say that the bridge collapse in Minnesota, if there is any silver lining, it has shown that America needs to come to grips with broader questions about our deteriorating infrastructure. The Minnesota bridge disaster shocked Americans into a realization of how important it is to invest in safe, sound infrastructure.

I would also add, just to bring I home, that because we inspected all of our bridges in Minnesota after this happened, we learned that another bridge of similar design in St. Cloud, Minnesota, in the heart of a major regional city, is now closed with plans to replace it, with the same problems with the gusset plates. According to the Federal Highway Administration, more than 25 percent of the Nation's 600,000 bridges are either structural deficient or functionally obsolete. There is virtually no way to drive in and out of our State or any other State in this Country without driving over a structurally deficient bridge at some point. When the average age of a bridge in this Country is 43 years and 25 percent of all American bridges are in need of serious repair, it is time to act.

I think the GAO study is going to be interesting today. I understand it is going to talk about the funding criteria that should be looked at, the transferring of the bridge program funds, the disincentives that exist for States to reduce their inventories, and the long-term trend of more and more bridges in need of repair.

The two things that I believe we need to do is first of all, as you brought up, Madam Chair, is to adequately fund the Highway Fund, the trust fund. I know we are working on that in Congress. I think it is unfortunate that Senator Gregg and others have been holding this up. We must get this done.

The second thing, Senator Durbin and I and Senator Coleman is a co-sponsor, have introduced the companion bill to Congressman Oberstar's bill. This legislation would require the Federal Highway Administration and State transportation departments to develop plans to begin repairing and replacing bridges that pose the greatest risk to the public. It would require the Federal Highway Administration to develop a new bridge inspection standard and procedures that would use the best technology available.

Because some States have been transferring their bridge repair funds to highway maintenance programs for things like wildflower planting or road construction, this bill would also ensure that Federal bridge funds can only be transferred when a State no longer

has bridges on the national highway system that are eligible for replacement.

Finally, it would authorize an additional \$1 billion for the reconstruction of structurally deficient bridges that are part of the national highway system. This is just a start, but it is a good start. If the President will sign it, the Senate passes it, I am hopeful that it will get us headed in the right direction for the repair of our bridges. We have seen this, it was six blocks from my house. And something has been wrong, not only with our under-funding of our highway system, but also in the way these inspections and the repair of these bridges have been handled on a national basis.

So I thank my two colleagues for being here and I thank Chairman Oberstar for his leadership in the House. Thank you very much.

Senator BOXER. Thank you.

Senator BARRASSO.

**OPENING STATEMENT OF HON. JOHN BARRASSO,
U.S. SENATOR FROM THE STATE OF WYOMING**

Senator BARRASSO. Thank you very much, Madam Chairman.

Just 1 week ago today, I was in Minneapolis and had a chance to see the remarkable progress that has been made. I actually had a chance to see both of the Senators from Minnesota and I want to thank both of you for the incredible hospitality that you showed me and many of my colleagues just this past week.

Madam Chairman, I want to thank you for holding these hearings today on improving the Federal bridge program. In Wyoming we generally have short, narrow bridges, and like many of our neighbors in the mountain west, we receive about \$10 million a year. It is not a big portion of the Highway Bridge Program formula.

I do know that this legislation has good intentions. I know it doesn't necessarily work for States like Wyoming, because it takes away some of our flexibility. For the last 10 years, Wyoming has not transferred one dollar out of the bridge program into another program. And I understand that some States have managed to misuse some of the transferability of bridge funds. Wyoming clearly is not in that category. I am just concerned that this further restricts the transfers, may take away some of the flexibility that is needed by the other States.

I look forward to the hearings and look forward to discussing this. Thank you very much, Madam Chairman.

Senator BOXER. Thank you.

Senator SANDERS.

**OPENING STATEMENT OF HON. BERNARD SANDERS,
U.S. SENATOR FROM THE STATE OF VERMONT**

Senator SANDERS. Thank you very much, Madam Chair, for holding this important hearing. We thank our guest panelists for being here.

Let me begin by just reiterating the point that you made, Madam Chair. I think we all recognize, and I certainly can tell you that it is true in Vermont, that we have a major bridge crisis in the United States of America. But anyone who thinks that it is just

bridges would be terribly wrong. We have in my State, and I suspect all over this Country, our roads are crumbling, potholes all over the place. And I speak as a former mayor in saying what everybody knows to be true, that if you don't do good maintenance, you are just throwing money away, because then you have to rebuild the bed and everything else. If you want to save money, you do maintenance on a regular basis. So we have to work on our roads.

Our rail system is far behind the rest of the world, Europe, Japan, even China. We need to invest billions in our rails. Our water plants, I don't know about California, but in Vermont, we have major problems at water plants, clean water, very, very expensive proposition. Wastewater plants are a major problem.

So the question is, how, in the United States of America, the wealthiest nation in the history of the world, are we sitting around while our infrastructure is collapsing in front of us? And I think, Madam Chair, it speaks to national priorities. Let me be very frank, let me be a little bit partisan. Just a little bit. There are some people who think it is more important that we give a trillion dollars in tax breaks to the wealthiest three-tenths of 1 percent of the population by repealing the eState tax. Then when we say, oh, my goodness, we need to rebuild our infrastructure, and by the way, make millions of good-paying jobs, oh, that is government spending, that is big government, we can't do that.

Well, I respectfully disagree. Ten billion dollars a month in Iraq, huge tax breaks for people who don't need it, and we are not rebuilding our infrastructure. And you know what, it ain't going to get any better. Senator Inhofe, if we don't put money in it tomorrow, it is not going to get better next week. It will only get worse, we will only have to spend more money.

So I certainly believe, with our panelists, that we have to invest heavily in our bridges in Vermont. Many of our bridges are old. Just in the last week, they have shut down several bridges. It impacts our economy. People on television say hey, how do I get home? Bridge is closed, small bridges.

So we have to rebuild our bridges, and we have to take a hard look at our entire infrastructure. As you know, the American Society of Civil Engineers estimated it was \$1.6 trillion that we needed to invest. Let's do it. Let's show the rest of the world that we are in fact a first class nation.

So we have a lot of work, and I applaud you, Madam Chair and Mr. Inhofe, for bringing us together to move forward. Thank you.

Senator BOXER. Thank you so much.

And I want to now call on Senator Coleman, then Congressman Oberstar.

**STATEMENT OF HON. NORM COLEMAN,
U.S. SENATOR FROM THE STATE OF MINNESOTA**

Senator COLEMAN. Thank you, Madam Chair. Thank you for the opportunity to testify.

This month marks a turning point of sorts, less than 14 months after the terrible collapse of the I-35W bridge. On Monday, we will open the new bridge. That is a shining moment, a positive moment. But the collapse certainly has highlighted the need for our Nation

to be more vigilant and proactive in maintaining our infrastructure.

I do want to thank my colleagues, Senator Klobuchar and Senator Oberstar, for their commitment. Senator Oberstar certainly is longstanding on these issues.

It is imperative we need to do more. It is why Senator Levin and I, together with the Chairman and Ranking Member of this Committee, requested the GAO report that we are looking at today. The report in many ways confirms what we already knew, that the Federal Highway Bridge Program lacks focus and performance measures and is unsustainable financially as currently constructed. We have a lot of reforming to do and our lives and our economy depend on it.

Going forward, I would like to suggest we need reform in five areas, which I will touch upon briefly. First, we need a better way to measure the condition of bridges. In the aftermath of the I-35W collapse, people had a strong emotional reaction to the fact that the bridge had been rated structurally efficient. While the GAO has pointed out that the term “structurally deficient” doesn’t necessarily mean unsafe, the fact that 25 percent of the U.S. bridges are structurally deficient or functionally obsolete, I am sure that makes folks wonder, is my bridge safe? It is hard to know what to fix first without a good measuring stick for bridge quality.

Part of what we need to do in answering that question is to take a critical look at the bridge inspection and bridge rating systems, which the Department of Transportation’s Inspector General is working on now. We are looking forward to the results of that review.

No. 2, we need a better funding source for infrastructure. The current crisis in the Highway Trust Fund is not an anomaly. It is the leading edge of a long-term problem. With high gas prices a permanent reality, people will drive less and they will utilize vehicles that use less gasoline. That means less funding going into the trust fund, resulting in less money for transportation and infrastructure.

I think one of the strengths of the Highway Fund has been the user fee approach to revenue. If you drive, you pay for the roads you use. But as technology changes, we need to find ways to get users to pay for the transportation resources they use. This report doesn’t prescribe a solution, but we know from last week’s announcement by Secretary Peters that folks simply need to put their heads together and shore up the Highway Trust Fund over the long term.

No. 3, we need a better way to prioritize money for infrastructure work. Our job is not just to authorize and appropriate money, but to set priorities and goals. Under the Highway Bridge Program, States get money based on the number of deficient bridges but have no obligation to use that money on repairing these bridges. Any bridge, indeed, just about anything a car drives on, could receive those funds. And next year, when funds are being doled out, a State would actually get more money if they had more deficient bridges than the previous year. So there is no incentive to use the money on troubled bridges. It is imperative that we take a step

back and develop targeted goals for the rehabilitation of our bridges.

The GAO report suggests the expanded use of bridge management systems by States could be useful for prioritizing projects, and hopefully we can explore this further as we consider changes to this important infrastructure program. The legislation Chairman Oberstar has championed, which Senator Klobuchar and I have introduced in the Senate, also lays out some ideas worth considering. For instance, this legislation requires that plans be developed to ensure that bridges with the highest risk are replaced before those with the lower risk factors.

No. 4, we need greater accountability. States have latitude in spending the dollars provided through the program. None of us want to micro-manage our States. But without sufficient accountability there is neither a carrot nor a stick for States to improve the conditions of their bridges.

Indeed, the program as a whole needs to be more accountable to the American taxpayer. The GAO finds the program to be lacking a system to measure whether it is truly making a difference. While I am glad that the numbers of deficient bridges have decreased by 12 percent since 1998, I am troubled that we can't measure whether the Highway Bridge Program has actually contributed to that decline.

Finally, No. 5, we need to engage the American people in this challenge. This need is great, but if we just stick the taxpayer with a huge bill, our efforts at infrastructure reform will fail. Voters need to understand the scope and importance of the problem as we fashion solutions.

We should welcome the work being done by folks like Mayor Bloomberg and Governor Schwarzenegger and Ed Rendell, an Independent, a Republican and a Democrat, because we need ideas outside of Washington help us get through this crisis we are in, not to mention fiscal partners in this solution.

Madam Chairman, we all know change is a difficult thing. But the sooner and more broadly we attack our infrastructure problem, the sooner we will reach the safe, more economically supportive system we all seek.

When I was a mayor, I worked with community partners to plant thousands of trees along the Mississippi River. I learned a lesson that the best time to plant a tree is 10 years ago, and the second best time is right now. The Senate looks to this Committee for leadership and urges you to take bold steps that will inspire the Senate, the House, the Administration and the American people to follow. The solution isn't really throwing money we don't have at the problem or raising taxes. It starts with using the money we have more efficiently. And as Congress begins work on a new highway bill, this report should be our blueprint going forward.

I look forward to working closely with you to implement the recommendations outlined in this report. Thank you.

Senator BOXER. Thank you, Senator.

Last but certainly not least, the partner that developed this very important piece of legislation that Senator Klobuchar has introduced here, Congressman Oberstar. We all have such great respect

for your many years of devotion to this topic, and we welcome you here today.

STATEMENT OF HON. JAMES L. OBERSTAR, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MINNESOTA

Mr. OBERSTAR. Thank you very much. It is always a great privilege to be in the other body, as we affectionately call the Senate. I have so many friends here, Bernie Sanders served with me in the House and you, Madam Chair, Senator Inhofe, a friend of long standing. I don't have old friends any more, they are friends of long standing.

[Laughter.]

Mr. OBERSTAR. Senator Barrasso, I haven't met you previously, but it is good to see you here from the State of Wyoming. And Senator Coleman, who was a delegate for me when I was seeking the Senate seat, way back in ancient history. Senator Klobuchar, whose roots are in the iron ore mining company of northern Minnesota, and has been a friend, a dear friend for a very long time.

Bernie Sanders talked about maintenance. I would quote San Francisco's longshoreman philosopher, Eric Hoffer, who wrote and said many times, "You can tell a quality of a society by the quality of its maintenance. Show me a city whose water systems are failing, whose sewer systems are failing, whose highways are in disrepair and I will show you a society that doesn't function."

That is where we are. We are in a State of disrepair, as documented by the National Commission on Transportation Policy and Revenue Study. That has been documented by the National Academy of Sciences, by the American Council of Engineering.

But let me do three things here. One, put this in a little historical context, this legislation, discuss a few of the items of the legislation, I won't repeat what has already been said about the bill, then respond to a few concerns raised. The subcommittee met pursuant to call at 10:05 a.m. in room 2167, Rayburn, on December 1, 1987 with me presiding. Subcommittee on Investigations and Oversight began 2 days of hearings on the status of the National Bridge Inspection Program on the 20th anniversary of the Silver Bridge collapse across the Ohio River.

We established the National Bridge Inspection Program in 1968 in Congress. It had been poorly managed, poorly funded, very little attended by both the Federal Highway Administration and by the respective State departments of transportation. Then came the Myannis Bridge collapse, then came the Silver Bridge collapse. And on the 20th anniversary of that tragedy, in 1967, in December 1987, I conducted this hearing with Bill Clinger, the Ranking Member of the Committee, whom you will remember, and Congressman Molinari from New York also in attendance on the Republican side.

More than the cost of rehabilitating a bridge is involved. If you take away a bridge span, you affect miles of highways in the many communities that feed into and depend upon that bridge. That's what happened on August 1 of last year. I said then there are an estimated 376,000 bridges in the National Bridge Program, there are now 556,000 bridges in the national highway system. Then they carried 85 percent of the highway traffic of America. They still carry 85 percent of the highway traffic of America.

Seventy-six thousand of those bridges in 1987 were described as structurally deficient or functionally obsolete. Today, it is 156,000. Today, that is 76,000 that are structurally deficient alone. We need to know there are elements of bridge design of particular concern to inspectors, bridges without redundant members. I-35W bridge, 740 bridges like that were built in the mid-1960's across America, with the same failure to establish and design into the bridge redundant features. We ought to be sure that bridge inspectors are sensitive to the importance, are aware of and are looking for fracture-critical members. A fracture-critical item collapsed in the I-35W bridge. This is what we highlighted in 1987.

We discussed flooding and the scouring from bridge piers and a host of things. But the principal witness, a professor of bridge engineering, Gerald Donaldson, highway safety director for the Center for Auto Safety, said, "It is too much to hope that in say, the next 5 years, the overwhelming majority of States will be using sophisticated technology for bridge inspection." There are dozens of other references to that. Dr. Donaldson went on to say that bridge inspection is in the stone age.

Well, it is still there. It is not too early, it is not anticipatory, it does not preclude our action next year in writing the Surface Transportation legislation follow-on to what I think will be a transformational piece of legislation in the history of surface transportation in America. It is not too early to start now. In fact, it is too late. But maybe just in time. I proposed these principles last year, after the bridge collapsed, and said, there are four concepts that we need to address, then held hearings on those concepts. Not on a bill, but on the concepts. And on the idea of a separate account in the Highway Trust Fund for structurally deficient bridges to be funded by a five cent increase in the user fee.

Well, I think if we had acted on it in the following week, if the Congress had stayed in session 1 week longer, that bill would be law, the five cents would be in, we would be dealing with these bridges now. But to paraphrase Benjamin Banneker, tragedy is a terrible thing to waste. That tragedy, in fact, was wasted, at least to that extent.

But the House spoke on the bill, we now have 72,000 structurally deficient bridges, 79,000 functionally obsolete. We need a better process of identifying failures in bridges before they collapse. We need better training for bridge inspectors at the Federal and State level. We need more inspectors. We need an inventory of the structurally deficient bridges, and we need to hone that list down to what likely will be 2,600 or so of the most critical bridges that need to be fixed first and to have that list vetted by the National Academy of Sciences, as provided in this bill, then establish the funding mechanism for them.

So there is a multi-step process. The first step is to raise the standards by which we design and build bridges, raise the quality of training of bridge inspectors, increase the number of bridge inspectors at the Federal and State level, and then reinspect those structurally deficient bridges according to the higher standards, establish a national structurally deficient bridge inventory, the most critical bridges, have it vetted by the National Academy of Sciences, establish a separate bridge repair account. And then

make it earmark-proof. And the mechanism that I propose in this legislation that the House has passed is that there will be no deviation from that list by either the executive branch at the Federal level or the State level, or the legislative branch at the Federal or State level. And if there is a deviation, if someone tries to earmark, say, this bridge should have priority over the other one and do it in an appropriation bill, the Secretary of the Treasury is directed to withhold all the funds for all bridge repairs in the Country. Now, that is as foolproof as you can get, it takes it out of the hands, and deals with these critical structures.

Why a bridge and not a stretch of roadway? If a stretch of roadway fails, you don't fall into a river. You don't fall onto a train track or some other conveyance underneath it. These are vital, critical members of our surface transportation system.

So if we pass this legislation, get it moving today, we will have this information in hand when we move to the next authorization level next year. And believe me, in our committee, we are going to move in January and have something ready before the next Administration, whoever it is, can screw it up. Because I don't trust them. I have learned, in 20 years, you can't trust the executive branch, in fact, you can't trust yourselves even to get things done in time that we need to do. But this time we are going to do it. We have the opportunity. The European community is doing it.

Senator BOXER. Congressman, if you could wrap it up in a minute.

Mr. OBERSTAR. I am doing it. This is a 20 year, \$1.3 trillion investment plan of the European economic community. What is wrong with us? We are not a Third World country. Where is our \$1.3 trillion for highways and transit and inter-city high speed passenger rail and a 2,000 mile canal across Europe to link the North Atlantic and the Black Sea?

That is the kind of vision that we need in America, not sitting here rubbing our worry beads. The people will support us if we lead.

Thank you.

Senator BOXER. Well, tell us what you really think.

[Laughter.]

Senator BOXER. I want to make a point here. Do you know that it is Chairman Oberstar's birthday today? And we all say happy birthday.

[Applause.]

Senator BOXER. That was a happy birthday speech.

I also want to say, moving things through the Senate, oh, and a birthday kiss. Which you deserve.

And I don't ever know where all of my colleagues are coming from, and this is the Senate, it is a little bit different. But it is my intention, and I have shared this with Senator Klobuchar, to work hard on both sides of the aisle and try to get support for the Oberstar-Klobuchar effort here. And it is my intention to try and get this bill out as soon as possible.

Because I personally agree with you, we are having some very fruitful talks between Republicans and Democrats on the Committee on the larger bill. I am excited, we have come up with principles. I am convinced we will have a very good bill.

But we can get started on this, because I am so glad you made the point, when a bridge collapses, it is catastrophic. That is why I think this is worthy of our attention at this very moment.

Now, Senator Cardin, we are delighted you are here. Would you like to make a statement? And then we will go to our panel. By the way, you are all free to go. We don't have any questions for you, do we?

Mr. OBERSTAR. I do want, if I may, Madam Chair, to respond to the question about flexibility. Historically, in the transportation program, we have given States, at Governors' requests, State DOTs' requests, flexibility to move funds from one account to another. We gave them flexibility to move up to 50 percent of their bridge funds to other accounts.

They moved, in the last 5 years, \$4.7 billion out of bridge accounts to other accounts, doing an overlay, doing a fix here or an access here. Then when the bridge collapsed, it was, oh, my goodness, we need flexibility. Well, you had in and you squandered it.

Now, if in the case of Wyoming, they have not flexed their money out of the bridge account and used it, then they are not disadvantaged by the provisions in this legislation.

Senator BOXER. I think that is a good point. Let me just respond, then I will turn to my friend.

I have had the same complaints about this bill from my people back home. I said, sorry, the fact of the matter is, I love you more than I can say, and I trust you, too. But on this front, we have so many problems, because money has moved out.

Yes?

Senator INHOFE. Let me just say, and Congressman Oberstar knows this, our situation in Oklahoma is really about as bad as any State. One of the reasons for the hearing today is to hear from people on the State level representing these States, including Oklahoma. It is true that some of this has been transferred, but it has been transferred to an account where it can go back and work on bridges and get it done quicker than it could be done if you had left it in the one account.

We will hear this today, from witnesses talking about this. You and I and everyone at this table, and the Chairman, we all want to accomplish the same thing. So this hearing today is going about to hear from the outside, to hear is this the best way to do it.

Mr. OBERSTAR. Remember that the principle in this legislation is, fix your structurally deficient bridges first. These are the ones that are going to be identified, vetted by the National Academy of Sciences, established in a separate structurally deficient bridge account. Fix those first, then you can flex your dollars to whatever else you need.

But if it is not a national priority, then defeat the bill, throw the whole thing out. We will deal with that next year in the transportation program. We will take every bit of flexibility away from the States and say, if these are national priorities, then you are going to live with them. But if we are going to have a national priority, then we ought to pay tribute to it and live with it. And it is a national priority and has been to have a bridge account.

So within that bridge account and within the structurally deficient bridges the legislation simply says, fix these first. Then you can shift those dollars to whatever other cause you care about.

Senator BOXER. I see we actually did have some questions on your birthday for you. But if you need to go elsewhere, of course, hope Senator Klobuchar will come up here. Senator Coleman, we thank you very much. And Chairman Oberstar, you are free to stay, go. We love having you here, so as long as you can stay we would love to have you. But both of us will be in touch with you on all of these matters.

Senator CARDIN. Madam Chair, before Chairman Oberstar leaves, I just really want to make a comment. You were quoting the 1987 work. That is my first year in the Congress. I was on the Transportation Committee with you in 1987. I just want the Committee to know, we saw the passion of the Chairman here today in his statements. But there is no person in the U.S. Congress who understands the transportation needs of this Country better than Chairman Oberstar. Every time I have talked to him about any transportation problem in Maryland, he has already been there, he knows it, he knows every State in this Nation and the needs of every State in this Nation. We are very fortunate to have his leadership in the Congress of the United States.

Madam Chair, I am going to ask that my opening statement be made a part of the record and just summarize one point, and that is what happened last month in Maryland, just to underscore your point about the urgency. When an 18-wheeler drove off the Chesapeake Bay Bridge, which connects, of course, the eastern and western shores of Maryland, the Governor order an investigation. We found out that there was u-bolt corrosion, which cannot be seen through the normal inspections that are currently done with our bridges. They needed ultrasound to do it. It wasn't part of the standard protocol.

And just understanding your point, we need to have better inspections. As a result of not doing that maintenance, we now have a huge problem of maintenance on that bridge, which is causing economic problems for the eastern shore of Maryland. Just pointing out, you are right, we should have acted before, let's act on the urgency that this issue demands.

Thank you, Madam Chair. I would yield back the balance of my time.

[The prepared statement of Senator Cardin follows:]

STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR
FROM THE STATE OF MARYLAND

Thank you, Madam Chair. Everyday 4 billion vehicles cross bridges in the United States. The American Society of Civil Engineers, in its 2005 Report Card for America's Infrastructure, found that 27.1 percent, or more than 160,000 of the nation's 600,000 bridges, were structurally deficient or functionally obsolete.

In Maryland 29 percent of my state's bridges were rated as structurally deficient or functionally obsolete. The Maryland State Highway Administration has cited an unfunded preservation need of \$221 million just for bridge replacement and rehabilitation.

Madame Chair, we have a lot of bridges in America and they need a lot of work. I join my colleagues in supporting a bold investment plan to save our nation's bridges. I also think we need to begin to utilize promising technologies that improve the thoroughness of bridge inspections.

Just last month in Maryland, a tragic accident on the eastbound span of the Chesapeake Bay Bridge sent an 18-wheel tractor trailer over a jersey barrier and into the Chesapeake Bay, killing the driver. The original span of the Bay Bridge opened in 1952. The accident last month marks the first time that a vehicle has jumped the bridge's jersey rail. In many respects that is an enviable safety record, but it is clearly not good enough.

Maryland Governor O'Malley ordered State transportation officials to immediately investigate the causes of the crash and to re-inspect the bridge. State inspectors found corroded steel in the U-bolts, which fasten the barriers to the deck of the bridge. According to the chief engineer of the Maryland Transportation Authority, the U-bolt corrosion had been overlooked in the past because routine annual inspections are visual.

This corrosion was identified only because ultrasound and radar were used to penetrate into the structure of the bridge. This discovery demonstrates the advantage of newer technologies for bridge inspection. We know Maryland is not the only State that has experienced bridge corrosion, or tragedy related to deteriorating bridges, in recent years.

The memories of the collapse of a bridge on InterState 35 West in Minneapolis just over a year ago, which killed 13, are still with us. In addition to the public safety concern, this is an economic and American competitiveness issue.

The U.S. Chamber of Commerce points out that without significant repairs and new construction, our aging roads, bridges, and transit cannot begin to handle the growing transportation needs that commuters, emergency responders, truckers and delivery drivers, and law enforcement require on a daily basis. The economy depends on the soundness of our bridges as well.

We are seeing that impact right now. The lane closures on the Chesapeake Bay Bridge are having a major impact on the economic vitality of my state's economy, especially on the Eastern Shore. We need a bold investment plan for our nation's bridges and other infrastructure.

We also need to utilize the latest in screening and inspection technologie—such as radar, ultrasound and other electronic sensors—to assess which bridges need attention first. These technologies can save money and save lives. Washington needs to once again take the development of our national infrastructure as a serious national issue, for our security, our economy, and to ensure American competitiveness. This hearing and the legislation we are considering start us down that neglected path.

Thank you.

Senator BOXER. Thank you, Senator Cardin.

Mr. OBERSTAR. What we would propose in this also is to use aviation technology, non-destructive testing capability, to find those very failures of u-bolts, pigeon droppings that cause corrosion, use that in our bridges instead of drawing chains across the bridge and listening to hear if there is something deficient.

Senator BOXER. Well, we can't thank you enough for your leadership. And we are just pleased to have you on your birthday.

We have two panels. Panel two, Hon. Thomas Madison, Jr., Administrator, FHWA, and Ms. Katherine Siggerud, Managing Director, Physical Infrastructure, Government Accountability Office. We are very happy to have both of you here. We are going to start it off with Hon. Thomas Madison. We have a 5-minute clock, so try to stay to that if you can. And we will put your full statement in the record.

Welcome, sir. And by the way, thank you for staying in touch with us so closely on the problems in the Trust Fund. It meant a lot when you phoned us. Thank you very much.

**STATEMENT OF HON. THOMAS J. MADISON, JR.,
ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION**

Mr. MADISON. Thank you very much, Madam Chairman, Ranking Member Inhofe and members of the Committee. I am honored

to be here today to discuss the Federal Highway Administration's Highway Bridge Program.

First, I want to address the other topic, Madam Chairman, that I think is on the forefront of all of our minds today, and that is the imminent cash shortfall in the Highway Trust Fund. The Administration and Congress have been aware of the predicted shortfall for several years. Recently, the time line was accelerated by an unprecedented drop in the gas tax, the primary funding source for the highway program. FHWA has been closely monitoring the highway account and had determined that if the balance reached \$3 billion or less, we would need to take action to manage the cash-flow.

The severity of the situation became evident in late August, particularly after the highway account was reduced by \$631 million based upon the Treasury's certification of actual second quarter receipts for Fiscal Year 2008. FHWA is taking steps to stretch revenues and allow for continued reimbursement to States on an equitable basis. Starting tomorrow, FHWA will make reimbursements on a weekly basis rather than twice daily. Next week, if the total amount of reimbursement requests exceeds available cash, each State will receive a prorated share.

Our States work hard to keep the Nation's bridges and roads safe and in good repair, and they shouldn't have to suffer because Federal spending is outpacing revenues. That is why the Secretary called on Congress to pass legislation to provide \$8 billion from the general fund to cover the shortfall in the trust fund.

The transfer is only a short-term fix. The unpredictability of the fuel tax revenues is a clear sign that we must fundamentally change our approach to transportation financing in America. The question we must ask is not how to make the trust fund solvent into the future, but how can we make the trust fund effective to solve our transportation challenges. Even if gas prices stabilize, more fuel efficient vehicles and other conservation measures make the gas tax less and less sustainable.

Now to address the subject of today's hearing, America's bridge program. Although the Nation's bridge population is aging, contrary to popular press reports and some of the information we have heard already this morning, the condition of bridges is improving. Working with States, we reduced the percentage of structurally deficient bridges from 19.4 percent in 1994 to 12.4 percent today. We must maintain this trend and improve the safety and integrity of bridges while improving system performance and reliability. To do this will require new and innovative ways to sustain funding for infrastructure.

The Secretary's recently announced proposal to reform the way transportation decisions and investments are made would provide States with more flexibility and make it easier for them to attract new forms of investment and add capacity where congestion is worst. A new, more focused program structure would target bridge funding at those projects that truly need investment. In addition, the Bridge Inspection Program and the National Bridge Inventory would remain firmly in place.

Two weeks ago, I also visited the site of the tragic I-35W bridge collapse in Minneapolis. I was very impressed by the innovations, the technologies and the dedication of the staff, both from the pub-

lic sector and the private sector, that are working together to re-open this bridge well ahead of the intended schedule. While the reasons for the collapse remain uncertain, I can assure you that FHWA will learn quickly and widely distribute the lessons that we learn from the investigation to help prevent a similar tragedy in the future.

To conclude, I join Secretary Peters in urging your support for legislation enabling an \$8 billion general fund transfer to the Highway Trust Fund. Quick passage of a clean bill transferring these funds will allow us to fulfill our obligations under SAFETEA-LU and continue our support for the safety and construction programs funded by the trust fund, even as we work together on long-range funding solutions for our bridges and roads.

Thank you again for the opportunity to appear before you today, Madam Chairman and Committee, and I would be happy to try and answer any questions for you.

[The prepared statement of Mr. Madison follows

**STATEMENT OF
THOMAS J. MADISON, JR., ADMINISTRATOR
FEDERAL HIGHWAY ADMINISTRATION
U.S. DEPARTMENT OF TRANSPORTATION
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[®] 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.

From Senator Frank LautenbergQuestion 1:

Heavier trucks cause more damage to our bridges. Secretary Peters recognized this as Arizona's Transportation Director in 1999 when she sent a letter opposing an increase in the federal truck weight limit from 80,000 pounds to 97,000 pounds. She cited safety concerns and the extra damage to bridges from these ultra-heavy trucks. Legislation (S.3059, the "Commercial Truck Fuel Savings Demonstration Act of 2008") is now pending in the Senate to allow truck weight limit increases such as this. Does the Administration support or oppose this bill?

Answer:

The Secretary has made clear that the Department will not pursue changes in the current truck size and weight limits, with the possible exception of higher limits on dedicated truck lanes. We understand what Maine hopes to accomplish, but nevertheless have a number of concerns.

- S. 3059 would authorize a gross weight of 100,000 pounds on the Maine Interstate System. This weight limit would violate the Federal bridge formula, which is designed to ensure the safety and structural integrity of our nation's bridges, and increase damage to Maine's pavement and bridges. An increase in the gross vehicle weight of a typical 5-axle tractor-semitrailer combination above 80,000 pounds would cause additional pavement and/or bridge damage. The most a 6-axle tractor-semitrailer combination may weigh without causing additional pavement or bridge damage is 88,000 pounds, assuming a 53-foot semitrailer.
- The actual decrease in pavement life for Maine's infrastructure would depend on the numbers of 100,000-pound trucks. It is a safe assumption to say that if the pilot program results in a 20 percent increase in 100,000 lbs. vehicles, then pavement life would be reduced by 8-10 percent over the normal expected deterioration rate.
- While the legislation is characterized as a demonstration, the project could be discontinued only under limited circumstances. The bill provides that the project

shall terminate in 2 years if, prior to the end of the 2-year period, the Secretary determines there has been an adverse effect on the "overall highway network in Maine". First of all, this determination should apply to the Interstate System, not to the overall highway system. Secondly, the analysis should include not only safety but the impact on the condition of the Interstate System. Third, if a deleterious effect is found, the Secretary should be in a position to terminate the project immediately, not as much as 2 years later.

Question 2:

According to a report by your agency published in 2000 ("Addendum to the 1997 Federal Highway Cost Allocation Study Final Report," U.S. Department of Transportation, Federal Highway Administration, May 2000), trucks heavier than 80,000 pounds cause twice as much damage to roads and bridges as they pay for in federal fees and highway gas taxes. How do we get these excess-weight trucks to pay their fair share of the damage they cause to bridges?

Answer:

The 1997 Federal Highway Cost Allocation Study Final Report outlined 6 options for improving the equity of Federal highway user charges. The first two options increased the diesel fuel tax by one and six cents per gallon respectively. While those options marginally improved overall user fee equity, they did little to reduce the underpayment of Federal fees by the heaviest trucks. The third and fourth options changed Federal heavy vehicle use tax (HVUT) rates. The third option removed the cap on the HVUT without changing the basic rate structure (the HVUT currently does not increase for weights above 75,000 pounds). This option made some small improvements in user fee equity, but trucks operating above 80,000 pounds still would pay only about 60 percent of their cost responsibility on average.

The fourth option tested a progressive HVUT rate structure where the fee increased with increasing gross vehicle weight. The rate structure tested in that option resulted in almost all vehicle classes paying within 10 percent of their cost responsibility. The fifth and sixth options examined improvements that could be realized by replacing current truck taxes with weight distance taxes. The fifth option examined a weight distance tax structure that varied only according to the gross vehicle weight of the vehicle and the sixth option tested a structure that varied with both gross vehicle weight and the number of axles on the vehicle. Under both options rate structures were developed that resulted in very close correlation between user fee payments and cost responsibility for all but the lightest vehicle classes which continue to pay more than their cost responsibility under all options.

States have one set of options for improving user fee equity that is not available at the Federal level. States can levy permit fees on heavy vehicles that must operate under special permits. Those fees could be set to recover the estimated wear and tear caused by the overweight vehicle while operating under special permit. However, most States do not set their pennit fee structures to cover the infrastructure costs associated with the overweight movement.

From Senator Benjamin CardinQuestion 1:

My home state of Maryland and others states currently enjoy the flexibility to transfer up to 50 percent of their Highway Bridge Program funds to other transportation infrastructure categories. This means that project prioritization and asset management are largely left up to the state transportation authorities. They decide what is best for their own states. S. 3338/H.R. 3999 would restrict this flexibility. Is a new restriction on the states' flexibility to manage their own transportation assets necessary for achieving bridge rehabilitation priorities?

Answer:

No. The Administration supports maximum flexibility for States to determine and address their highest priorities and most critical needs and objects to provisions in the bills that restrict such flexibility. The Administration supports a risk-based approach to identifying and prioritizing highway bridge replacement, rehabilitation, preservation, and inspection. We believe that a national approach to decision-making must recognize the diversity of the transportation challenges from State to State.

At the foundation of the Administration's Reform Proposal, there is an increase in State and municipal flexibility by consolidating stove-piped highway and transit programs, while allowing States and metro areas broad eligibility to invest in the projects likely to yield the greatest returns.

Question 2:

What steps are you taking at the FHWA to encourage states to utilize newer inspection technologies, like radar and ultrasound, without necessarily imposing a mandate? What is the FHWA doing to develop state-of-the-art technologies that would provide real-time feedback on bridge safety?

Answer:

For many years, the Federal Highway Administration (FHWA) has been at the forefront in the development, evaluation, improvement, and deployment of technologies associated with the inspection of bridges and other highway physical infrastructure (e.g., pavement, tunnels, geotechnical constructions), and in tools and technologies associated with long-term monitoring. In fact, FHWA recognized the importance of this area when it formally created a Non-Destructive Evaluation (NDE) laboratory in 1996 which, to this day, continues to provide national leadership in the development and promotion of bridge inspection and evaluation technology.

Over the past 15 to 20 years, a number of bridge inspection and monitoring technologies have been developed or supported through the efforts of the FHWA's Turner-Fairbank Highway Research Center (TFHRC) and its NDE Center. Overall, we can identify approximately 15 specific sensors and system types, many of which have been commercialized or are currently being refined for use by the commercial sector.

Some examples of these technologies include the following:

- FHWA developed a system to measure vertical and rotational stiffness of bridge foundations using truck loads as a method to differentiate between shallow and deep foundations on bridges where the foundation type is unknown. The methodology was subsequently commercialized and is currently available from a firm located in Arlington, MA.
- FHWA developed 3-dimensional imaging capabilities using ground penetrating radar (GPR) technology, which enhances the ability of GPR to detect deterioration in concrete bridge decks. The techniques and methods have been adopted by commercial GPR vendors and are used for rapid, network level bridge deck evaluations.
- FHWA developed a sensor to passively measure the maximum strain experienced on a bridge to detect and quantify overloading. The sensor has been commercialized and is currently available from a firm in Alpharetta, GA.
- FHWA developed and evaluated systems to test large bridge cables using the magnetic flux leakage principle in cooperation with Southwest Research Institute (San Antonio, TX). The technology has since been commercialized and is being marketed by several companies.
- FHWA developed methods and engineered systems for rapidly applying thermal imaging for the detection of defects in concrete bridge components. This has since been commercialized and is marketed as infrared thermography and is commercially available and used on a limited basis for bridge inspection.

The FHWA, in conjunction and collaboration with States, academia, and industry, continues to support the development of new bridge inspection and monitoring technologies, assist in the improvement of existing technologies, and in the promotion and deployment of these technologies. For example, under a program designated in SAFETEA-LU as the "Steel Bridge Testing" program (Section 5202(d)), FHWA is conducting laboratory and field evaluations of five advanced technologies that have the potential to improve the detection and characterization of fatigue cracks in steel bridge members.

There are a number of other activities currently under way within FHWA that are focused on bridge (and other highway infrastructure) inspection and evaluation technologies, and in continuous monitoring. Among these are:

- The Bridge Inspection NDE Showcase (BINS) -a one-day showcase highlighting a number of advanced technologies that may be underutilized in many State inspection programs. This one-day showcase is targeted at both the managers of a State's inspection program and the field inspectors. BINS provides a hands-on opportunity to learn about the strengths and limitations of these five technologies, and how they can be used effectively in the field. BINS has been pilot-tested in one state, and will be rolled out nationwide shortly.
- The NDE Web Manual -an internet-based tool that will provide guidance to those that own, operate, inspect, and manage a range of highway infrastructure systems, including bridges, pavement, tunnels and geotechnical constructions. The NDE Web Manual, which is currently under development, will provide technical and administrative information on the range of tools and technologies available to help inspect highway structures, and to diagnose and evaluate specific problems. It will include white-papers detailing the technologies and their use in the field, and maintain a database of technology providers that States and others can use as a reference and in their contracting practices.
- Improved technologies for inspecting non-visible or hard to access bridge components –one of the major gaps in today's bridge inspection technology is the availability of reliable and economical tools that can inspect components or elements that are not readily visible or accessible. An example of this is embedded concrete reinforcing steel and ducted prestressing strand, widely used on virtually all highway bridges. With funding allocated via the SAFETEA-LU Technical Corrections Bill, FHWA will soon be initiating a major research and technology program to improve the capability of existing NDE and inspection tools so that they can provide better and more reliable data on the condition of these otherwise non-inspectable bridge elements.

FHWA has also actively promoted and provided education on the use of advanced bridge inspection technologies via its suite of formal training courses and documents provided by the FHWA's National Highway Institute and Resource Center. This array of bridge inspection training courses serve as an effective means of ensuring that proper inspection training, procedures, techniques and technology are being implemented in a uniform manner to mitigate human error and minimize subjectivity in inspections. In the last few years, FHWA has revised the Bridge Inspector's Reference Manual and developed a new course in underwater bridge inspection, both of which include material on the application of new inspection technologies.

Finally, under SAFETEA-LU, Congress authorized FHWA to conduct the Long-Term Bridge Performance (LTBP) program, an innovative program that will gather quality performance data about bridges from environmental impacts to load history. The program

is strategic and ambitious, and as initially conceived, is to be a 20-year, three-element research effort designed to help bridge engineers better understand why bridges behave the way they do, and to improve design models, develop quality management strategies, and ultimately make better decisions. These three program elements included conducting detailed periodic inspections on a nationally representative sample of in-service and new bridges in order to monitor and measure the performance of these bridges over time; instrumenting and continuously monitoring a subset of these bridges in order to capture longer-term real-time bridge performance and operational data; and conducting detailed forensic autopsies of decommissioned bridges.

One of the original goals of the LTBP program was to conduct research to develop, test, evaluate, and apply technology to overcome the limitations of current bridge inspection and bridge management practices. We are using the currently available funding for the program to conduct the 20-year data collection and evaluation component of the three-part vision.

From Senator Bernard Sanders

Question 1:

Has the FHWA looked in to why the states haven't been able to spend these bridge monies?

Answer:

Authorized contract authority for the Highway Bridge Program (HBP) is subject to an annual limitation on obligations, which is a contributing factor as to why States have not been able to spend all of their HBP funds. The obligation limitation controls the total amount of funds which may be obligated by the States in a given fiscal year for apportioned Federal-aid highway programs, including the HBP. The obligation limitation typically is lower than the total amount of funds authorized in a fiscal year. States also have some discretion as to which program funds (HBP, Surface Transportation Program, National Highway System, Interstate Maintenance, etc.) they will use with the obligation limitation. The combination of these two aspects of the Federal-Aid Highway Program, an unequal amount of spending authority and the State's discretion to choose which federal program funds to obligate, can lead to unobligated HBP funds.

Another combination of contributing factors are bridge projects are relatively more costly and annually appropriated HBP funds are available for obligation over a multi-year period. Some States may choose to accumulate annual authorizations of HBP funds in order to amass enough funds for a single large bridge project. For each of the years leading up to the obligation of the single large bridge project, a State will have relatively high unobligated HBP funds.

The statutory non-federal share matching requirements may also be reason. If a State or local government agency is unable to meet the non-federal share matching requirements of HBP funds, then there will be an unobligated balance HBP funds. Fortunately, HBP funds have a multi-year availability for obligation. This gives the State or local government agency time to collect the needed non-federal matching share.

Question 2:

How do the unobligated balances in the Highway Bridge Programs compare to the other highway programs?

Answer:

The unobligated balances for the Highway Bridge Program are comparable to other core apportioned highway programs. As of September 30, 2007, the unobligated balances for the Highway Bridge Program totaled \$3.9 billion, or 23 percent of total unobligated balances for apportioned programs. This amount was slightly higher than the percentages for the Interstate Maintenance, National Highway System, and Congestion Mitigation and Air Quality programs, but significantly lower than the percentage for the Surface Transportation Program.

From Senator James InhofeQuestion 1:

Would you consider the added inspection and inventory requirements of this proposed bridge bill to be a beneficial improvement that would save lives and result in improved investment decisions?

Answer:

Not necessarily. There are provisions in the bill that could lead to improved investment decisions, but it would depend on how the provisions are interpreted and implemented. It is impossible to say that the provisions would save lives. Our current bridge program has resulted in a very high level of safety across the board, but tragedies like I-35W have still occurred in very rare instances.

Question 2:

The poor condition of our nation's bridges is widely publicized. Do you think our bridges are more dangerous or in worse condition relative to the rest of our highway infrastructure? Do you think we should have a separate bridge program or would it be better to require states to evaluate their transportation needs and priorities as a whole?

Answer:

There is no known index to compare the safety of bridges to the rest of our highway infrastructure and the Federal Highway Administration (FHWA) sees little value in making such a comparison. Through the National Bridge Inspection Program, bridge owners monitor bridge conditions to assess the safety and reliability of a structure. If a bridge is determined to be unsafe, then the structure must be closed.

A national bridge inspection program, as opposed to a separate program for bridge replacement, rehabilitation, and preservation, is needed not only as a means to evaluate the condition of bridges thereby identifying the needs of our nation's assets, but more importantly it is a means of ensuring the safety of the traveling public. In terms of bridge funds, the Administration's Reform Proposal contains no dedicated funding for bridge projects, i.e., the Highway Bridge Program. This does not mean the FHWA proposes to eliminate funding in this area. The FHWA recognizes that bridge maintenance, and especially with an aging bridge inventory, safety, are important priorities. Under this proposal, bridge replacement and rehabilitation projects in particular would be eligible for funding under both the Federal Interest Highway Program and Metro Mobility Program.

At the foundation of the Administration's Reform Proposal, there is an increase in State and municipal flexibility by consolidating stove-piped highway and transit programs, while allowing States and metro areas broad eligibility to invest in the projects likely to yield the greatest returns.

Further, the Administration supports maximum flexibility for States to determine and address their highest priorities and most critical needs and objects to provisions in the bills that restrict such flexibility. The Administration supports a risk-based approach to identifying and prioritizing highway bridge replacement, rehabilitation, preservation, and inspection. The FHWA believes that a national approach to decision-making must recognize the diversity of the transportation challenges from State to State.

Question 3:

Do you believe there is a better way to prioritize structurally deficient bridges in terms of which bridges should be fixed first?

Answer:

Yes. Currently, bridges are programmatically determined to be eligible for Highway Bridge Program funds based on the bridge's deficiency status (structurally deficient, functionally obsolete, and non-deficient) and Sufficiency Rating. Bridges that are deficient (structurally deficient or functionally obsolete) that have a Sufficiency Rating less than 50 are eligible for replacement or rehabilitation and bridges with a Sufficiency Rating less than or equal to 80 are eligible for rehabilitation. States then have the discretion to select and further prioritize from the eligible bridges which projects to move forward. This process, although has functioned well for some time, can be and should be improved to target those bridges with the greatest needs while taking into account federal interests and continuing to focus on safety.

The Administration supports a risk-based approach to identifying and prioritizing highway bridge replacement, rehabilitation, preservation, and inspection, not only for structurally deficient bridges, but all bridges. The FHWA also believes that a national approach to decision-making must recognize the diversity of the transportation challenges from State to State by providing maximum flexibility for States to determine and address their highest priorities and most critical needs.

The Administration recognizes the benefits of 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, we object to those provisions that run counter to this objective. For example, the bill specifies 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 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 make their technological investment decisions on a case-by-case basis.

In general, 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.

Question 4:

The Administration was very vocal in its opposition to the Congressional proposal to restore the \$8 billion transferred from the trust fund to the general fund in 1998 to fix this. Why do you now support the idea?

Answer:

The Administration strongly opposes using general fund receipts to fund highway programs. These programs have a long history of being funded by users of the highway system, and we believe that should continue. However, the Administration had to weigh the necessity of a short term solution to timely pay the U.S. Government's legal obligations to the State Departments of Transportation against this strongly held belief.

The Secretary asked that Congress pass legislation to provide the \$8 billion as quickly as possible and send it to the President's desk for his signature in order to continue timely payments to states for highway program reimbursements.

The \$8 billion transfer is far from an ideal solution. Taking money from the general fund to finance surface transportation sets a dangerous and disturbing precedent. But there is a different picture today – particularly with the dramatic decline in vehicle miles traveled (VMT) and the corresponding decline in fuel tax revenue in the Highway Trust Fund. This points to the need to identify a more sustainable method of funding surface transportation for the future.

Question 5:

Please provide the exact date that was it brought to the attention of you or anyone on your staff that the Trust Fund might not be able to fully meet its commitments for Fiscal Year 2008.

Answer:

The Federal Highway Administration (FHWA) has been closely monitoring the Highway Account balance. We determined that if the balance in the Highway Account reached \$3 billion or less, steps would need to be taken immediately to manage cash flow on a daily basis and prepare for a cash shortfall. The trigger for these actions was set at \$3 billion because at this level there is insufficient cushion for a program that outlays approximately \$4 billion each month from August through October.

FHWA determined in August that the Highway Account balance had reached \$3 billion. This drop in balances was primarily due to higher than projected gas prices this summer which depressed HTF receipts. Moreover, on August 21, the balance in the Highway Account was reduced by an additional \$631 million after the IRS certified actual receipts for the second quarter of FY 2008. While IRS performs these updates routinely, there is not a way to forecast the direction or size of the adjustment.

FHWA immediately began putting together a plan for managing a shortfall and treating all States fairly. That plan was announced Friday, September 5.

Senator BOXER. Thank you very much.

And now we will hear from Katherine Siggerud, Managing Director of Physical Infrastructure Issues from the GAO. Welcome.

STATEMENT OF KATHERINE SIGGERUD, MANAGING DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, UNITED STATES GOVERNMENT ACCOUNTABILITY OFFICE

Ms. SIGGERUD. Thank you, Chairman Boxer, Ranking Member Inhofe, members of the Committee.

Thank you for inviting me to today's hearing on the Federal bridge program and the proposed bridge legislation that is before this Committee. We are all aware of the shocking collapse of the I-35W bridge in Minneapolis last year. It has of course raised questions about the condition and safety of our Nation's bridges and about the Federal programs that fund their inspection and repair.

I am here today to discuss the work that this Committee and the Homeland Security and Government Affairs Committee requested of us regarding the Federal program. To the extent that our work touches on areas of the proposed legislation, I will also provide those observations.

To provide context, our review focused on the Highway Bridge Program that provides annual formula grants, over \$4 billion in 2007, to States for replacing and rehabilitating bridges. While most bridges are in good condition, inspections result in some bridges being classified as deficient. This includes structurally deficient bridges that have at least one component in poor condition and functionally obsolete bridges, whose current design is no longer adequate for the traffic they serve.

You asked us to review how States use the bridge program and make decisions about funding bridge improvements. It is important to understand that the program gives States broad discretion to use program funds and select bridge projects. Some States are focused on reducing their number of deficient bridges, while other States are pursuing additional bridge safety priorities. For example, California, as you noted, Madam Chair, has focused on seismically retrofitting bridges.

While classifying bridges as deficient is a useful snapshot of their condition, it is generally not viewed as useful for setting repair priorities, because it doesn't always equate to immediate safety risk. Therefore, many States have developed tools for selecting bridge projects that go beyond the Federal rating system. These include bridge management systems, capturing detailed information about bridge elements and State-specific bridge condition ratings. The program allows States to transfer a portion of the bridge program funds to other Federal highway programs and about half of them have done that at some point since 1998. The overall effect of this is difficult to determine, since States have also used funds from other Federal highway programs for bridge repairs.

There is good news with regard to bridge condition. The number of structurally deficient bridges has decreased by 22 percent over the past decade. But continuing this level of progress on bridges will be difficult, given aging of the significant number of bridges built in the 1950's and 1960's. The overall improvement we found

is most notable on rural bridges and locally owned as opposed to State bridges. It is likely that the bridge program made a contribution to these improvements. But the extent was hard to determine because the program is only one of several funding sources the States use.

In addition, as I noted, States are using the funds both for reducing their deficient bridges and for other purposes whose results are not measured. In our view, given the significant needs and fiscal challenges facing this and other Federal Aid Highway programs, it is important to assure that this program is having strong results. Both next year's authorization and the legislation we are discussing today provide an opportunity to do so.

With regard to reauthorization, we have established several principles for the reform of the Federal Aid Highway program that we applied in our review of the bridge program. First, are there clearly identified interests and program goals that reflect them? The program's broad eligibility makes nearly any bridge potentially eligible for Federal funding. Reconsidering this policy could lead to a focus, for example, on passenger and freight mobility along with safety that could guide the use of Federal bridge dollars. The legislation's requirement that all of its additional funds be focused on structurally deficient bridges on the national highway system could be a step in the direction of defining the Federal interest.

Second, programs should tie together funding, performance and accountability. The program does not require that goals be set and progress be measured in its formula, like other parts of the Federal Aid Highway Program, and does not tie States' level of funding to performance improvements. The legislation's requirement for risk-based prioritization and performance plans has the potential to move in this direction, depending on how these are implemented. In our view, these would be most effective if, one, they are also used to measure and report results; two, they are tied to funding; and three, they build on, rather than replace, similar systems already in place in many States.

Furthermore, it would be most useful to consider these reforms together with an overall reform of surface transportation programs that are facing similar issues focused on performance and accountability.

Finally, fiscal sustainability is a significant challenge. Analysis shows that additional investments in bridges and roads in general, if properly prioritized, will have important safety and economic benefits. Bridges are aging and the demand for these projects will continue and likely increase. This will need to be addressed in overall revisions of the Federal Aid Highway program and actions to address the crisis in the Highway Trust Fund.

Chairman Boxer, this concludes my statement. I am happy to answer any questions you may have.

[The prepared statement of Ms. Siggerud follows:]

United States Government Accountability Office

GAO

Testimony
Before the Committee on Environment
and Public Works, U.S. Senate

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HIGHWAY BRIDGE PROGRAM

Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program

Statement of Katherine Siggerud, Managing Director
Physical Infrastructure Issues



September 2008

HIGHWAY BRIDGE PROGRAM

Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program

Highlights of GAO-08-1127T, a testimony before the Committee on Environment and Public Works, U.S. Senate

Why GAO Did This Study

The August 1, 2007, collapse of a Minnesota bridge raised nationwide questions about bridge safety and the Department of Transportation's (DOT) prioritization of bridge resources. The Highway Bridge Program (HBP), the primary source of federal funding for bridges, provided over \$4 billion to states in fiscal year 2007. This testimony, based on a report GAO is releasing today, addresses (1) how states use HBP funds and select bridge projects for funding, (2) what data indicate about bridge conditions and the HBP's impact, and (3) the extent to which the HBP aligns with principles we developed, based on our prior work and federal laws and regulations, for re-examining surface transportation programs. The testimony also discusses the implications of our work for related sections of proposed legislation under review by this committee, the National Highway Bridge Reconstruction and Inspection Act of 2008 (S.3338).

What GAO Recommends

In the report released today, GAO made recommendations to improve the focus, performance, and sustainability of the HBP and DOT officials said they generally agreed with those recommendations. The DOT officials also commented that GAO's principles had broader applicability than the HBP, noting that they had incorporated the principles into the department's recent proposal for reforming surface transportation programs.

To view the full product, including the scope and methodology, click on GAO-08-1127T. For more information, contact Katherine Siggerud at (202) 512-2834 or siggerudk@gao.gov.

What GAO Found

As context for understanding GAO's findings on the HBP, based on information gathered during bridge inspections that are generally conducted every 2 years, the HBP classifies bridge conditions as deficient or not; assigns each bridge a sufficiency rating reflecting its structural adequacy, safety, serviceability, and relative importance for public use; and uses that information to distribute funding to states to improve bridges. Deficient bridges include those that are structurally deficient, with one or more components in poor condition, and those that are functionally obsolete, with a poor configuration or design that may no longer be adequate for the traffic they serve.

Use of HBP funds and project selection: The HBP affords states discretion to use HBP funds and select bridge projects in a variety of ways. Some states are focused on reducing their number of deficient bridges, while other states are pursuing different bridge priorities. For example, California has focused on seismically retrofitting bridges, a safety concern for that state. Furthermore, some states have developed tools and approaches for selecting bridge projects that go beyond those required by the HBP—such as bridge management systems and state-specific bridge condition rating systems.

Bridge conditions and impact of HBP: Bridge conditions, as measured by the number of deficient bridges and average sufficiency rating of all bridges, improved from 1998 through 2007. However, the impact of the HBP on that improvement is difficult to determine because (1) the program provides only a share of what states spend on bridges and there are no comprehensive data for state and local spending on bridges and (2) HBP funds can, in some cases, be used for a variety of bridge projects without regard to a bridge's deficiency status or sufficiency rating.

Alignment of HBP with GAO principles: The HBP does not fully align with GAO's principles in that the program lacks focus, performance measures, and sustainability. For example, the program's statutory goals are not focused on a clearly identified federal interest, but rather have expanded from improving deficient bridges to supporting seismic retrofitting, preventive maintenance, and many other projects, thus expanding the federal interest to potentially include almost any bridge in the country. In addition, the program lacks measures linking funding to performance and is not sustainable, given the anticipated deterioration of the nation's bridges and the declining purchasing power of funding currently available for bridge maintenance, rehabilitation, and replacement.

The results of our work are generally consistent with provisions of S.3338 that call for a risk-based prioritization process for selecting bridge projects, 5-year performance plans, and bridge management systems. Our work does raise some questions about the legislation's focus on all deficient bridges because some deficient bridges do not need immediate repairs to carry traffic safely.

Chairman Boxer and Members of the Committee:

I am pleased to be here today to participate in this hearing on federal efforts to address the condition of our nation's bridges. The August 1, 2007, collapse of the I-35W bridge in Minneapolis, Minnesota, raised questions about the condition and safety of our nation's bridges and about the federal government's ability to prioritize resources for bridges. Bridges are critical elements of the nation's transportation network, supporting commerce, economic vitality, and personal mobility. The Federal Highway Administration's (FHWA) Highway Bridge Program (HBP), the primary source of federal funding for bridges, provided over \$4 billion to states in fiscal year 2007. This program, which provides funding assistance to states to improve the condition of their bridges, specifies a large variety of activities that states may undertake with program funds.¹

Since the Minnesota bridge collapse, there have been calls for increased federal investment in bridge infrastructure. In July 2008, the House of Representatives passed H.R. 3999, the National Highway Bridge Reconstruction and Inspection Act of 2008, authorizing an additional \$1 billion for fiscal year 2009² from the U.S Treasury's general fund³ to address bridges, and shortly thereafter, a Senate companion bill to that legislation (S. 3338) was introduced in this committee. These calls for increased investment in bridge infrastructure coincide with strains on traditional funding for infrastructure projects because the Highway Trust Fund, which funds the HBP and other highway programs, is projected to incur significant deficits in the years ahead. We have also recently called for a fundamental re-examination of surface transportation programs and commitments to address emerging needs by eliminating outdated or

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

²The \$1 billion represents an amount in addition to what was authorized for 2009 for HBP and other related programs in the most recent surface transportation authorizing legislation enacted in 2005.

³The federal budget consists of several types of funds, including the general fund, trust funds (such as the Highway Trust Fund), and others. General funds are federal revenues not designated for specific purposes and they are used to fund, among other things, national defense, interest on the public debt, operating expenses of most federal agencies, and some entitlements and grants to state and local governments.

ineffective programs, more sharply defining the federal role in relation to state and local roles, and modernizing relevant programs.⁴

Given these concerns, my testimony today addresses (1) how states use their HBP funds and select specific bridge projects for funding, (2) what available data indicate about national trends in bridge conditions and the impact of the HBP, and (3) the extent to which the HBP aligns with principles we developed to guide the re-examination of surface transportation programs. Additionally, I am providing a perspective on related sections of the proposed bridge legislation under review by this committee (S.3338). My testimony is based on a report that we are releasing today.⁵

To determine how state transportation departments use their HBP funds and select specific bridge projects for funding, we visited six states—California, Missouri, New York, Pennsylvania, Texas, and Washington—where we interviewed federal, state, and local transportation officials, including bridge owners and inspectors. We selected these states because they have relatively high levels of federal bridge funding, large bridge inventories, and large inventories of bridges eligible for replacement or rehabilitation. To determine what available data indicate about trends in the condition of the nation's bridges and the impact of the HBP, we analyzed data in FHWA's National Bridge Inventory (NBI)—the primary source of information on the nation's bridges—which contains information on each bridge's location, size, age, condition, inspection dates, and other information; reviewed relevant legislation and program documents; and interviewed federal, state, and local transportation officials. To determine the extent to which the HBP aligns with our principles for re-examining federal programs, we compared HBP practices to the four key principles we identified in our previous work, including identifying clear federal goals and roles, incorporating performance and accountability into funding decisions, using best tools and approaches,

⁴GAO, *Surface Transportation: Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs*, GAO-08-400 (Washington, D.C.: Mar. 6, 2008).

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

and ensuring fiscal sustainability.⁶ We conducted our review from October 2007 through September 2008 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained meets these standards.

Summary

The HBP affords states discretion to use HBP funds and select bridge projects in a variety of ways. Some states are focused on reducing their number of deficient bridges,⁷ while other states are pursuing different bridge priorities. For example, California has focused on seismically retrofitting bridges, a safety concern for that state. In addition, some states transfer a portion of their HBP funds to other transportation priorities as allowed by the program, though some of these transferred HBP funds may still be spent on bridges, as well as other work on roadways. Furthermore, some states have also developed tools and approaches for selecting potential bridge projects that go beyond those required by the HBP—such as bridge management systems, highly detailed inspections of bridge elements, state-specific bridge condition ratings, and various prioritization processes—to help them better gauge bridge conditions and further inform their selection of bridge projects for funding. For example, all six states we visited have adopted, or are considering, some form of bridge management system to help them manage their bridge assets and more efficiently allocate their HBP and other bridge funds among competing bridge priorities.

⁶These principles were developed in our earlier work on 21st century challenges and were based on our institutional knowledge, our extensive program evaluation and performance assessment work for the Congress, and federal laws and regulations. See GAO, *21st Century Challenges: Re-examining the Base of the Federal Government*, GAO-05-325SP (Washington, D.C.: Feb. 1, 2005) and GAO, *High Risk Series: An Update*, GAO-07-310 (Washington, D.C.: Jan. 31, 2007).

⁷The HBP classifies bridge conditions as deficient or not. Deficient bridges include those that are structurally deficient, with one or more components in poor condition, and those that are functionally obsolete, with a poor configuration or design that may no longer be adequate for the traffic they serve.

Bridge conditions, as measured by the number of deficient bridges and the average sufficiency rating of all bridges in the NBI,⁸ improved from 1998 through 2007. For example, the number of structurally deficient bridges decreased by 22 percent from 1998 through 2007, from 93,118 to 73,519 bridges nationwide. The average sufficiency rating of all bridges also improved slightly during that period, with the improvements most notable in bridges owned by local agencies and on rural routes. However, the impact of the HBP on that improvement is difficult to determine, in part, because (1) the program provides only a share of what state and local governments spend on bridges and there are no comprehensive data for state and local spending on bridges and (2) HBP funds can, in some cases, be used for a variety of bridge projects without regard to a bridge's deficiency status or sufficiency rating.

The HBP does not fully align with the re-examination principles that we previously identified in our work in that the program lacks focus on federal or national interests, performance measures, and sustainability. For example, the program's goals—which are established in federal statute⁹—are not focused on a clearly identified federal interest. Rather, the goals have expanded from improving deficient bridges to supporting seismic retrofitting, preventive maintenance, and many other projects, thus expanding the federal interest to potentially include almost any bridge in the country. In addition, the HBP lacks measures linking funding to performance, and it is not sustainable, given the anticipated deterioration of the nation's bridges and the declining purchasing power of funding currently available for bridge maintenance, rehabilitation, and replacement. Once the federal interest in bridges is clearly defined, policymakers can clarify the goals for federal involvement and align the program to achieve those goals. HBP sustainability may also be improved by identifying and developing performance measures and re-examining funding mechanisms. In our report released today, we recommend that DOT work with Congress to improve the focus, performance, and sustainability of the HBP by defining specific national goals, establishing and implementing performance measures, evaluating best tools and practices, and evaluating HBP's funding mechanisms to better support a targeted and sustainable program. In commenting on a draft of the report,

⁸In addition to classifying bridges as deficient or not, the HBP also assigns each bridge a sufficiency rating reflecting its structural adequacy, safety, serviceability, and relative importance, and it uses this information in distributing HBP funding to the states.

⁹See 23 U.S.C. § 144.

DOT officials said that they generally agreed with our findings and recommendations, and they provided technical clarifications which we incorporated in the report and this testimony, as appropriate. DOT officials also commented that our re-examination principles had broader applicability than the HBP—noting that they had incorporated the principles into the Department's recent proposal for reforming surface transportation programs.

Finally, our work on the HBP has implications for several provisions of the proposed legislation under review by this committee, the National Highway Bridge Reconstruction and Inspection Act of 2008 (S.3338). In particular, the results of our work are consistent with the overall provisions calling for the establishment of a risk-based prioritization process for selecting bridge projects, 5-year performance plans, and bridge management systems. Our work does raise some questions about the scope of these activities, particularly the legislation's focus on all deficient bridges, because all deficient bridges are not necessarily unsafe, according to many of the state transportation officials we interviewed.

Background

Bridge safety first emerged as a high-priority issue in the United States in the 1960s, following the collapse of the Silver Bridge between Ohio and West Virginia, which killed 46 people. That collapse prompted national concerns about bridge conditions and safety and highlighted the need to repair and replace bridges before they collapse. Congress responded by establishing two major federal bridge programs: (1) the National Bridge Inspection Program (NBIP) to ensure periodic safety inspection of bridges and (2) what is now known as the HBP to provide a funding mechanism to assist states in replacing and rehabilitating bridges. Both of these programs generally define applicable bridges as publicly owned, over 20 feet in length, and located on public roads. Although the NBIP and HBP are separate programs, they are linked by the data collected through bridge inspections. For example, bridge information gathered through NBIP inspections is one factor used to determine the amount of HBP funding apportioned to states.

The NBIP establishes federal standards, known as the National Bridge Inspection Standards, and program requirements for the proper safety inspection and evaluation of bridges. These standards establish by whom, with what frequency, and how bridge inspections are to be completed. For example, state departments of transportation (DOTs) carry out the federal-level policies, procedures, and requirements for inventory, inspection, bridge load ratings, quality assurance, and reports. Routine bridge

inspections are generally conducted every 2 years, but with FHWA approval, the inspection interval may be extended to 4 years on certain bridges. Bridges may be inspected more often than every 2 years, when past inspection findings justify an increased inspection frequency. Bridge inspectors must record bridge data, including bridge conditions, during the inspection and report that information to the NBI, maintained by FHWA headquarters.

Based on information gathered during bridge inspections and reported to the NBI, the HBP classifies bridge conditions as deficient or not; assigns each bridge a sufficiency rating reflecting its structural adequacy, safety, serviceability, and relative importance; and uses that information to provide funding for states to improve bridges. Deficient bridges include those that are structurally deficient, with one or more components in poor condition, and those that are functionally obsolete, with a poor configuration or design that may no longer be adequate for the traffic they serve. FHWA uses information in the NBI to annually apportion HBP funds to the states. While each state's HBP apportionment amount is largely determined by bridge conditions and bridges generally must be below a certain condition threshold to qualify for HBP funding, other bridges are also eligible for HBP funds because states may use the funds for a broad array of other purposes, such as bridge preventive maintenance projects.

All bridges are grouped into one of two general categories: Federal-aid highway bridges and bridges not on Federal-aid highways. The NBIP and the HBP generally apply to both categories of bridges located on public roads.¹⁰ Federal-aid highway bridges are generally located on the National Highway System, a 160,000-mile network that carries over 40 percent of the nation's highway traffic.¹¹ Non-Federal-aid highway bridges are generally located on local or rural roads that carry lower volumes of traffic than state-owned bridges.

¹⁰The NBIP standards do not apply to pedestrian or railroad bridges, bridges on private roads, or tunnels. FHWA encourages states to require private organizations to inspect privately owned bridges according to those standards. States are not responsible for the inspection of bridges owned by federal agencies.

¹¹The National Highway System (NHS) is made up of five components, including (1) the Interstate System, (2) selected other principal arterials, (3) the Strategic Highway Network, (4) Major Strategic Highway Network connectors, and (5) intermodal connectors that provide access between major intermodal passenger and freight facilities and other NHS components.

State DOTs Exercise Discretion in Determining How to Use HBP Funds and Select Bridge Projects for Funding

The HBP affords state DOTs discretion in determining how to use their HBP funds, and as a result, states use HBP funds and select bridge projects in a variety of ways. The HBP gives states three key flexibilities in determining how to use their HBP resources. First, the HBP has evolved to allow states to use program funds not only for bridge replacement and rehabilitation, but also for a broad array of purposes—including painting, seismic retrofitting, systematic preventive maintenance, installation of scour countermeasures (to address the effects of sediment erosion around bridge piers and abutments), and anti-icing or deicing applications—regardless of the bridge's condition. In addition, FHWA has determined that the costs for personnel and equipment used in bridge inspections and for bridge management systems are consistent with the purpose of the HBP and therefore are also eligible uses for HBP funds. Thus, states have the flexibility to use HBP funds on bridge projects that may not immediately reduce their inventory of deficient bridges. Secondly, states have flexibility in determining how to split HBP resources between state and locally owned bridges. Aside from a requirement to distribute funds equitably, the only HBP requirement applicable to states' allocation of program funds is that states must spend a minimum (15 percent) on non-Federal-aid highway bridges. Third, states may also spend program funds on other, nonbridge, transportation priorities by transferring up to 50 percent of their annual HBP funding to other core Federal-aid highway programs,¹² though a penalty is invoked by reducing the state's HBP funds in the succeeding year by the amount transferred. Many states have taken advantage of this provision over the years and transferred some of their HBP funding to other programs, although FHWA officials pointed out that some of the transferred HBP funds may still be spent on bridges and funds from other Federal-aid highway programs may also be spent on bridges. FHWA data show that significant funds have flowed toward bridges from other programs which, from a national perspective, exceed outflows from the HBP. Finally, planning for how HBP funds are spent is generally under the control of state DOTs; once states select bridge projects, they may apply to FHWA for the federal share of the costs, which is generally 80 percent of the project cost.¹³

¹²The majority of Federal-aid highway infrastructure funding is distributed through seven major programs, often referred to as core highway programs. These programs are the National Highway System Program, Surface Transportation Program, Interstate Maintenance Program, HBP, Congestion Mitigation and Air Quality Improvement Program, Highway Safety Improvement Program, and the Equity Bonus Program.

¹³The federal share for bridge projects on the Interstate System is 90 percent.

In part due to these flexibilities, state DOTs we visited have established a range of priorities for their HBP funds—from reducing the number of their deficient bridges to seismically retrofitting their bridges—and some opted to transfer their HBP funds to fund other transportation priorities. Although the key purpose of the HBP is to enable states to improve the condition of their deficient bridges, some state transportation officials we interviewed explained that they do not focus on reducing their inventories of deficient bridges for several reasons:

- *Deficient bridges are not necessarily unsafe.* Many state transportation officials we interviewed told us that some of the deficient bridges in their states are in at least reasonably good condition and are safe. In addition, FHWA reported in 2007 that classifying a bridge as deficient does not immediately imply that it is likely to collapse or that it is unsafe.¹⁴ According to the FHWA report, if proper vehicle weight restrictions are posted and enforced, deficient bridges can continue to serve most traffic conditions. FHWA requires that bridge owners close to traffic any bridges that they determine to be unsafe.
- *The HBP apportionment formula may create a disincentive to improve deficient bridges.* Many federal and state officials we met with noted this potential disincentive that occurs because reducing the number and deck area of deficient bridges reduces a state's HBP funding eligibility.¹⁵
- *Some deficient bridge projects can be cost-prohibitive.* Some state officials explained that certain large-scale bridge projects—often the most traveled, urban bridges on interstate corridors—are too expensive to be implemented with HBP funds alone, especially costly “mega” projects that have an estimated total cost greater than \$500 million.

State DOTs use a variety of criteria, tools, and methods to select among potential bridge projects. Officials in the six states we visited use criteria such as bridge condition ratings, average daily traffic over bridges, local transportation priorities, or funding availability when prioritizing and selecting among potential bridge projects. Some states have also

¹⁴DOT, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, D.C.: Jan. 22, 2007).

¹⁵FHWA apportions, or divides, the annually authorized HBP funds among the states according to a statutory apportionment process that considers a number of factors, including a state's total deficient bridge deck area. Therefore, reducing the number and total deck area of deficient bridges reduces a state's HBP funding eligibility.

developed tools and approaches beyond those required by the HBP—such as bridge management systems, element-level inspections, state-specific condition ratings, and various prioritization approaches—to help them gauge bridge conditions and further inform their selection of bridge projects for funding. For example, all of the states we visited have adopted, or are considering, some form of bridge management system for gathering and analyzing bridge data to help manage their bridge assets and more efficiently allocate limited HBP resources among competing bridge priorities. States use these systems to predict future bridge conditions, estimate bridge maintenance and improvement needs, determine optimal policies for rehabilitation and replacement, and recommend projects and schedules within budget and policy constraints. FHWA has actively encouraged, but has not required, states to use bridge management systems, in part, by providing state transportation officials with relevant training and technical support.¹⁶ In addition, all of the states we visited required bridge inspectors to gather more detailed “element-level” bridge condition data, thereby exceeding the federal inspection requirements that require inspection of only the three major bridge components (superstructure, substructure, and deck).¹⁷ Furthermore, some state DOTs use their own bridge rating systems to better gauge bridge conditions and to inform their selection of bridge projects for funding. For example, the New York State DOT uses its own condition rating scale, which is based on an assessment of 47 individual bridge elements, to prioritize bridge projects. Finally, state DOTs use different methods to prioritize and select bridge projects for funding. Whereas some states we visited had highly centralized prioritization processes, others allowed the process to vary across the state.

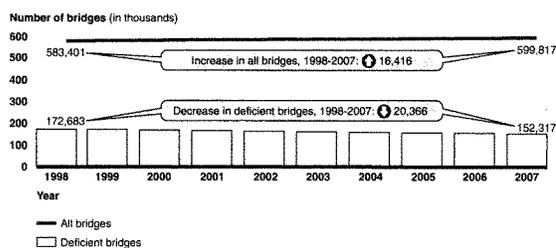
¹⁶There is currently no federal requirement that states use a bridge management system. The Intermodal Surface Transportation Efficiency Act of 1991 introduced a requirement that states implement bridge management systems by December 1993, but this requirement was repealed by the National Highway System Designation Act of 1995.

¹⁷The superstructure is the portion of a bridge's structure that spans the obstacle the bridge is intended to cross (e.g., a waterway). The substructure consists of all parts that support the superstructure.

Available Data Indicate That the Overall Condition of the Nation's Bridges Has Improved, but the Impact of the HBP Is Difficult to Determine

Bridge conditions, as measured by the number of deficient bridges and average sufficiency rating, improved from 1998 through 2007. According to NBI data, the total number of deficient bridges—including both structurally deficient and functionally obsolete bridges—has decreased over the last 10 years, even as the total number of bridges has increased. From 1998 through 2007, the number of deficient bridges declined by nearly 12 percent, from 172,683 to 152,317, even with the addition of more than 16,000 new bridges to the NBI (see fig. 1).

Figure 1: Trends in Numbers of Bridges and Deficient Bridges, 1998 through 2007

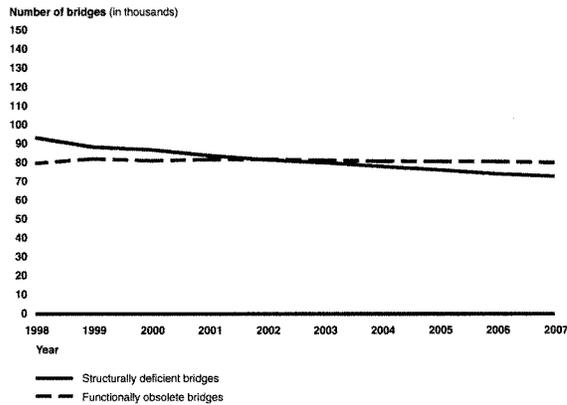


Source: GAO analysis of FHWA data.

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

The decline in the overall number of deficient bridges over the past decade reflects a reduction in the number of structurally deficient bridges. From 1998 through 2007, the number of structurally deficient bridges decreased by 22 percent, from 93,118 to 72,519 (see fig. 2). During that same period, the number of functionally obsolete bridges increased slightly from 79,565 to 79,798, an increase of 233 bridges. The reduction in the number of structurally deficient bridges, rather than functionally obsolete bridges, over this time period may reflect bridge owners' efforts to address the deterioration or damage that are characteristic of structurally deficient bridges. Although reducing or eliminating structurally deficient bridges may not always be a state's highest priority, structurally deficient bridges often require maintenance and repair to remain in service. By contrast, functionally obsolete bridges do not necessarily require repair to remain in service and, therefore, are unlikely to be transportation officials' top priority for rehabilitation or replacement.

Figure 2: Number of Structurally Deficient and Functionally Obsolete Bridges, 1998 through 2007



Source: GAO analysis of FHWA data.

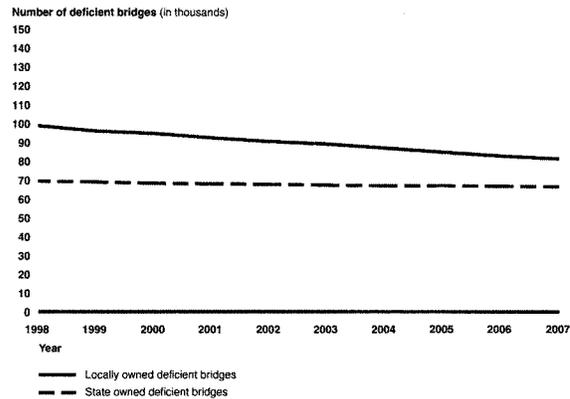
The average sufficiency rating of all bridges—including both deficient and not deficient bridges—also improved slightly between 1998 and 2007, from 75 to 79 on the sufficiency rating's 100-point scale.¹⁸ Additionally, while structurally deficient bridges generally have lower sufficiency ratings (average rating of 42 in 2007) than functionally obsolete bridges (average rating of 69 in 2007), the average sufficiency ratings of both types of deficient bridges improved slightly over the last decade.

Improvements were most notable in bridges owned by local agencies and on rural routes, which may be attributable, in part, to the federal bridge program requirement—under HBP and some of its predecessor programs—that states spend a minimum amount of their apportionment

¹⁸The sufficiency rating is a score from 0 to 100 assigned to each bridge, reflecting its structural adequacy, safety, serviceability, and essentiality or relative importance for public use. A rating of 100 represents an entirely sufficient bridge and a 0 represents an entirely insufficient bridge.

on non-Federal-aid highway bridges.¹⁰ For example, from 1998 through 2007, the average sufficiency rating for bridges owned by local agencies improved from 71 to 77, and the number of deficient bridges decreased by over 17 percent, from 99,492 to 82,101. During that same period, for bridges owned by state agencies, the average sufficiency rating improved from 79 to 82, and the number of deficient bridges decreased by 4 percent, from 70,066 to 67,232 (see fig. 3).

Figure 3: Number of Deficient Bridges, by Bridge Owner, 1998 through 2007



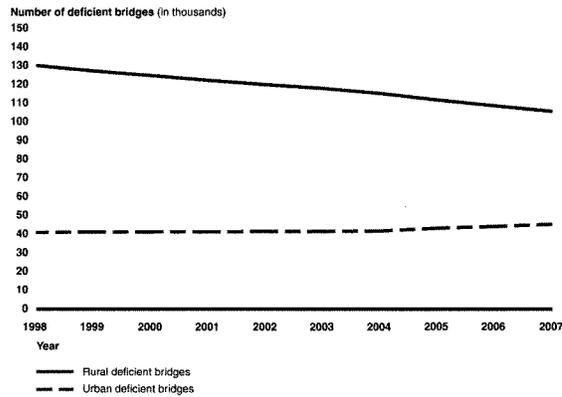
Note: Deficient bridges include both structurally deficient and functionally obsolete bridges.

With respect to urban and rural bridges, the number of deficient rural bridges declined from 1998 through 2007 and the number of deficient

¹⁰Since 1978, a minimum of each state's apportionment has to be spent on bridges that are off the Federal-aid highway system. Until the enactment of the 2005 surface transportation authorizing legislation, there was also a maximum ceiling, 35 percent, that could be spent on non-Federal-aid highway bridges.

urban bridges increased.²⁰ From 1998 through 2007, the number of deficient rural bridges decreased by about 19 percent, from 130,910 to 106,209.²¹ During that same period, the number of deficient urban bridges increased by about 11 percent, from 41,659 to 46,086 (see fig. 4). The average sufficiency rating for both rural and urban bridges improved slightly from 1998 through 2007; for rural bridges, the average rating increased from 74 to 78, and for urban bridges, the average rating increased from 79 to 82.

Figure 4: Number of Deficient Bridges, by Rural and Urban Classification, 1998 through 2007



Source: GAO analysis of FHWA data.

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

The impact of the HBP on the improvements in bridge conditions is difficult to determine for several reasons, including lack of information on

²⁰ A bridge is classified as rural in the NBI database if it is not located inside a designated urban area.

²¹ Approximately 75 percent of the nation's bridges are rural, and 25 percent are urban.

state and local bridge spending, the expansion of bridge project eligibility, and limitations in the NBI data. First, the impact of the federal investment in the HBP is difficult to measure in part because there are no comprehensive data for state and local spending on bridges. FHWA does track a portion of each state's capital spending on bridges, and the agency has generated a single, national level estimate for total bridge expenditures by all government levels; however, there are significant gaps in this information, and neither source is comprehensive or detailed enough to be used to determine the impact of the HBP.²² The state transportation officials we spoke with during our site visits estimated that state and local spending on bridges ranged from the minimum match amount (generally 20 percent of the HBP apportionment amount) to more than four times the state's apportioned HBP funds. Our previous work has shown that although federal investment in HBP and other Federal-aid highway programs has increased over time, this investment has not resulted in commensurate increases in the nation's total government spending (federal, state, and local) on its highway system.²³ In particular, as the level of federal funding has increased since the mid-1990s, states have not maintained their level of effort in highway spending, and federal funds have increasingly been substituted for state funds. This suggests that increased federal highway funding influences states and localities to substitute federal funds for state and local funds they otherwise would have spent on highways and bridges.

Second, the impact of the HBP is also difficult to measure because HBP funds can, in some cases, be used for a variety of bridge projects without regard to a bridge's deficiency status or sufficiency rating. Therefore, simply measuring changes in the number of structurally deficient or functionally obsolete bridges does not reflect the full impact of the program since these measures do not capture the impact of the HBP investment in the other eligible activities that do not necessarily result in

²²For example, while FHWA does track a portion of bridge capital spending on a state by state basis, the data does not include (1) state spending on bridges located on local roads and (2) most local government spending on bridges. In addition, while FHWA generates a single, national-level estimate for total bridge expenditures at all government levels, this estimate cannot be used to determine the impact of the HBP by state or by bridge because it is a national aggregate. Moreover, neither of these two FHWA data sources on bridge spending includes noncapital activities funding by the HBP, such as systematic preventive maintenance, anti-icing and deicing applications, and painting.

²³GAO, *Federal-Aid Highways: Trends, Effect on State Spending, and Options For Future Program Design*, GAO-04-802 (Washington, D.C.: Aug. 31, 2004).

an immediate reduction in the number of deficient bridges. Without quantifiable performance measures to track the full range of desired outcomes for the HBP, it is difficult to measure the program's impact and determine the extent to which the program is serving its stated purpose.

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

Evaluating the impact of the HBP is important not only to understand the outcomes of past spending but also to determine how to sensibly invest future federal resources. The number of HBP-eligible bridges is expected to increase as a large share of the nation's bridges built in the 1960s and early 1970s age and become eligible for rehabilitation and replacement as a group; as a result, states and local agencies may see a spike in their need for bridge rehabilitation and replacement funding. In this environment of increasing demand for limited resources, it is especially important for FHWA and Congress to be able to evaluate the impact of the HBP in order to ensure that the program is providing an acceptable return on investment and addressing national transportation priorities.

The HBP Lacks Focus, Performance Measures, and Sustainability

The HBP, while generally helping to improve bridge conditions, does not fully align with our principles for re-examining surface transportation programs in that the bridge program lacks focus, performance measures, and sustainability. Our principles, which are based on our prior work and federal laws and regulations, include: (1) ensuring program goals are well defined and focused on the federal or national interest, (2) incorporating performance and accountability into funding decisions, (3) employing the best tools and approaches to emphasize return on targeted federal investment, and (4) ensuring fiscal sustainability.

First, HBP's goals are not focused on a clearly identified federal interest. Over the years, the program's statutory goals have expanded from improving deficient bridges to supporting seismic retrofitting, preventive maintenance, and many other activities, thus expanding the federal interest to potentially include almost any bridge in the country. Our previous work has emphasized the importance of identifying clear areas of federal interest as a first step in determining program goals. For example, if mobility is determined to be a key federal interest and a primary goal, the HBP could be targeted toward bridges whose conditions have the most impact on congestion and economic competitiveness and that carry higher levels of traffic or freight than those bridges in remote areas that may serve only a few people each day. If rehabilitating and reducing deficient bridges is determined to be a key federal interest, then the program could be further targeted toward that goal. The federal interest may also be greater in bridge projects that are too expensive for states to undertake without additional federal assistance or in projects that extend beyond the borders of a single state. Once the federal interest has been determined, our principles call for basing the federal share of the cost of bridge projects on the level of federal interest.

Second, there is no clear tie between HBP funding and performance. HBP funds are apportioned to states without regard to program performance because the HBP formula is based on a calculation of needed repairs to deficient bridges but does not consider a state's efforts or effectiveness in reducing its inventory of deficient bridges or controlling costs. Because the formula does not factor in other eligible program activities, such as systematic preventive maintenance, there is no link between the apportionment formula and the states' performance of these activities. Without performance measures to link funding to performance, states lack an incentive to improve the return on the federal investment and are not held accountable for the results of their investments. Our work has shown that an increased focus on performance and accountability for results can help the federal government better target limited federal resources.

Third, the HBP generally lacks sufficient tools to determine the effects of the federal investment in bridges. In this regard, bridge management systems, which are currently used by many states but not required by the program's authorizing legislation, may be useful for prioritizing projects and making funding decisions to improve results and emphasize return on investment.

Finally, the HBP's fiscal sustainability remains a challenge in light of aging bridge infrastructure, coupled with the declining purchasing power of

funding currently available for bridge maintenance, rehabilitation, replacement and the recent growth in construction costs. Based on our prior work, two tools that could possibly improve the sustainability of the HBP are a maintenance-of-effort requirement and tolling. A maintenance-of-effort requirement, whereby state or local grantees would be required to maintain their own level of funding in order to receive HBP funds, could reduce the potential substitution of federal funds for state and local funds under the program. In addition, our prior work has shown that removing barriers to, or even promoting, tolling can lead to more efficient management of existing infrastructure and capacity.²⁴ Addressing the HBP's future fiscal sustainability is critical, given the overall fiscal imbalance facing the nation and the lack of assurance that HBP funding is allocated to projects that are in the federal interest and provide the best return on investment.

Observations on Proposed Bridge Legislation

Our work on the HBP can provide some perspective on several provisions in the proposed legislation under review by this committee, the National Highway Bridge Reconstruction and Inspection Act of 2008 (S. 3338). The legislation proposes, among other things, to authorize an additional \$1 billion for fiscal year 2009 from the U.S. Treasury's general fund to address bridge infrastructure. The legislation would also require DOT to strengthen bridge inspection standards, adopt a risk-based process for prioritizing certain bridge rehabilitation and replacement projects, and require that states develop 5-year performance plans for bridge inspections and for the rehabilitation or replacement of deficient bridges.

As summarized below, our work on the HBP is related to several provisions in the proposal:

- For example, the legislation calls for DOT to apply a risk-based prioritization process to every structurally deficient or functionally obsolete bridge in the nation. While such a process could potentially help target scarce federal resources to bridges that are most critical to safety and mobility, many state transportation officials we interviewed during our work raised questions about the appropriateness of focusing on all deficient bridges, noting that all deficient bridges are not necessarily unsafe and some large-scale deficient bridge projects can be too cost-prohibitive to be implemented with HBP funds alone. Also, the legislation

²⁴GAO, *Highway Finance: States' Expanding Use of Tolling Illustrates Diverse Challenges and Strategies*, GAO-06-554 (Washington, D.C.: June 28, 2006).

is unclear about how, if at all, the new risk-based prioritization process will differ from or relate to DOT's established sufficiency rating process. FHWA uses sufficiency ratings primarily to determine HBP eligibility and apportion funds. We found that states may consider sufficiency ratings in their prioritization processes but generally do not rely on these to prioritize bridge projects.

- In addition, the legislation calls for DOT to require states to develop 5-year performance plans covering the inspection and rehabilitation or replacement of all structurally deficient or functionally obsolete bridges. We support the use of performance plans to articulate program goals that are in the federal interest, encourage accountability for results, and help ensure that the federal government targets resources to programs that best achieve intended outcomes and national priorities. Our work has shown that the current HBP funding formula is not linked to a state's performance in reducing its inventories of deficient bridges and we are recommending in our report being issued today that DOT work with Congress to define specific national goals and performance measures for the HBP. This legislative provision might be strengthened by requiring states to report on their progress in achieving their goals as part of each annual update to their performance plan. Also, the legislation requires that the performance plans be focused on all deficient bridges, and the same issue that I raised earlier about the appropriateness of this focus applies here as well.
- The legislation also calls for DOT to require the states to develop and implement a bridge management system. In our work on the HBP, all six states we visited had adopted, or were considering, some form of bridge management system to help manage their bridge assets and more efficiently allocate limited HBP resources among competing bridge priorities. In the report we are releasing today, we are recommending that DOT evaluate and incorporate into the HBP best tools and practices, such as bridge management systems.

Conclusions and Recommendations

Although many aspects of the HBP are carried out at the state level—with ultimate responsibility for bridge inspection and project selection residing with the states—the federal government bears responsibility for ensuring that the program achieves results that are in the federal interest and that the program's resources are allocated efficiently. The purpose of the HBP has greatly expanded over the years, making nearly any bridge potentially eligible for federal funding, and as a result, the federal interest in bridges lacks focus. Additionally, many state officials told us that measures used by the HBP to apportion federal funds—bridge deficiency status and

sufficiency ratings—are not necessarily good proxies for the safety or risk associated with specific bridges. Even though data indicate that the number of structurally deficient bridges has declined over the last 10 years, most of this improvement has been in locally owned and rural bridges. Oftentimes, the largest and most critical bridges carrying more interstate commerce are too expensive to be funded by the HBP and so require other funding sources to be replaced or rehabilitated. Moreover, without comprehensive data on state and local spending on bridges, it is impossible either to distinguish the impact of HBP funding from the impact of state and local bridge funding or to determine the extent to which states are substituting HBP funding for state and local funds that would otherwise have been spent on bridges. Absent clear goals and related performance measures for the HBP, it is difficult to determine the overall effectiveness of the program's investment in bridges.

Our principles have suggested several ways to improve the HBP to ensure that it is more focused and performance-based in the future. For example, tools such as bridge management systems provide bridge managers with a more systematic approach to prioritizing projects and making funding decisions. Our work has shown that some states are using bridge management systems and other tools that generally exceed federal standards. Additionally, linking program goals to performance measures to determine whether goals are met and using that information to select projects and make funding decisions, can create incentives for state and local governments to improve the performance of their bridge programs, as well as the overall transportation system. As the projected revenue shortfall in the Highway Trust fund rapidly approaches and as bridge costs rise and infrastructure continues to age, incorporating strategies to better ensure the fiscal sustainability of the HBP is also critical.

To improve the focus, performance, and sustainability of the HBP, the report we are releasing at this hearing recommends that the Secretary of Transportation work with Congress to take the following actions:

- identify and define specific national goals for the HBP;
- determine the performance of the program by developing and implementing performance measures related to the goals for the HBP;
- identify and evaluate best tools and practices that can potentially be incorporated into the HBP, such as bridge management systems; and

-
- review and evaluate HBP funding mechanisms to align funding with performance and support a targeted and sustainable federal bridge program.

In reviewing a draft of the report, DOT officials said that they generally agreed with our findings and recommendations, and they provided technical comments which we incorporated in the report and this testimony, as appropriate. DOT officials also commented that they thought our re-examination principles had broader applicability than just the HBP—noting that DOT had incorporated our principles into the Department's recent proposal for reforming surface transportation programs. DOT's reform proposal, released in July 2008, recommends consolidating the existing network of over 100 surface transportation programs into eight broad, intermodal programs.²⁵ The officials noted that DOT's reform proposal articulates a narrower federal interest and a framework for performance management tied to clearer goals for surface transportation programs. We have not commented on DOT's reform proposal, and the outcome of that proposal in the surface transportation reauthorization debate that will occur during 2009 is uncertain. However, we agree with DOT that our re-examination principles are applicable at a broader level than a specific program like HBP; in fact, we developed our principles because of (1) our concerns, raised in prior work, that many federal surface transportation programs are not effective at addressing key transportation challenges such as growing congestion and freight demand and (2) our conclusion that our principles could help drive the re-examination of those programs and help assess options for restructuring the entire federal surface transportation program.²⁶

Chairman Boxer, this concludes my prepared statement. I would be happy to respond to any questions that you or members of the committee may have.

²⁵DOT, *Refocus, Reform, Renew: A New Transportation Approach for America* (Washington, D.C.: July 29, 2008).

²⁶See GAO-08-400.

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**Responses to Post-Hearing Questions for the Record
Improving the Federal Bridge Program:
Including an Assessment of S. 3338 and H.R. 3999
Committee on Environment and Public Works
U.S. Senate
Hearing held on September 10, 2008**

Questions for Katherine A. Siggerud, Managing Director,
Physical Infrastructure Issues
U.S. Government Accountability Office

Questions submitted by Senator Frank R. Lautenberg

(1) You say in your testimony that states shouldn't be allowed to spend federal bridge funds on other kinds of road projects. For that same reason, shouldn't our federal policies require states to fix what infrastructure they have that is deficient before building new infrastructure?

In our report and testimony,¹ we do not say that states should not be allowed to spend federal bridge funds on other kinds of road projects. Rather, we point out that the Highway Bridge Program (HBP) gives states several flexibilities in determining how to use their HBP resources, including allowing states to spend program funds on other, nonbridge, transportation priorities by transferring up to 50 percent of their annual HBP funding to other core Federal-aid highway programs,² through a penalty is invoked by reducing the state's HBP funds in the succeeding years by the amount transferred. Furthermore, we reported that many states have taken advantage of this provision over the years and transferred some of their HBP funding to other programs, although FHWA officials told us that some of the transferred HBP funds may still be spent on bridges and funds from other Federal-aid highway programs may also be spent on bridges. In fact, FHWA data show that significant funds have flowed toward bridges from other programs which, from a national perspective, exceed outflows from the HBP. We do state in our report and testimony that the federal interest in bridges lacks focus and we call for the Secretary of Transportation to work with Congress to first identify and define the federal interest in bridges, develop program goals that reflect those federal interests, and provide incentives for states to make progress toward federally-defined goals.

¹ See GAO, *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1043 (Washington, D.C.: September 10, 2008) and *Highway Bridge Program: Clearer Goals and Performance Measures Needed for a More Focused and Sustainable Program*, GAO-08-1127T (Washington, D.C.: September 10, 2008).

²The majority of Federal-aid highway infrastructure funding is distributed through seven major programs, often referred to as core highway programs. These programs are the National Highway System Program, Surface Transportation Program, Interstate Maintenance Program, HBP, Congestion Mitigation and Air Quality Improvement Program, Highway Safety Improvement Program, and the Equity Bonus Program.

Questions submitted by Senator Benjamin L. Cardin

- (1) How much would restricting state flexibility in asset management, in your measurement, increase the amount of funds states allocate for bridge rehabilitation and reconstruction? Can the unfunded preservation needs for bridges be met even while states maintain their current level of control over their infrastructure asset management?**

In our report and testimony, we emphasize the importance of identifying clear areas of federal or national interest as a first step in determining goals for the HBP. Once program goals have been determined, the HBP could be reformed to create incentives for states to make progress towards those goals. These incentives could allow for a degree of flexibility from state to state so that states could address their unique needs and specific bridge concerns. While we believe it is important to ensure that the HBP focuses on federal interests, the program's flexibility does allow states to develop prioritization processes that suit their own needs and address specific bridge concerns, such as seismic or scour risk. For example, due to its unique vulnerabilities, California has spent the majority of its HBP bridge funds over the past 10 years on seismic retrofitting projects.

- (2) By using electronic technologies like radar and ultrasound during bridge inspections, inspectors can catch structural and material flaws in bridges that would otherwise go unnoticed. This has the potential to save lives. How widespread are these new bridge inspection technologies? Under current law, can Highway Bridge Program funds be spent on such technologies? What barriers do we face to widespread adoption by the states?**

Our work on the HBP did not include an in depth look at the National Bridge Inspection Standards, so we do not have information on the use of new bridge technologies or on potential barriers to widespread adoption of such technologies by states. According to Federal Highway Administration (FHWA) officials, the costs for personnel and equipment used in bridge inspections are consistent with the purpose of the HBP and are therefore eligible to be paid with HBP funds.

Questions submitted by Senator Bernard Sanders

- (1) The Department of Transportation has documented that there is a consistently higher rate of deficiency among rural bridges, compared to urban. Given that a single bridge may have much more importance for the connectivity of a rural community this is a very troubling fact. Could you comment on the factors that might have created this situation?**

According to our analysis of data in the National Bridge Inventory, in 2007, about 24 percent of rural bridges, and about 31 percent of urban bridges, were deficient. We also found that the number of deficient rural bridges declined from 1998 through 2007 while the number of deficient urban bridges increased. For example, from 1998 to 2007, the

number of deficient rural bridges decreased by about 19 percent, from 130,910 to 106,209. During that same period, however, the number of deficient urban bridges increased by about 11 percent, from 41,659 to 46,086. In addition, we note in our report and testimony that the HBP has a requirement that states must spend a minimum (15 percent) on non-Federal-aid highway bridges, which are generally located on local or rural roads that carry lower volumes of traffic than state-owned bridges.

Questions submitted by Senator James M. Inhofe, Ranking Member

(1) Would you consider the added inspection and inventory requirements of this proposed bridge bill to be a beneficial improvement that would save lives and result in improved investment decisions?

Our work did not look specifically at the National Bridge Inspection Standards, so we do not have any specific proposals for how, if at all, those standards could be improved.

(2) Do you think the risk based approach to prioritizing bridge needs included in this bill is sufficient reform of the bridge program or are necessary elements of reform missing?

As I stated at the hearing, the proposed legislation's requirement for risk-based prioritization and performance plans has the potential to more closely tie together program funding, performance, and accountability, depending on how these are implemented. In our view, the risk based prioritization and performance plans would be most effective if (1) they are also used to measure and report results, (2) they are tied to funding, and (3) they build on rather than replace similar systems already in place in some states. However, the legislation is unclear about how, if at all, the new risk-based prioritization process will differ from or relate to DOT's established sufficiency rating process. FHWA currently uses sufficiency ratings primarily to determine HBP eligibility and apportion funds. We found that many states may consider sufficiency ratings in their prioritization processes but generally do not rely on these to prioritize bridge projects. Rather, officials in the six states we visited considered a range of tools and criteria for selecting among potential bridge projects, including the results of detailed "element-level" bridge inspections, state-specific bridge condition ratings, average daily traffic, funding availability, and state and local transportation priorities, among others. Finally, it would be most useful to consider these reforms as part of an overall reform of surface transportation programs, focused on performance and accountability.

(3) The poor condition of our nation's bridges is widely publicized. Do you think our bridges are more dangerous or in worse condition relative to the rest of our highway infrastructure? Do you think we should have a separate bridge program or would it be better to require states to evaluate their transportation needs and priorities as a whole?

While a significant portion of the nation's bridges are classified as deficient, we note in our report and testimony that the overall condition of the nation's bridges has improved

over the last ten years. For example, we reported that the number of structurally deficient bridges decreased by 22 percent during the period from 1998 through 2007. Furthermore, based on additional analysis we have done of the data in the National Bridge Inventory, there has been a substantial decline in the percentage of bridges on the National Highway System (NHS) that are in the worst condition, that is, those bridges with sufficiency ratings lower than 50 that may be eligible for replacement.³ In particular, from 1998 through 2007, the total number of bridges on the NHS that may be eligible for replacement declined by about 42 percent, from 4,858 to 2,801.

We found DOT uses very different measures for assessing the condition of highways and bridges, so it is difficult to compare the danger and condition of the nation's bridges to those of the rest of the highway system. For example, DOT's 2006 conditions and performance report⁴ uses metrics such as vehicle miles traveled on pavements with good ride quality, roadway alignment adequacy, and lane width to gauge the condition of the nation's highways, while it measures elements such as number of deficient bridges and bridge component condition ratings⁵ to assess the condition of the nation's bridges. It is very difficult to discern whether one is generally in worse condition than another.

With respect to your question about retaining a separate federal bridge program or requiring states to evaluate their transportation needs and priorities as a whole, GAO has reported that modally stovepiped funding can impede efficient planning and project selection since it does not link funding to desired outcomes, such as mobility improvements.⁶ We and others have argued that consolidating the many different programs related to highway infrastructure, and incorporating performance and accountability mechanisms into those programs, may lead to better results. For example, the National Surface Transportation Policy and Revenue Study Commission made recommendations in January 2008 to reform and concentrate the current modal structure of the nation's surface transportation programs into 10 cross-modal programs.⁷

(4) Do you believe there is a better way to prioritize structurally deficient bridges in terms of which bridges should be fixed first?

Structurally deficient is a broad category that included 72,519 bridges in 2007 with a wide variety of characteristics and in a wide variety of conditions. In our report and testimony, we emphasize the importance of identifying clear areas of federal or national

³ Under the HBP, bridges that are structurally deficient or functionally obsolete, with a sufficiency rating of less than 50, are eligible for replacement or rehabilitation.

⁴ DOT, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (Washington, D.C., Jan. 22, 2007).

⁵ The three primary bridge components are the deck, superstructure, and substructure. The condition of each of these components is rated on a scale from 9 to 0, where 9 indicates excellent as-new condition, and 0 indicates a failed condition.

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

⁷ National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission* (Washington, D.C.: Jan. 15, 2008).

interest. For example, if mobility were determined to be a key federal interest and a primary goal, the program could be targeted toward bridges whose conditions have the most impact on congestion and economic competitiveness and that carry higher levels of traffic and freight than those bridges in remote areas that may serve only a few people a day. Additionally, some states have developed tools and approaches beyond those required by the HBP and National Bridge Inspection Standards—such as bridge management systems, detailed element-level inspections, and state-specific condition ratings—to help them gauge bridge conditions and further inform their selection of bridge projects for funding. It may be possible to build on these initiatives in setting priorities for structurally deficient bridges.

Another option for better prioritizing structurally deficient bridges would be to require FHWA to develop a better proxy for bridge safety or risk than deficiency status. Perhaps the proposed risk-based prioritization process could identify a smaller pool of high-risk bridges and states could be required to spend some share of their HBP funds on them. Congress and the DOT might want to look more closely at possibly focusing on bridges on the National Highway System that are eligible for replacement since these bridges carry high volumes of highway traffic and are in the worst condition in that they have sufficiency ratings lower than 50. As I noted earlier in this document, there were 2,801 such bridges in 2007.

Senator BOXER. Thank you so much.

Just to underscore what Mr. Madison said, clearly we are going to be working all day today. We had another impasse this morning, so we are going to try to keep on working on the trust fund. We can't, we can't have a failure here, because we have 84,000 people who lost their jobs in August. We can't do this. So hopefully we can move it.

I want to talk about the bridges. Your testimony presents your belief, your written testimony, that the current condition of our Nation's bridges does not represent a safety crisis. How do you explain the recent failure of a major interState bridge in Minnesota and the high number of structurally deficient bridges in every State and the anecdotal evidence we heard just today that bridges are being closed? And you say there is not a safety crisis. How do you square that with what is going on?

Mr. MADISON. Thank you, Madam Chairman, for the question.

That is accurate, we don't believe that there is a crisis with respect to bridge safety in America right now. The fact that a percentage of bridges are structurally deficient or categorized as deficient in some form or fashion doesn't necessarily mean that they are unsafe. So when you mentioned the tragedy at the I-35W bridge in Minnesota, while NTSB has not yet concluded its findings and given us a final report on what they believe happened, it doesn't appear that it was a condition-related circumstance. That is to say, their intermediate report in January indicated that it may have been or is likely to have been a design flaw at that particular structure that caused the tragedy.

In general, we have seen an increase in investment by States in their bridge programs. Despite the shifting funds from different accounts that we heard about in earlier testimony today, we have seen a significant increase in the amount of money that is being invested by States in their bridges. Consequently we have seen a reduction in the overall number of deficient bridges in America.

Senator BOXER. And we have heard some numbers here. The structurally deficient number, what is that number you have for the number of bridges that are structurally deficient in the United States of America?

Mr. MADISON. Madam Chairman, I believe that of the 600,000 bridges, roughly, in America, about 126,000 on the national highway system are categorized as deficient.

Senator BOXER. OK. So let's talk about that, Mr. Madison. Because I have to tell you, I heard the same thing from my State people. Just because you say something is structurally deficient, that shouldn't indicate a problem. What? What? That defies common sense. Why do we do this? Why do we test these bridges if we are not going to pay attention to what we find?

Now, out of the 600,000, 126,000 are structurally deficient. What do you suggest that we do, just sit around and wait for them to collapse? What do you think? Should we work on them? Should we have a special program, as Senator Klobuchar wants to do, I want to do, others want to do? To just go ahead and have them ranked and go in an order of which ones are more structurally deficient?

What word would you rather use? What words would you rather use? When any average American hears the words, your home is

structurally deficient, somebody tells you that, what do you mean? Well, it could collapse in an earthquake. Oh, OK. The roof could collapse. It has a couple of problems in the back yard because the soil is eroding. Oh, well, do you think I should do something about it?

I will tell you, the engineer that says no I am getting rid of. I want to know how I fix it.

So I am confused. Do you think we should change our terminology so people don't get the "wrong idea?" If there is nothing wrong with these—what is wrong with these 120,000 bridges?

Mr. MADISON. I am not suggesting that we change the terminology, Madam Chairman, only that we understand it. You make an excellent point; the terms structurally deficient or functionally obsolete are engineering terms that the public would view as requiring a greater sense of urgency.

Senator BOXER. What does structurally deficient mean? I know functionally obsolete is another problem. But structurally deficient, what is your definition?

Mr. MADISON. I will give you my definition, but could I just correct something that I said earlier to you?

Senator BOXER. Yes.

Mr. MADISON. That is, 126,000 bridges are deficient. And within that deficiency category, there are structurally deficient and functionally obsolete bridges. So there are approximately 74,000 structurally deficient bridges.

Senator BOXER. I'm very appreciative of that.

Mr. MADISON. The definition essentially means that most bridges are dynamic structures that have multiple constituent parts. Each of those parts is inspected as required at a regular inspection interval. So when there are structural issues with a particular component of a bridge, it is given a condition rating. The overall rating of the bridge would indicate whether or not it would be categorized as structurally deficient. That does not mean that it is unsafe or that there is imminent danger in the structure having a failure or collapse.

Senator BOXER. OK, and I will close with this, so let me just say that your definition, your Federal Highway people said, it is a bridge which has deteriorated conditions of significant bridge elements. Let me say that again. Because this playing down, oh, it is structurally deficient, no big deal, let's see what you people said. A bridge which has deteriorated conditions of significant bridge elements and reduced load capacity and capacity, or the waterway opening beneath the bridge is insufficient and causing significant interruptions. A structurally deficient bridge is often weight-limited, requires immediate rehabilitation to remain open or it is closed.

So let's not have the American people misunderstand here. If a bridge is deemed structurally deficient, it is often weight-limited, require immediate rehabilitation or it is closed. Now, if we just let the American people think that what we say doesn't matter, that is a problem. I have a problem with this. Excuse me for saying this, but I honestly believe it is, we are at a point where we are short of funds, so we try to wish away what is staring us in the face. I don't think that Senator Inhofe and I want to do that. Now, we

may come out with different recipes on how to fix it. But I think let's at least admit the truth, especially after this bridge collapse.

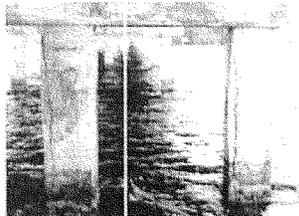
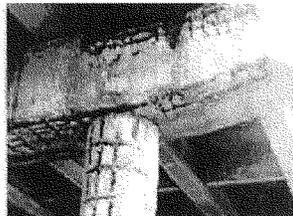
Senator INHOFE.

Thank you, Madam Chairman.

First of all, I ask unanimous consent that a statement by NACE International, which is a professional technical association working to reduce the effects of corrosion on infrastructure, be inserted into the record.

Senator BOXER. Absolutely without objection.

[The referenced material follows:]



Senator James M. Inhofe
453 Russell Senate Office Building
Washington, D.C. 20510

Committee on Environment & Public Works
United States Senate
Hearing on H.R. 3999 and S.3338
Addressing our nation's crumbling bridge infrastructure

September 10, 2008

As America enters the 21st Century, our nation finds its bridge infrastructure is crumbling. The most current government information indicates there are approximately 583,000 bridges in the United States. Among those bridges, approximately fifteen percent (15%) are structurally deficient, primarily due to corrosion of steel and steel reinforcement.

The estimated cost for repairing America's deficient bridges is high. The annual direct cost of corrosion for highway bridges is estimated to be \$8.3 billion. Further, indirect costs to the user due to traffic delays and lost productivity at more than ten times the direct cost of corrosion maintenance, repair, and rehabilitation. These repairs, while already expensive, will be far more costly if our legislators and transportation departments allow the problem to continue to grow.

The primary reason for America's collapsing bridge infrastructure stems from the fact that bridge construction materials deteriorate from corrosion. However, technology exists to prevent and mitigate corrosion, and thus remedy our nation's crumbling bridge infrastructure. Government policies must require state departments of transportation to design and plan for corrosion prevention and mitigation, and utilize available corrosion management methods, in addition to the latest advances in corrosion science and technology.

Congress can address the growing issue of corrosion by requiring that the US Department of Transportation:

1) Highlight the large corrosion costs and potential savings if proper strategies are employed



- 2) Change the misconception that nothing can be done about corrosion
- 3) Change policies, regulations, and management practices to increase corrosion savings through sound corrosion management
- 4) Improve education and training of staff
- 5) Advance design practices for better corrosion management
- 6) Develop advanced life prediction and performance assessment methods
- 7) Improve corrosion technology through research, development, and implementation

Corrosion is damaging America's economy and our deteriorating bridge infrastructure is part of our nation's larger corrosion problem. Through discussions between NACE International, The Corrosion Society, members of Congress, and the US Department of Transportation (DOT), an amendment for the cost of corrosion study was included in the Transportation Equity Act for the 21st Century (TEA-21), which was passed by the U.S. Congress in 1998. In the period from 1999 to 2001, CC Technologies conducted the research, in conjunction with the Federal Highway Administration (FHWA).

The FHWA study concluded that the total direct cost of corrosion is to be \$276 billion per year, which is 3.2 percent of the U.S. gross domestic product (GDP). Indirect costs to the user (society's costs) are conservatively estimated to be equal to the direct costs. In sum, corrosion's overall cost to society could be as much as six percent (6%) of the GDP.

The United States continues to face critical challenges in the field of corrosion prevention and mitigation, especially in the current tight budget environment. However, America's corrosion professionals can solve our nation's corrosion challenges and prevent corrosion from degrading our critical infrastructure. Federal and state governments can help by requiring infrastructure designs that create reliable, high performing structures and long term plans that maximize the useful life of the asset. Controlling corrosion requires a commitment to cost effective asset management, but the payoffs are savings to the tax payer and public safety.

Corrosion is a major threat to our nation's critical information. Congress must act now and require corrosion prevention and mitigation plans for all federally funded bridge construction and rehabilitation projects.

NACE International recommends Congress pursue these goals.

Sincerely,

A handwritten signature in black ink that reads "Tony Keane".

Tony Keane
Executive Director
NACE International, The Corrosion Society
Houston, Texas

TK:cj:lc

Senator INHOFE. And let me also State, because there is some confusion here, on the whole issue, the funding problem, the crisis that we are in right now. I support the fix that is out there. I do know there are problems that people have with the way that we have put our authorization bills together in the past. I want to correct those. But the time to do that is not now, during the crisis. The time to do that is in the 2009 reauthorization bill. I just hope that people understand that we have a crisis, we need to fix it and we will address these problems. We need to do it in a way that we can deliberate and spend time on it and get it done.

Mr. Administrator, I will ask you a question that sounds like a tough question, but it is easy for you, because you are the new guy on the block. So none of this is your fault. I am not as satisfied as everyone else seems to be that we had adequate notice of this crisis. I do know that we had no anticipation as to what would happen to the trust fund because so many people think of the taxes being a percentage as opposed to what it really is, a centage, which means price goes up, the revenues go down.

Why did it take so long? Why did we not just wake up 1 day and find out the crisis is here? Why didn't we have more adequate warning? What do you think?

Mr. MADISON. It is a very fair question, Senator. Let me try and address it as best I can, because as you indicate, some of this activity predated my tenure here at Federal Highways. But essentially in hearings like this, Secretary Peters, others from the DOT, and the Administration have been predicting for years that we were likely to have a cash shortfall in the Highway Trust Fund, potentially by the end of the reauthorization period in September 2009.

In recent months, in fact, as recently as July, that prediction or that forecast was changed to indicate that the shortfall may occur as soon as October of this year. And the primary cause for that, as you indicate, is the dramatic increase in gasoline prices, which caused the precipitous drop in vehicle miles traveled. We saw in a relatively short period of about 8 months 50 billion vehicle miles traveled less than we would have typically seen in previous years. So the dramatic reduction in vehicle miles traveled meant a lot less money was going into the Highway Trust Fund.

At the same time, Senator, at the end of the Fiscal Year and at the end of this construction season, we typically see every year in July, August, and September, the requests from the States typically increased. So we reached this impasse several weeks sooner than what was originally predicted.

Senator INHOFE. I understand that. I didn't feel, and I have talked to Director Ridley several times, too. We were both concerned that this came precipitously and we didn't have adequate time. But we understand pretty much. I just wanted you to get on record on that.

Nothing really much has been said about the jobs. I think that is a secondary, it is important, you have so many people out there anticipating that they are going to be, they are on the line, they have their shovels in their hand, they are ready to go to work, then all of a sudden the rug is pulled out from under them. Do you have any brief comment you can make on what not fixing it in a timely fashion will have on jobs nationally?

Mr. MADISON. It will have an impact, Senator. In fact, I was talking with your—

Senator INHOFE. Any numbers of guesses?

Mr. MADISON. I don't have numbers, because—

Senator BOXER. I have the sheet. It is over 300,000 jobs.

Senator INHOFE. OK. I just wanted to get it on record.

Senator BOXER. Do you have the sheet? Could we give it to Senator Inhofe?

Senator INHOFE. That is all right, I just wanted to get this in the record.

Senator BOXER. Good.

Senator INHOFE. I have the sheet, too.

Mr. MADISON. Senator, as you know, much of the reimbursements from the Highway Trust Fund are for projects that are either already completed or are significantly underway. So we have been working very closely with the States since the announcement on Friday. Our first priority is to try and have an equitable distribution plan to be fair to all States to ensure that, to the best we can, we help them prioritize their bills to us so that we can fund them appropriately and tailor those priorities to each State.

I have talked with Director Ridley and we have been in contact with all the other States. There are varying degrees of impact, depending on where States are in their bond position or debt position or other circumstances. But as I think you will hear from Director Ridley later, this will have a dramatic impact and potentially immediate impact in your State, if a fix isn't handed down.

Senator INHOFE. I know that is true, and I have talked to Director Ridley about that. In fact, the other questions I was going to ask you, I will wait for the third panel. But I would say this, that the poor condition of the bridges is widely publicized. We all know that. Do you think that our bridges are more dangerous or in worse condition relative to the rest of our highway infrastructure? And do you think that we should have a separate bridge program or would it be better to require States to evaluate their transportation needs and priorities as a whole?

I ask this question because as close a friend as Congressman Oberstar is, I always get a little bit upset when somebody says, well, we will take care of it here at the Federal level because the States are not capable of doing it. Do you have an answer to the question in terms of other—there are other dangers, too, that are out there, other than just bridges.

Mr. MADISON. That is right. It is difficult to compare conditions or have a ratio between bridges and highway conditions. But I will say, to answer your question, yes, we should have a national bridge program. We don't believe that Senator Klobuchar's and Chairman Oberstar's bill is exactly the right way to go about that. I say that respectfully, because we worked closely with their staffs in developing this legislation.

But we believe that as was mentioned earlier today, flexibility to the maximum extent possible should be given to folks like Gary Ridley and the Governors of States to handle funding priorities as they look at their own bridges in their States, because they are the ones that are doing the inspections, and know first-hand where their priorities should be.

Senator INHOFE. That is an excellent answer, Mr. Administrator. Thank you very much.

Thank you, Madam Chair.

Senator BOXER. Let me just put in the record, since my Ranking Member has made a very good point here about the jobs. I do think it is important to note that five times on the floor of the U.S. Senate we tried to make this fix. The President threatened to veto several of those times. So I was very grateful when you did finally come around. But it is kind of tough.

Now you are saying, urgent, urgent, you have turned the alarm bell into a siren. We hear it. But just to be specific, in Oklahoma, or Minnesota, 4,962 jobs are at stake. In Oklahoma, let me make sure I get this line right, 6,009 jobs are at stake, and in California, 32,315 jobs are at stake here. All told, 379,537. Do you have this sheet?

Mr. MADISON. I do not, Senator.

Senator BOXER. OK, we will get you this sheet. And we will put this in the record, without objection.

[The referenced information follows:]

State Federal Highway Funds In Jeopardy
Support Baucus Trust Fund Fix to Prevent 34 Percent Cut

State	Projected FY 2009			Projected Job Loss
	Actual FY 2008	Without Fix	FY09 Funding Cut	
Alabama	\$703,608,862	\$490,508,434	-213,100,427	-7,416
Alaska	\$392,336,871	\$290,793,680	-101,543,191	-3,534
Arizona	\$667,147,856	\$438,664,311	-228,483,545	-7,951
Arkansas	\$456,190,231	\$320,021,084	-136,169,147	-4,739
California	\$3,241,415,426	\$2,312,797,348	-928,618,078	-32,315
Colorado	\$483,871,715	\$336,831,459	-147,040,256	-5,117
Connecticut	\$482,654,710	\$322,178,744	-160,475,967	-6,584
Delaware	\$151,330,042	\$105,505,130	-45,824,912	-1,585
Dist. of Col.	\$144,672,395	\$98,449,152	-46,223,243	-1,609
Florida	\$1,743,482,571	\$1,170,330,313	-573,152,259	-19,845
Georgia	\$1,254,148,068	\$854,334,154	-399,813,914	-13,913
Hawaii	\$161,397,489	\$108,732,842	-52,664,647	-1,833
Idaho	\$265,659,540	\$186,583,127	-79,076,413	-2,752
Illinois	\$1,226,941,903	\$860,514,023	-366,427,880	-12,751
Indiana	\$883,116,254	\$613,381,711	-269,734,544	-9,386
Iowa	\$422,814,986	\$275,671,959	-147,143,027	-5,120
Kansas	\$364,702,387	\$246,228,246	-118,474,141	-4,123
Kentucky	\$614,987,743	\$424,872,735	-190,125,008	-6,616
Louisiana	\$577,720,798	\$388,222,990	-189,497,808	-6,594
Maine	\$178,953,421	\$124,718,277	-54,235,144	-1,887
Maryland	\$578,678,880	\$388,200,419	-190,478,461	-6,628
Massachusetts	\$609,422,307	\$398,142,135	-211,280,172	-7,352
Michigan	\$1,007,665,781	\$762,900,807	-244,765,175	-8,518
Minnesota	\$575,827,393	\$433,242,592	-142,584,801	-4,962
Mississippi	\$433,794,557	\$300,588,496	-133,206,061	-4,635
Missouri	\$829,306,795	\$577,297,556	-252,009,237	-8,770
Montana	\$338,011,659	\$239,506,863	-98,504,796	-3,428
Nebraska	\$271,341,203	\$184,454,856	-86,886,247	-3,024
Nevada	\$274,821,219	\$173,608,407	-101,212,812	-3,522
New Hampshire	\$160,957,601	\$108,790,857	-52,166,944	-1,815
New Jersey	\$933,422,014	\$627,578,740	-305,843,274	-10,643
New Mexico	\$331,049,059	\$237,065,570	-93,983,489	-3,271
New York	\$1,652,187,126	\$1,082,942,105	-569,245,020	-19,809
North Carolina	\$982,278,233	\$690,898,439	-291,380,795	-10,140
North Dakota	\$226,404,974	\$155,931,552	-70,473,422	-2,452
Ohio	\$1,251,880,095	\$900,869,616	-351,010,479	-12,215
Oklahoma	\$542,957,073	\$369,868,439	-172,888,634	-6,009
Oregon	\$434,153,577	\$294,969,676	-139,183,898	-4,843
Pennsylvania	\$1,607,827,381	\$1,064,325,708	-543,501,672	-18,913
Rhode Island	\$200,252,272	\$131,121,237	-69,131,035	-2,406
South Carolina	\$572,462,981	\$390,280,157	-182,182,824	-6,340
South Dakota	\$245,963,474	\$174,549,231	-71,414,243	-2,485
Tennessee	\$768,763,258	\$533,198,427	-235,564,831	-8,197
Texas	\$2,802,411,108	\$1,942,990,215	-859,420,893	-29,907
Utah	\$273,508,721	\$188,070,215	-85,438,506	-2,973
Vermont	\$161,725,931	\$114,413,876	-47,312,055	-1,646
Virginia	\$907,625,718	\$636,053,577	-271,572,141	-9,450
Washington	\$623,821,456	\$416,592,681	-207,228,775	-7,211
West Virginia	\$391,319,504	\$271,937,690	-119,381,814	-4,154
Wisconsin	\$676,542,465	\$480,036,649	-196,505,816	-6,838
Wyoming	\$229,837,435	\$166,470,893	-63,366,542	-2,198
SUBTOTAL	\$35,312,786,520	\$24,406,237,107	-10,906,548,414	-379,537
Allocated Programs	4,127,089,170	1,909,255,590	(2,217,833,580)	
Undesignated High Priority Projects	1,513,574	1,061,467	(452,106)	
Projects of National & Regional Sig.	410,949,000	230,558,400	(180,390,600)	
National Corridor Infrastructure Program	449,988,000	252,460,800	(197,527,200)	
Transportation Projects	590,259,516	331,158,586	(259,100,930)	
Bridge (Sec. 144(g))	92,400,000	64,800,000	(27,600,000)	
Transfer to Sections 154 & 164	231,066,579	4,468,050	(226,598,529)	
TOTAL	41,216,051,359	27,200,000,000	(14,016,051,359)	

Source: Federal Highway Administration. Data include apportioned programs plus High Priority Projects.
Transportation Construction Coalition analysis of job impact.

Senator BOXER. Senator Klobuchar.

Senator KLOBUCHAR. Thank you very much, Madam Chair. Thank you to our witnesses and the work you are doing. Welcome, Mr. Madison. I appreciated our meeting yesterday.

I just wanted to clarify one thing you said about the 35W bridge, where you said it appears as though it was a design defect, and it does appear, as Chairman Oberstar so articulately described about the lack of a backup system, basically, is how I explain it, in the bridge, and redundancy. But I do think it is important that you know that on July 28th, actually Chairman Rosenker sort of changed his talk a little bit about this. He had always said it was a design defect and there is no way it could have been discovered on inspection. He then said publicly, and I will ask to put this article from the Minneapolis Star and Tribune dated July 28th, 2008 in the record, Madam Chair. He actually said that one of the things they are looking at is photos from 1999 which showed, and I mentioned this in my testimony, which showed problems with these plates and showed that they may have been warped. They are looking into whether or not that should have been caught on inspection.

I don't know if you are aware of that, but I think it is important, as we talk about the need for better bridge inspections, and again, we do not know the conclusions of this report. But he himself brought this up. This wasn't some investigative report. He himself went out of his way to say that they are now looking at whether that should have been caught on inspection. Were you aware of that?

Mr. MADISON. Thank you for the clarification, Senator. I personally was not aware of that. However, I met with Chairman Rosenker last week and he praised the working relationship that the Federal Highways Administration's research and technical experts have with NTSB and they have been working hand in glove to analyze and do the forensic analysis. So while I wasn't personally aware, I am quite certain that our experts at the Federal Highway Administration were aware of that. Thank you.

Senator KLOBUCHAR. Again, I know many of the people at MinnDOT. They do a good job. My uncle used to work there in Rochester, Minnesota. But the point of this is there may have been a problem with the inspections as well. And when the bridge collapsed, actually right afterwards a lot of people were saying, we knew which bridge that was.

So I don't think that we should come to any conclusions that yes, it was design defect, but we don't know, there may have been a problem with the inspection process, which gets me to our bill and what we have been talking about here.

Now, the bill that we have would change things in terms of, as Chairman Boxer has been explaining, not allowing States to transfer out of the Highway Bridge Program. It just seems odd to me that we have this highway bridge problem, we know there are bridges, not only I-35, but St. Cloud and other places that are in need of repair. So does the Administration actually support allowing States to take the money out of the bridge program when there are these structurally deficient bridges and put it elsewhere?

Mr. MADISON. What we have seen and what was described earlier, Senator, is accurate. There are transfers of funds from different accounts. But again, I want to reiterate that in the aggregate, we have seen more spending by the States than has been prescribed in our Highway Bridge Program. On average, in the last 5 years, States have spent about an additional \$820 million a year. So we don't disagree, and I think you are going to hear more about this in the GAO report, that there needs to be more focus on these funding programs and they need to be more clear in terms of performance measures. But in terms of spending on the bridges and the general condition of our bridges in America, we don't characterize then at this point as a crisis or safety crisis.

Senator KLOBUCHAR. Yes, we call it what it is, but Senator Cardin just talked about boats, a truck going off the bridge, there are clearly some issues here. All we are trying to do is say if we call this a bridge program, then let's make it a bridge program and let's make it a first-class bridge program in terms of the way that we do inspection. I know that current law calls for routine bridge inspections at least once every 24 months, including bridges that are structurally deficient. Our bill calls for inspection of these structurally deficient bridges, not all bridges, every year. Why would you want to allow 2 years to pass?

Mr. MADISON. We believe that, while the current 24 month minimum requirement should exist, bridge inspections should be done on a risk-based system. In other words, again, States know and like you mentioned, your MinnDOT folks know which bridges may be in the worst State of disrepair. So they prioritize those accordingly. They report that information to us and we maintain it in a National Bridge Inventory.

But we don't believe the right solution at this time is for Washington to prescribe a set number of bridge inspections and a blanket approach for all bridges, even all structurally deficient bridges or those bridges that are categorized with that term, because it would be an onerous mandate on States, to come up with the resources to pay for all those inspections that may not necessarily equate to additional safety.

Senator KLOBUCHAR. You know, again, our bill does have a rational basis in that we are focusing on these structurally deficient bridges. My issue here is that we clearly have had a problem here, and we will see what the NTSB said, but Chairman Rosenker was clearly indicating that there were some pictures showing these things were warped in some way. And we have Senator Cardin talking about how they discovered some bolts underneath.

When we look at what has been happening, where the money hasn't been always going in every State, maybe in Wyoming, but to these bridges, it just seems to me that this isn't a Federal mandate. We are putting Federal money into bridges and we want to make sure it is used in the best way, instead of just a pork barrel way across the Country, that it is used on the bridges that are deemed to be a risk to public safety. That is what we are trying to do here.

Mr. MADISON. Thank you, and I understand that, Senator. If I may, I would like to point out that, the current regulatory minimum requirement is every 24 months, and that about 83 percent

of our bridges are inspected every 2 years. Another 12 percent are inspected annually already, and the balance is done on a longer interval.

Senator KLOBUCHAR. OK, thank you very much. I appreciate it.

Senator BOXER. Thank you.

I wanted to talk to GAO, first of all, it is very fortuitous timing. A year ago, Senator Inhofe and I, as Ranking Member and Chair of this Committee, along with Senators Levin and Coleman, on Homeland Security, requested this report. Now it comes out today and it comes out just about the time that we are hoping to mark up Senator Klobuchar's bill.

I know that GAO doesn't take positions on bills, and I am not asking you that at all, although the Administration opposes it, which doesn't surprise me. What do you consider to be the key findings of the report that you are releasing today, in the plainest of language? If you would say the top three findings or five or two, what would they be?

Ms. SIGGERUD. That is a tough assignment, Senator Boxer, but I will get right into it. I think it is first of all important to understand that we did find some good news in terms of improvement in conditions of bridges. But we are very concerned long term about the extent to which that slow and steady improvement we saw over the past decade will continue to be delivered on, given aging and the very important challenges we have to resources that we have all been talking about today.

Senator BOXER. So you would say there has been improvement, but in your view, you would like to see it faster? Faster improvement?

Ms. SIGGERUD. Faster improvement, as well as we realize that will be quite difficult, because of the aging bridges and the financial pressures that the States are under, and of course, the problem in the Highway Trust Fund.

Senator BOXER. So I am just going to stop you, because I want to speak English that is clear. I am not going to speak English that says a structurally deficient bridge isn't a problem. Because that is like saying this isn't my name. I am not doing that. I want to talk realism here.

So we are pleased we have made some progress. We are concerned because the bridges are aging, that is a natural thing, we can't reverse it. We have stresses on financing. So those two things together give GAO concern, is that fair?

Ms. SIGGERUD. Yes.

Senator BOXER. OK, next.

Ms. SIGGERUD. The next point then is that under the circumstances, when we have these kinds of challenges and the fiscal situation that we are in of what can be done to make sure that we are making the very best use of the Federal dollar through the Highway Bridge Program. As we have said both for this program and for the entire Federal Aid Highway Program, it is our view that the Federal interest needs to be defined and we need to set performance goals, we need to have accountability for those goals, and see what we can do to tie the financial flow of dollars from the Federal Government to achievement of those goals.

Senator BOXER. So if I were to translate that into my English, it would be, we need to prioritize what we do?

Ms. SIGGERUD. Yes.

Senator BOXER. So we have a problem, it is getting worse because of a confluence of factors, and we need to prioritize what we do and make sure that we are doing the right thing with the dollars in the bridge fund?

Ms. SIGGERUD. Right. And there are a number of options for doing that, Senator Boxer. One is on the table before you today, and that is to decide that we are going to focus on certain types of bridges on the national highway system, the interState highway system, some particular class of roads that we consider to be of the most important national interest. That is one option.

We could also go to the option of having very specific performance goals set by States with Federal oversight and then holding them accountable and tying the number of dollars States get to making progress on the prioritization that we are talking about.

Senator BOXER. Very good.

Ms. SIGGERUD. The Senate could also consider in reauthorization or through this bill various matching funds, depending on the extent to which a particular project is related to achieving a national interest.

Senator BOXER. OK.

I know that Senator Lautenberg is on his way and wants to question the panel. So we will continue.

Senator Inhofe, do you have any questions for this panel?

Senator INHOFE. Madam Chairman, I don't. I am anxious to get to the third panel, so you go ahead and get your questions out of the way.

Senator BOXER. Senator Klobuchar.

Senator KLOBUCHAR. Thank you.

Ms. Siggerud, I have some questions about the report. One of the things that you noted in the report is the need to link the States' past performance on reducing its inventory of bridges as a way to make States more accountable.

Ms. SIGGERUD. Yes.

Senator KLOBUCHAR. I think that is an interesting concept, as we look at how can we make sure the money is going where it is and divide the money up appropriately. But my concern is that with this method, we may have too much of a focus on numbers without looking at results and safety. So if we just look at the numbers of deficient bridges, do you think it would create an incentive for a State to fix many small, easy to repair bridges, and this could have a consequence of neglecting repairs to larger, high traffic, costly to repair bridges? This is not to say they would ever want to have a dangerous bridge in their State.

Ms. SIGGERUD. Of course.

Senator KLOBUCHAR. But as they are kind of allocating what they do, and I am afraid it would create some kind of, I can see in our State they would say, oh, we could get 100 bridges done instead of the I-35 bridge. What do you think about this unintended incentive, if we were to go that route?

Ms. SIGGERUD. There are a number of unintended incentives in this program. The current program essentially ties the number of

deficient bridges and their deck area, the amount of the grant that goes to States is based on that number. So to the extent that the number of deficient bridges or the amount of deck area decreases over time, the States get fewer dollars in the following years. But that does not happen if in fact those bridges do not improve their condition. So there is already an interesting incentive in the current program.

But I think your question about the number of bridges is actually right on, and I would hope that we could move to a more nuanced type of performance result in terms of incentivizing and rewarding performance.

The other thing that we did find in working with States is that because the amount of dollars available to States every year is never sufficient to address all the structurally deficient bridges, we said that it often happens that dealing with small bridges is a more practical approach, because taking on construction of a very large and complicated bridge is something that needs to be planned over a long period of time and needs more dollars than are typically available from the Highway Bridge Program.

Senator KLOBUCHAR. So do you see why we think it would help, and this is why this bill with Congressman Oberstar and Senator Durbin and others, that we are trying to come up with a way to have some Federal influence in terms of determining which ones are truly public safety risks? Do you think that would help?

Ms. SIGGERUD. It seems to me there are really two parts of the bill that get at that. One is the risk prioritization concept, and the other is the performance planning concepts. In our view, really the devil is in the detail there in terms of how those would be implemented. In our work with States, it is very clear that many of them are using sophisticated approaches in bridge management systems. So to target their priorities, is there a way to build on that good information analysis that is already available and have these additional tools be useful, rather than an add-on.

Senator KLOBUCHAR. Good. Would you endorse some kind of funding bonus for States if they pursued national projects?

Ms. SIGGERUD. We haven't looked at that in particular. I have to say that is something that came up occasionally in the work we have done on this and the rest of the Federal Aid Highway Program, is considering different levels of Federal match, depending on the relationship to a national interest.

Senator KLOBUCHAR. And obviously here with our proposal we are looking at if they don't fix their bridges first, they are not going to get any more money.

Ms. SIGGERUD. Right.

Senator KLOBUCHAR. Mr. Madison, just one last question, I see Senator Lautenberg is here, about when this whole collapse happened, as we were trying to struggle with, Secretary Peters was there that day, came back with us to look at the bridge. I was struck by this, there are State inspections, and then there are Federal inspections. How is that work divided up and is there a better way to do that?

Mr. MADISON. They are not exactly duplicate inspections. In fact, our Federal Highway Administration division staff members work with the States to monitor their annual bridge programs. We audit

each State's program to ensure that they are covering all the requirements of the National Bridge Inspection standards. So we are not necessarily performing double inspections, Senator.

Senator KLOBUCHAR. OK. Thank you very much.

Senator BOXER. Senator Lautenberg.

Senator LAUTENBERG. Thank you very much, Madam Chairman, for giving me an opportunity to ask a few questions and to be here for this very important meeting. It has been more than a year since the dramatic and tragic collapse of the I-35W bridge in Minneapolis, and no one has worked harder to try to make a remedy, to bring our attention to the terrible tragedy that occurred that day than Senator Klobuchar. I congratulate her for her effort and look forward to what I think is going to be a good outcome as a consequence of her interest and her skill here.

Still today, more than 25 percent of our Nation's bridges are classified as deficient. And both our witnesses, and we are pleased to see you, it means that these bridges are deteriorating to the point where they have structural problems, or they are too outdated to handle today's needs. New Jersey, the number is 34 percent, or one out of every three bridges deserves serious and quick attention. We are fighting hard to expand forms of transportation that are more energy efficient, more convenient and less dependent on oil. Amtrak, for instance, is a perfect example.

Madam Chairman, I ask unanimous consent that the full statement that I have here will be included in the record.

Senator BOXER. Without objection, so ordered.

Senator LAUTENBERG. I thank you.

[The prepared statement of Senator Lautenberg follows:]

STATEMENT OF HON. FRANK LAUTENBERG, U.S. SENATOR
FROM THE STATE OF NEW JERSEY

Madam Chairman, It's been more than a year since the dramatic and tragic collapse of the I-35W Bridge in Minneapolis, Minnesota. And still, more than 25 percent of our nation's bridges are classified as deficient. That means these bridges are either deteriorating to the point where they have structural problems or are too outdated to handle today's cars, trucks and buses. In New Jersey, that number is 34 percent, or one out of every three bridges.

We are fighting hard to expand forms of transportation that are more energy-efficient, more convenient, and less dependent on oil. Amtrak is a perfect example. But we must also recognize that, to protect our travelers and prepare our nation's infrastructure for the future, we need to repair the country's crumbling bridges. Their failure is not an option.

I commend Senator Klobuchar for introducing her legislation to take on this challenge. Bridge repairs start with states doing regular and thorough inspections. Bridges like the George Washington and Benjamin Franklin are critical for drivers traveling in and out of New Jersey. Their failure would stall our economy—not to mention the many innocent lives that would be put at risk.

Once states identify safety problems, they need the money to repair those problems. Much of this funding comes from the Federal bridge program. Unfortunately, we have recently learned that the highway trust fund, which funds this program, is running dry. This means work on highway and bridge projects around the country is at risk of delay.

We have tried five times in recent months to replenish the fund, but it has been blocked each time. This is unacceptable, and I hope the minority allows the Senate to complete its work on the bill to fix this shortfall. We cannot take risks with our travelers when it comes to their safety or the nation's transportation infrastructure. We need to modernize our bridges even as we focus on other forms of transportation at the same time.

Thank you Madam Chairman. I look forward to today's testimony.

Senator LAUTENBERG. I would like to ask Mr. Madison, heavy trucks cause more damage to our bridges. Secretary Peters recognized this when she was the Arizona transportation director in 1999, when she opposed increasing the Federal truck weight limit from 80,000 pounds to 97,000 pounds. She cited safety concerns and the extra damage to bridges from these super-heavy trucks.

Legislation is now pending in the Senate to allow this truck weight limit increase. What does the Administration have to say? Do they support or oppose that bill?

Mr. MADISON. We have concerns with the bill, Senator, for the reasons that you just described. I think Secretary Peters is still of the same mind set that these heavy trucks with multiple axles, create significantly more damage on our highways and bridges. I don't have specific information that would guide us in the State of Maine, but I know if, for example, 97,000 pounds 6-axle tractor-semitrailers were allowed on the entire National Network, approximately one-third of the bridges would be stressed beyond their design rating, leading to the deterioration in service life as well as eventual requirements for rehabilitation or replacement.

Senator LAUTENBERG. According to a report by your agency published in 2000, trucks heavier than 80,000 pounds cause—correct me if I am wrong—twice as much damage to roads and bridges as they pay for in Federal fees and highway gas tax. Is that true?

Mr. MADISON. That is an answer that I don't have, Senator, but I would be happy to get back to you on the record with an answer. [The referenced information was not received at time of print.]

Senator LAUTENBERG. How might we get these excess weight trucks to pay their fair share of the damage that they cause?

Mr. MADISON. Well, it speaks to the need to reform our overall transportation program, which might include managing or operating the system differently. And it may include managed truck lanes or restricted lanes that are for exclusive use by trucks that may be designed or built differently and there could potentially be a fee associated with those lanes.

Senator LAUTENBERG. The one thing I think that has to happen is that the traveling public and their families have the right to know that their Government is taking a truly risk-based approach to fixing the Country's bridges. Wouldn't it be a waste to fix bridges which aren't in as bad shape as others, assuming that they are used equally? That information is important and I think we should make certain that the public is aware of that.

Mr. MADISON. We agree completely, Senator.

Senator LAUTENBERG. Ms. Siggerud, you said in your testimony, States shouldn't be allowed to spend Federal bridge funds on other kinds of road projects.

Ms. SIGGERUD. Actually what we said, Senator Lautenberg, is we simply said that States are using them for other kinds of projects. We didn't take a position on the propriety of that. Please go ahead.

Senator LAUTENBERG. But shouldn't our Federal policies require States to fix what infrastructure they have that is not up to standard, that is deficient, before getting into new infrastructure programs?

Ms. SIGGERUD. I think this transfer provision can be very troublesome, particularly in certain States where we haven't seen re-

placement of those Federal dollars with other State or Federal Aid dollars from other Federal Aid Highway programs. Our view, however, is that what we need to do here is determine what we want the Federal dollar to do specifically, there is very broad eligibility for this program, and then hold States accountable for programming projects that meet those Federal interests.

Senator LAUTENBERG. Right. I think it is fair to say that the question arises, shouldn't we get the risk out of travel as much as we can, and certainly as we saw once again in Minnesota, what can happen? We have seen bridge collapses around the Country and we know that a lot of them have such serious problems. Shouldn't that come as a priority in our transportation efforts?

Ms. SIGGERUD. As a representative of GAO, I certainly can't argue against risk prioritization. Obviously it is very, very important as we decide which transportation projects to fund when we have limited State and Federal dollars, safety being the very highest priority. But we also need to be looking at congestion mobility improvements and a variety of other goals that we have, and then using good analysis, to select those that most deliver on those problems.

Senator LAUTENBERG. Yes. OK, well, I think that risk is the first thing. Excuse me, Madam Chairman.

Senator BOXER. I don't want to rush you at all, except that we have a whole other panel. Ask one more question.

Senator LAUTENBERG. Mr. Madison, the 2000 report that we were discussing, the most common combination vehicles, those registered weights between 75,000 and 80,000 pounds, now pay only 80 percent of the Federal highway costs. And combinations registered between 80,000 and 100,000 pounds pay only half of their share of Federal highway costs, and I add my word that they create. Any future increase in Federal fuel taxes without corresponding increases in taxes on the heaviest trucks will further exacerbate the under-payment of Federal funds, user fees by heavy trucks. That is a clear statement. I assume you stick by that statement.

Mr. MADISON. I am not familiar with that specific information, Senator. We can get an answer back to you on the record.

[The referenced information was not received at time of print.]

Senator LAUTENBERG. Well, it is the final report, U.S. Department of Transportation, Federal Highway Administration, May 2000. It has not soured under the date.

Mr. MADISON. I have to believe we still wholeheartedly support that, Senator.

Senator LAUTENBERG. Thank you. Thank you very much, Madam Chairman.

Senator BOXER. Senator, we are so glad you could join us.

Senator SANDERS. And unless Senator Klobuchar has more questions, then this will be the last questioning of the panel, and we will move to panel three. I appreciate your patience, panel three.

Senator SANDERS. Thank you very much, Madam Chair.

Let me ask both of our panelists a pretty simple question. My understanding is that of the total of almost 600,000 bridges in the National Bridge Inventory, approximately 12.4 percent are structurally deficient, and 14.8 percent are functionally obsolete. I could

tell you that in rural States like Vermont we have a lot of problems. As I mentioned earlier, just in the last month, a couple of bridges were shut down, at great inconvenience for travelers and for businesses.

Given that reality of the serious infrastructure problem we are facing with bridges, do you believe that we need to substantially increase funding for our States and local government to make the necessary repairs? Simple question.

Mr. MADISON. We believe that our budget request is the appropriate level to fund our bridge program at this time.

Senator SANDERS. You do?

Mr. MADISON. Yes.

Senator SANDERS. Even though bridges all over rural America are collapsing and States don't have the money to repair them? You think what you are providing is a sufficient sum?

Mr. MADISON. Senator, we believe, again, that the amount of money that is provided for bridge programs, reconstruction, and new construction is at the appropriate level.

Senator SANDERS. But I ask you a question, if somebody needed surgery, somebody was hurting, you would say that they are in need of help, but where is the money going to come from? How would you tell us with a straight face, when you have heard over and over again today, hear it all over America, Governors are telling you they don't have the money to repair their bridges, they are worried about things like what happened in Minnesota? We want to put people back to work. How do you tell us with a straight face that this is enough money?

Mr. MADISON. The term that you mentioned, structurally deficient, and the other terms that we spoke about earlier, are engineering terms that help us manage our bridge system nationally and give guidance to the States on how to manage their own respective programs, helps prioritize those investment decisions. I am certainly not arguing, Senator, that our needs in this country do not far outpace the available resources, but we believe there needs to be—

Senator SANDERS. You just said the needs outpace the available resources?

Mr. MADISON. Correct.

Senator SANDERS. So are you going to go back and fight for more resources?

Mr. MADISON. In the Department of Transportation's reform proposal, Senator we suggest that it is time for some new and innovative financing methodologies that will help us fund priorities.

Senator SANDERS. Does that mean more money from the Federal Government?

Mr. MADISON. I think it means more flexibility to States to make—

Senator SANDERS. I thank you very much. And again, Madam Chair, this is exactly what the problem is. You talk to anybody in America, they understand our infrastructure is collapsing. And these guys keep talking in double talk, we need this, we need that, we need everything. But you know what you need? You need to put people to work to rebuild our infrastructure. Unless you guys are magicians and know how to do that without funding, I don't know

how you do it. And I think what you are hearing is one of the reasons of why we are not addressing a major crisis facing this Country.

If I could ask Ms. Siggerud a question. My understanding is that all over America, including the State of Vermont, States are not able to utilize the Federal funds that have come in because of the matching formula. In other words, States which are having financial problems right now can't come up with the 10 percent or the 20 percent and the Feds are taking back the money. Do you think we should be adjusting or taking a look at that matching formula so that States could better move that money into their infrastructure?

Ms. SIGGERUD. Senator Sanders, the GAO has not looked into that particular issue or the problems in those States in any detail. But what we have said with regard to reauthorization of the Federal Aid Highway Program is that the matching formulas are a key tool for making sure that we are funding the best types of programs and that we may want to revisit that concept, depending on where it is we want to take this transportation program and how we want to define the Federal interest.

Senator SANDERS. And that is fair enough. But what happens if, as is the case right now, a lot of States are having financial problems, and they are stealing from Peter to pay Paul, and they are not able to come up with the funding and they have to return the money. Is that something we want to take a look at?

Ms. SIGGERUD. I certainly think it should be considered in the reauthorization program. I don't have any particular recommendations with regard to that situation today.

Senator SANDERS. Madam Chair, I think that is a problem that we are seeing around the Country. It doesn't make a whole lot of sense if we are giving a grant out and States can't use the grant because of financial problems. That is all.

I would yield to Senator Klobuchar if she had an additional question.

Senator KLOBUCHAR. I already had a second round, I am fine.

Senator SANDERS. Thank you very much.

Senator BOXER. I want to thank you so very much, both of you, for your answers. Obviously this is just the beginning of our debate over how we are going to do this, fix our bridges, fix our highways, et cetera. So thank you very much.

We will call up panel three, Mr. Andrew Herrmann, Hardesty and Hanover, LLP, on behalf of the American Society of Civil Engineers. He is a minority witness. Mr. John Krieger, U.S. Public Interest Research Group. He is a minority witness. Majority, those two are majority witnesses. So sorry. I was wondering.

OK, Mr. Andrew Herrmann is a majority witness, Mr. Krieger is a majority witness. And Mr. Gary Ridley, Director of Oklahoma Department of Transportation, on behalf of the American Association of State Highway and Transportation Officials, and he is a minority witness. My staff reversed this whole, entire thing.

[Laughter.]

Senator BOXER. But you know what, we are all Americans. So whatever. We are all here to challenge our very important issues.

So please start, Mr. Herrmann. We really welcome you and the American Society of Civil Engineers.

STATEMENT OF ANDREW HERRMANN, P.E., F.ASCE, MANAGING PARTNER, HARDESTY AND HANOVER, LLP

Mr. HERRMANN. Chairman Boxer, Senator Inhofe and members of the Committee, good morning. My name is Andrew Herrmann, I serve on the board of direction of the American Society of Civil Engineers. I am Chairman of the 2009 Report Card of America's Infrastructure Advisory Council. I am a senior partner of Hardesty and Hanover, a transportation consulting engineering firm headquartered in New York.

During my 35 year career, I have been responsible for many of the firm's major bridge projects, with experience in inspection, rating, design, rehabilitation and construction of bridges. Let me start by thanking you for holding this hearing. I can say there are few infrastructure issues of greater importance to Americans today than bridge safety.

In that respect, I am pleased to voice ASCE's strong support of the National Highway System Bridge Reconstruction and Inspection Act, which would provide dedicated funding to the States to repair, rehabilitate and replace structurally deficient bridges on the National Highway System. I also would like to say that ASCE strongly supports the National Highway Trust Fund fix.

More than 4 billion vehicles cross bridges in the United States every day. Like all man-made structures, bridges deteriorate. Deferred maintenance accelerates deterioration and causes bridges to be more susceptible to failure.

In 2005, ASCE issued the latest in a series of assessments of the Nation's infrastructure. Our 2005 Report Card for America's Infrastructure found that as of 2003, 27.1 percent of the Nation's bridges were structurally deficient or functionally obsolete, an improvement from the 28.5 percent in the year 2000. In fact, over the past 15 years, the number of deficient bridges has steadily declined from 34.6 percent in 1992 to 25.6 percent in 2007.

However, this improvement is contrasted with the fact that one in three urban bridges was classified as structurally deficient or functionally obsolete, which is much higher than the national average.

For another perspective, the 10-year improvement rate from 1994 to 2004 was 5.8 percent fewer deficient bridges. If we project this rate forward from 2004, it will take until the year 2050 to remove all deficient bridges. Unfortunately, the rate of deficient bridge reduction from 1998 to 2006 is actually decreasing. Using the current projections from 2006, all deficient bridges will not be eliminated now until the year 2063. Progress has been made in the past in removing deficient bridges, but our progress is now slipping or leveling off.

The Federal 2006 Highway Administration's Condition and Performance Report estimated that at all levels, \$12.4 billion in total should be spent on bridge repairs annually. In 2008 dollars, the American Association of State Highway and Transportation Officials last month pegged the total price tag at \$140 billion to repair or modernize the Nation's bridges.

There is clearly a demonstrated need to invest additional resources in our Nation's bridges. The National Bridge Inspection standards in place since the early 1970's require biennial safety inspections of bridges to be performed by qualified inspectors. Approximately 83 percent of our bridges are inspected once every 2 years.

Standard condition evaluations are documented for individual bridge components, as well as ratings for the functional aspects of the bridge. These ratings are weighted and combined into an overall sufficiency rating for the bridge, which can define it as structurally deficient or functionally obsolete, both of which trigger the need for remedial action.

Bridge inspection services should not be considered a commodity. Currently, NBIS regulations do not require bridge inspectors to be professional engineers, but do require individuals responsible for load rating the bridges to be PEs. ASCE believes that non-PE bridge inspectors and technicians may be used for routine inspection procedures and records, but the pre-inspection evaluation, the actual inspection, ratings and condition evaluation should be performed by registered professional engineers experienced in bridge design and inspection. The bridge engineer may have to make immediate decisions to close a lane, to close an entire bridge or to prohibit truck traffic on a bridge to protect the public safety.

ASCE strongly supports quick action to enact the NHS Bridge Reconstruction and Inspection Act, which would authorize additional funds to repair, rehabilitate and replace structurally deficient bridges on the National Highway System. This is accomplished through improving the bridge inspection requirements, providing dedicated funding for structurally deficient NHS bridges, distributing funds based on public safety and need, and establishing a bridge reconstruction trust fund.

A thorough review of current bridge inspection requirements seems appropriate. ASCE strongly supports a requirement that bridge inspections be performed by registered professional engineers who are certified bridge inspectors. The initiatives, compliance reviews of State bridge inspection programs and increased emphasis on steps to address structurally deficient bridges are vital to improving State bridge programs and must emphasize bridge safety, not bureaucracy.

Additional funding to repair, rehabilitate and replace structurally deficient bridges on the NHS would be a good complement to the current FHWA bridge program, because of the emphasis on the NHS bridges. National Highway System bridges carry a large percentage, more than 70 percent of all traffic on bridges. Over the over 116,000 bridges on the National Highway System, 6,175 are structurally deficient, including nearly half, 22,830, which are part of the interState system.

Senator BOXER. Mr. Herrmann, could you sum up? We are running out of time and I want to make sure everybody gets heard. So just give me your sum-up.

Mr. HERRMANN. OK. Improving the safety of the Nation's bridges is an important goal. But the rest of the Nation's infrastructure faces just as many needs. ASCE's 2005 Report Card for America's Infrastructure gave the Nation's infrastructure a cumulative grade

of D. ASCE is now working on and will release its next report card in March 2009, with the expectation that continued under-investment and delayed maintenance over the past 3 years will result in grades that have not improved significantly, if at all.

Successfully and efficiently addressing the Nation's infrastructure issues will require long-term, comprehensive, nationwide strategies including identifying potential financing methods and investment in requirements. For the safety and security of our families, we as a Nation can no longer afford to ignore this growing problem. Aging infrastructure represents a growing threat to public health, safety and welfare, as well as the economic well-being of our Nation.

Thank you.

[The prepared statement of Mr. Herrmann follows:]

**Testimony of
The American Society of Civil Engineers
Before the
Senate Environment and Public Works Committee
on
Improving the Federal Bridge Program: an Assessment of
S. 3338 and H.R. 3999**

September 10, 2008

Chairwoman Boxer, Senator Inhofe and Members of the Committee:

Good morning. I am Andrew Herrmann, a Board Member of the American Society of Civil Engineers (ASCE)*, Chairman of the 2009 Report Card for America's Infrastructure Advisory Council, and a Senior Partner of Hardesty & Hanover, LLP, a transportation consulting engineering firm headquartered in New York. I am a registered Professional Engineer in 26 states. During my 35 year career I have been responsible for many of the firm's major fixed and movable bridge projects. My experience covers inspection, rating, design, rehabilitation, and construction of bridges.

Let me start by thanking you for holding this hearing. As someone who has worked in this field for many years, I can say that there are few infrastructure issues of greater importance to Americans today than bridge safety.

I am pleased to appear today to be able to lend ASCE's expertise to the problem of the nation's crumbling infrastructure that was highlighted by the tragic events of August 1, 2007 when the I35W Bridge in Minneapolis collapsed into the Mississippi River.

I am also pleased to voice ASCE's strong support of the **National Highway System Bridge Reconstruction and Inspection Act (S. 3338/H.R. 3999)**, which would provide dedicated funding to States to repair, rehabilitate, and replace structurally deficient bridges on the National Highway System (NHS).

I. Bridge Conditions

More than 4 billion vehicles cross bridges in the United States everyday and, like all man-made structures, bridges deteriorate. Deferred maintenance accelerates deterioration and causes bridges to be more susceptible to failure. As with other critical infrastructure,

* ASCE, founded in 1852, is the country's oldest national civil engineering organization. It represents more than 140,000 civil engineers in private practice, government, industry, and academia who are dedicated to the advancement of the science and profession of civil engineering. ASCE is a 501(c) (3) non-profit educational and professional society.

significant investment is essential to maintain the benefits and to assure the safety that society demands.

In 2005, ASCE issued the latest in a series of assessments of the nation's infrastructure. Our *2005 Report Card for America's Infrastructure* found that as of 2003, 27.1% or 160,570 of the nation's 590,753 bridges were structurally deficient or functionally obsolete, an improvement from 28.5% in 2000. In fact, over the past 12 years, the number of deficient bridges (both structurally deficient and functionally obsolete categories) has steadily declined from 34.6% in 1992 to 25.59% in 2007.

However, this improvement is contrasted with the fact that one in three urban bridges (31.2% or 43,189) were classified as structurally deficient or functionally obsolete, much higher than the national average.

The 2006 Federal Highway Administration's *Conditions and Performance Report (C&P)* estimated that at all levels \$12.4 billion in total should be spent on bridge repair annually. In 2008 dollars, the American Association of State Highway and Transportation Officials (AASHTO) last month pegged the total price tag at \$140 billion. That number is expected to increase over time due to inflationary construction costs.

The ten year improvement rate from 1994 to 2004 was 5.8% (32.5% - 26.7%) fewer deficient bridges. Projecting this rate forward from 2004 would require 46 years to remove all deficient bridges. Unfortunately the rate of deficient bridge reduction from 1998 on to 2006 is actually decreasing with the current projection from 2006 requiring 57 years for the elimination of all deficient bridges. Progress has been made in the past in removing deficient bridges, but our progress is now slipping or leveling off.

There is clearly a demonstrated need to invest additional resources in our nation's bridges. However, deficient bridges are not the sole problem with our nation's infrastructure. The U.S. has significant infrastructure needs throughout the transportation sector including roads, public transportation, airports, ports, and waterways. As a nation, we must begin to address the larger issues surrounding our infrastructure so that public safety and the economy will not suffer.

II. Bridge Inspection Program

The National Bridge Inspection Standards (NBIS), in place since the early 1970s, require biennial safety inspections for bridges in excess of 20 feet in total length located on public roads. These inspections are to be performed by qualified inspectors. Structures with advanced deterioration or other conditions warranting closer monitoring are to be inspected more frequently. Certain types of structures in very good condition may receive an exemption from the 2-year inspection cycle. These structures may be inspected once every 4 years. Qualification for this extended inspection cycle is reevaluated depending on the conditions of the bridge. Approximately 83 percent of bridges are inspected once

every 2 years, 12 percent are inspected annually, and 5 percent are inspected on a 4-year cycle.

Information is collected documenting the conditions and composition of the structures. Baseline composition information is collected describing the functional characteristics, descriptions and location information, geometric data, ownership and maintenance responsibilities, and other information. This information permits characterization of the system of bridges on a national level and permits classification of the bridges. Safety, the primary purpose of the program, is ensured through periodic hands-on inspections and ratings of the primary components of the bridge, such as the deck, superstructure, and substructure. This classification and condition information is maintained in the National Bridge Inventory (NBI) database maintained by FHWA. This database represents the most comprehensive source of information on bridges throughout the United States.

Two documents, the American Association of State Highway and Transportation Officials' (AASHTO) *Manual for Condition Evaluation of Bridges* and the Federal Highway Administration's (FHWA) *Recording and Coding Guide for the Structure Inventory and Appraisal of the Nation's Bridges*, provide guidelines for rating and documenting the condition and general attributes of bridges and define the scope of bridge inspections. Standard condition evaluations are documented for individual bridge components as well as ratings for the functional aspects of the bridge. These ratings are weighted and combined into an overall Sufficiency Rating for the bridge on a 0-100 scale. These ratings can be used to make general observations on the condition of a bridge or an inventory of bridges.

The factors considered in determining a sufficiency rating are: S1- Structural Adequacy and Safety (55% maximum), S2- Serviceability and Functional Obsolescence (30% maximum), S3- Essentiality for Public Use (15% maximum), and S4- Special Reductions (detour length, traffic safety features, and structure type--13% maximum).

In addition to the sufficiency rating, these documents provide the following criteria to define a bridge as structurally deficient or functionally obsolete, which triggers the need for remedial action.

Structurally Deficient – A structurally deficient (SD) bridge may be restricted to light vehicles because of its deteriorated structural components. While not necessarily unsafe, these bridges must have limits for speed and weight, and are approaching the condition where replacement or rehabilitation will be necessary. A bridge is structurally deficient if its deck, superstructure, or substructure is rated less than or equal to 4 (poor) or if the overall structure evaluation for load capacity or waterway adequacy is less than or equal to 2 (critical). Note a bridge's structural condition is given a rating between 9 (excellent) and 0 (representing a failed condition). In a worst case scenario, a structurally deficient bridge may be closed to all traffic.

Functionally Obsolete – A bridge that is functionally obsolete (FO) is safe to carry traffic but has less than the desirable geometric conditions required by current standards.

A bridge is functionally obsolete if the deck geometry, underclearances, approach roadway alignment, overall structural evaluation for load capacity, or waterway adequacy is rated less than or equal to 3 (serious). A functionally obsolete bridge has older design features and may not safely accommodate current traffic volumes, vehicle sizes, and vehicle weights. These restrictions not only contribute to traffic congestion, but also pose such major inconveniences as lengthy detours for school buses or emergency vehicles.

Structural Capacity –Components of bridges are structurally load-rated at inventory and operating levels of capacity. The inventory rating level generally corresponds to the design level of stresses but reflects the present bridge and material conditions with regard to deterioration and loss of section. Load ratings based on the inventory level allow comparisons with the capacities for new structures. The inventory level results in a live load which can safely utilize an existing structure for an indefinite period of time. The operating rating level generally describes the maximum permissible live load to which the bridge may be subjected. This is intended to tie into permits for infrequent passage of overweight vehicles. Allowing unlimited numbers of vehicles to use a bridge at the operating level may shorten the life of the bridge.

Bridge Engineers and Bridge Inspectors:

Bridge inspection services should not be considered a commodity. Currently, NBIS regulations do not require bridge inspectors to be Professional Engineers, but do require individuals responsible for load rating the bridges to be Professional Engineers. ASCE believes that non-licensed bridge inspectors and technicians may be used for routine inspection procedures and records, but the pre-inspection evaluation, the actual inspection, ratings, and condition evaluations should be performed by licensed Professional Engineers experienced in bridge design and inspection. They should have the expertise to know the load paths, critical members, fatigue prone details, and past potential areas of distress in the particular type of structure being inspected. They must evaluate not only the condition of individual bridge components, but how the components fit into and affect the load paths of the entire structure. The bridge engineer may have to make immediate decisions to close a lane, close an entire bridge, or to take trucks off a bridge to protect the public safety.

***III. National Highway System Bridge Reconstruction and Inspection Act (S. 3338/
H.R. 3999)***

ASCE applauds the introduction of this legislation borne out of the need illustrated by the collapse of the I 35 W Bridge in Minneapolis last year. This is a promising display of support that has often been lacking for the problem of our nation's crumbling infrastructure. However, it is essential to remember that this legislation, while a good first step, is not the sole solution.

ASCE strongly supports quick action to enact the NHS Bridge Reconstruction and Inspection Act which would authorize additional funds to repair, rehabilitate, and replace

structurally deficient bridges on the NHS. This is accomplished through four components:

- Improving bridge inspection requirements;
- Providing dedicated funding for structurally deficient NHS bridges;
- Distributing funds based on public safety and need; and
- Establishing a bridge reconstruction trust fund.

A thorough review of the current bridge inspection requirement seems appropriate and there must be greater emphasis on the steps needed to address a structurally deficient bridge once it has been classified. ASCE strongly supports a requirement that bridge inspections be performed by registered professional engineers who are certified bridge inspectors. The initiative's compliance reviews of state bridge inspection programs and increased emphasis are good steps to improving the states bridge programs. These efforts, however, must emphasize bridge safety not bureaucracy.

Additional funding to repair, rehabilitate, and replace structurally deficient bridges on the NHS would be a good complement to the current FHWA bridge program because of the emphasis on NHS bridges. NHS bridges carry a large percentage -- more than 70 percent -- of all traffic on bridges. Of the 116,172 bridges on the NHS, 6,175 are structurally deficient, 2,830 of which are part of the Interstate System. The investment backlog for these deficient bridges is estimated to be \$32.1 billion.

The requirement to distribute funds based on a formula which takes into account public safety and needs is an excellent step in creating a program that addresses public safety first. ASCE's Cannon of Ethics states clearly that public safety, health, and welfare should be the engineer's primary concern. Any bridge safety program should be based on providing for public safety first.

ASCE has long supported the creation of trust funds for infrastructure improvement. Unfortunately, the passage of SAFETEA-LU left a significant gap in funding the well-documented needs of our nation's surface transportation programs. During the SAFETEA-LU debate, it was estimated that \$375 billion was needed for the surface transportation program, but only \$286 billion was authorized in the law. This initiative would be a first step in addressing the long term needs of the nation. However, this effort should not detract from the investment needs debate during the reauthorization of SAFETEA-LU in 2009.

To improve the legislation further, ASCE recommends that the criteria for a bridge to be inspected by a registered professional engineer be revised to change the definition of "complex" bridges in Title 23, Part 650, Section 650.30. Under the current language of the bill, only bridges with "unusual characteristics including moveable, suspension, and cable-stayed highway bridges" are considered complex. By that criteria, truss bridges with fracture critical members, such as the I 35 W Bridge in Minneapolis, may not be complex. To remedy this, ASCE suggests the language be amended to state that all bridges but simple highway overpasses be considered "complex" for inspection purposes.

IV. ASCE's Policies Regarding Bridges

Funding programs for transportation systems, i.e., federal aviation, highways, harbors, inland waterways, and mass transit as documented by the U.S. Department of Transportation, need to be increased to provide orderly, predictable, and sufficient allocations to meet current and future demand.

The Highway Trust Fund is in danger of insolvency (as other trust funds may be in the future) and must receive an immediate boost in revenue to ensure success of surface transportation programs. In fact, the Office of Management and Budget estimates that in FY 2009 the Highway Account of the Highway Trust Fund will be in the red by as much as \$4.3 billion. The House has already passed legislation to correct this problem for Fiscal Year 2009 and ASCE urges the Senate to do the same as soon as possible. Funding for surface transportation improvements – including for bridges – is in jeopardy without this measure.

The safety, functionality, and structural adequacy of bridges are key components necessary to support and ensure the safe, reliable, and efficient operation of transportation infrastructure and systems which provide mobility of people and the movement of goods and services. Federal policy establishes the minimum bridge safety program components necessary for both public and private bridges to ensure an adequate and economical program for the inspection, evaluation, maintenance, rehabilitation, and replacement of our nation's bridges.

Continued neglect and lack of adequate maintenance will ultimately result in higher annual life-cycle costs of bridges due to shortened service life. Therefore, investment to improve the condition and functionality of the nation's bridges will reduce the required investment in the future.

Bridge Safety

For the continued safety of the nation's bridges, ASCE advocates that a bridge safety program for both public and private bridges be established, fully funded, and consistently operated to upgrade or replace deficient bridges and to maintain all others properly. This program should preserve full functionality of all bridges to support the operation of safe, reliable, and efficient transportation systems, and to allow these systems to be utilized to their full capacity. Such programs should include as a minimum:

- Regular programs of inspection and evaluation that incorporate state-of-the-art investigative and analytical techniques, especially of older bridges which were not designed and constructed to current design loading and geometric standards;
- Enforced posting of weight and speed limits on deficient structures;
- Implementing and adequately funding regular system-wide maintenance programs that are the most cost-effective means of ensuring the safety and adequacy of existing bridges; and
- Establishing a comprehensive program for prioritizing and adequately funding the replacement of functionally obsolete and structurally deficient bridges.

Transportation Funding

Adequate revenues must be collected and allocated to maintain and improve the nation's transportation systems and to be consistent with the nation's environmental and energy conservation goals. A sustained source of revenue is essential to achieve these goals.

ASCE recommends that funding for transportation system improvements, associated operations, and maintenance be provided by a comprehensive program including:

- User fees such as motor fuel sales tax;
- User fee indexing to the Consumer Price Index (CPI);
- Appropriations from general treasury funds, issuance of revenue bonds, and tax-exempt financing at state and local levels;
- Trust funds or alternative reliable funding sources established at the local, state, and regional levels, including use of sales tax, impact fees, vehicle registration fees, toll revenues, and mileage-based user fees developed to augment allocations from federal trust funds, general treasuries funds, and bonds;
- Refinement of the federal budget process to establish a separate capital budget mechanism, similar to many state budgets, to separate long-term investment decisions from day-to-day operational costs;
- Public-private partnerships, state infrastructure banks, bonding, and other innovative financing mechanisms as appropriate for the leveraging of available transportation program dollars, but not in excess of, or as a means to supplant user fee increases;
- The maintenance of budgetary firewalls to eliminate the diversion of user revenues for non-transportation purposes, and continuing strong effort to reduce fuel tax evasion.

V. National Infrastructure Outlook Is Poor

Three years ago, ASCE released its most recent assessment of the condition of the nation's public works systems. Our *2005 Report Card for America's Infrastructure* was a grim review taken as a whole of the state of America's roads, bridges, navigable waterways, dams, airports, water treatment plants, and other facilities. We gave the nation's infrastructure a cumulative grade of "D." ASCE will release its next Report Card in March of 2009. It is anticipated with the continued under-investment and delayed maintenance over the past three years that the grades are not expected to improve significantly, if at all.

- Federal, state, and local governments have made a significant investment in improvements in wastewater-treatment infrastructure throughout the country since 1972. But many problems remain. The Environmental Protection Agency estimates that the investment "gap" for wastewater treatment will total approximately \$390 billion through 2020.

- America faces a shortfall of \$11 billion annually to replace aging facilities and comply with safe drinking water regulations. Federal funding for drinking water remains at about \$800 million, less than 10 percent of the total national investment need.
- The U.S. Army Corps of Engineers estimates that at least half of the 257 locks on the nation's 12,000 miles of inland waterways are functionally obsolete. It will take billions to replace or upgrade these locks.
- Since 1998, the number of unsafe dams has risen by 33 percent to more than 3,500. While federally owned dams are in good condition and there have been modest gains in repair, the number of dams identified as unsafe is increasing at a faster rate than those being repaired. \$10.1 billion is needed over the next 12 years to address all critical non-federal dams—dams which pose a direct risk to human life should they fail.
- America shortchanges funding for much-needed road repairs. Traffic congestion costs the economy \$78.2 billion annually in lost productivity and wasted fuel. Passenger and commercial travel on our highways continues to increase dramatically. The Texas Transportation Institute's *2007 Urban Mobility Report* notes that congestion causes the average peak period traveler to spend an extra 38 hours of travel time and consume an additional 26 gallons of fuel annually, amounting to a cost of \$710 per traveler per year. AASHTO estimates that capital outlay by all levels of government would have to increase by 42 percent to reach the projected \$92 billion cost-to-maintain level, and by 94 percent to reach the \$125.6 billion cost-to-improve level.

V. Conclusion

Successfully and efficiently addressing the nation's infrastructure issues, bridges and highways included, will require a long-term, comprehensive nationwide strategy—including identifying potential financing methods and investment requirements. For the safety and security of our families, we, as a nation, can no longer afford to ignore this growing problem. We must demand leadership from our elected officials because, without action, aging infrastructure represents a growing threat to public health, safety, and welfare, as well as to the economic well-being of our nation.

Thank you, Madam Chairwoman. That concludes my statement. I would be pleased to answer any questions that you may have.

**Environment and Public Works Hearing
September 10, 2008
Follow-up Questions for Written Submission**

Witness: Andrew Herrmann, P.E., F.ASCE

Senator Frank R. Lautenberg:

1. In your testimony, you noted that urban bridges are more likely than rural bridges to be structurally deficient or functionally obsolete. What needs to be done to make our urban bridges as safe as our rural bridges?

Urban bridges are more likely to be classified as deficient because of higher traffic volume and a greater than average age. ASCE supports the provision within the Bridge Reconstruction and Repair Act (S. 3338/H.R. 3999) that implements a risk-based prioritization approach to repairing the nation's bridges. Under that categorization, urban bridges that carry high volumes of traffic, are older than their original design lives, and contribute to significant economic activity would more likely score highly on the prioritization list, and thus be improved sooner.

Senator Benjamin L. Cardin:

1. As bridge inspections require an analysis of information of a technical nature, it seems reasonable to me that at least one professional engineer be required to be on every bridge inspection team. However, the legislation requires that the Team Leader must be a professional engineer? How important is it for the Team Leader to be a professional engineer? Do state DOTs employ senior staff with management expertise that are not engineers? If they have professional engineers as part of their Team, shouldn't they be able to serve as Team Leaders?

Currently, NBIS regulations have the first option to be a Professional Engineer with the requisite experience and training to be the Team Leader on bridge inspections but they do allow other lesser options which do not require the Team Leader to be a Professional Engineer. ASCE believes that non-licensed bridge inspectors and technicians may be used for routine inspection procedures and records, but the pre-inspection evaluation, the actual inspection, ratings, and condition evaluations should be performed by licensed Professional Engineers experienced in bridge design and inspection. The NBIS regulations should be changed to require just Professional Engineers with appropriate

experience such as the expertise to know the load paths, critical members, fatigue prone details, and past potential areas of distress in the particular type of structure being inspected to be the Team Leader. They must have the ability to evaluate not only the condition of individual bridge components, but how the components fit into and affect the load paths of the entire structure. The Team Leader may have to make immediate decisions to close a lane, close an entire bridge, or to take trucks off a bridge to protect the public safety.

A Professional Engineer is an individual who, through education, training, practical experience, and rigorous examination has been granted the privilege to practice engineering by a state in his or her field of expertise, and has the legal mandate and ethical obligation to protect the public's health and safety: Insuring that a bridge is in safe, serviceable condition falls under this legal mandate and ethical obligation.

I do know that in New York (and in several other states), the state where my firm has a significant amount of experience inspecting bridges, the requirements for Team Leader and Quality Control Engineer are very strict including the PE license, bridge experience, and NY inspection training. Other states or bridge owners may use in-house staff that may or may not have these requirements. The fact that the NBIS regulations have lesser bridge requirements that may be substituted for the PE is what should be addressed.

Senator Bernard Sanders:

1. Given the large unobligated balances in the Highway Bridge Program program, [sic] could federal restrictions or cost-share requirements be preventing states from spending more on their bridges?

While I cannot speak for each state individually, there is some criticism that the current program may make it difficult for states to meet certain needs. The risk-based formula for prioritization included in this bill, however, ensures that the authorized \$1 billion would go toward correcting the most pressing problems across the nation, regardless of location. Despite federal regulation that restricts the use of federal bridge program monies under some circumstances, the fact remains that the federal government's financial stake in improving the nation's infrastructure is too small. States and localities are forced to make up the bulk of expenditures on all infrastructure, not just bridges and roads, when they barely have the funds to keep up regular maintenance, let alone major capital improvements. A stronger federal role in infrastructure improvement would ensure greater capacity and improved operations and maintenance.

2. The Department of Transportation has documented that there is a consistently higher rate of deficiency among rural bridges, compared to urban. Given that a single bridge may have much more importance for the connectivity of a rural community this is a very troubling fact.

Could you comment on the factors that might have created this situation?

Based on the figures published in April 2008 by the U.S. Bureau of Transportation Statistics (BTS) available at http://www.bts.gov/current_topics/2008_04_24_bridge_data/html/bridges_us.html approximately 30% of urban bridges are considered structurally deficient or functionally obsolete while only 23% of rural bridges have either of those classifications. The BTS also indicates that approximately 35% of Vermont's bridges are considered deficient, but does not break that number down by rural versus urban.

While I cannot speak to Vermont's specific situation, bridges can often mean the only link to travel and economic health a small community has. The legislation discussed at this hearing is an important step to remedy the problems on the nation's busiest bridges, but should not be considered a cure-all. The nation faces serious challenges with its existing infrastructure. Repairing and improving it does not come at the hands of one small bill, but through a concentrated effort and a change to a mindset that values this type of investment. We must take this opportunity to improve and invest for the future so that all communities – rural and urban alike - can benefit from improved quality of life and economic prosperity that world-class infrastructure can bring.

Senator James M. Inhofe:

1. The bill would increase the number of years required for someone to lead a team of bridge inspectors from 5 to 10. This seems rather arbitrary. Do you think that those with less than 10 years, but more than 5 years of experience are unqualified? I'm concerned that this could seriously reduce the number of qualified inspectors just as this bill dramatically increases the required number of inspections.

Currently, NBIS regulations have the first option to be a Professional Engineer with the requisite experience and training to be the Team Leader on bridge inspections but they do allow other lesser options for non-PEs ranging from ten years bridge inspection experience with a FHWA approved comprehensive bridge inspection training course down to an Associates Degree in engineering or engineering technology with four years of bridge inspection experience and the FHWA course. ASCE believes that non-licensed bridge inspectors and technicians may be used for routine inspection procedures and records, but the pre-inspection evaluation, the actual inspection, ratings, and condition evaluations should be performed by licensed Professional Engineers experienced in bridge design and inspection. ASCE believes the increased requirements reflect the need to put public safety first when inspecting the nation's bridges. The NBIS regulations should be changed to require just Professional Engineers with appropriate experience such as the expertise to know the load paths, critical members, fatigue prone details, and past potential areas of distress in the particular type of structure being inspected to be the Team Leader. They must have the ability to evaluate not only the condition of individual bridge components, but how the components fit into and affect the load paths of the entire

structure. The Team Leader may have to make immediate decisions to close a lane, close an entire bridge, or to take trucks off a bridge to protect the public safety.

A Professional Engineer is an individual who, through education, training, practical experience, and rigorous examination has been granted the privilege to practice engineering by a state in his or her field of expertise, and has the legal mandate and ethical obligation to protect the public's health and safety. Insuring that a bridge is in safe, serviceable condition falls under this legal mandate and ethical obligation.

I do know that in New York (and in several other states), the state where my firm has a significant amount of experience inspecting bridges, the requirements for Team Leader and Quality Control Engineer are very strict including the PE license, bridge experience, and NY inspection training. Other states or bridge owners may use in-house staff or consultants that may or may not have these requirements. The fact that the NBIS regulations have lesser bridge requirements that may be substituted for the PE is what should be addressed.

Senator BOXER. I think that sums it up. We appreciate it.
Mr. Krieger, we are very happy to have you here, U.S. Public Interest Research Group.

STATEMENT OF JOHN KRIEGER, STAFF ATTORNEY, FEDERAL TAX AND BUDGET POLICY, UNITED STATES PUBLIC INTEREST RESEARCH GROUP

Mr. KRIEGER. Thank you, Madam Chairperson and Senator Inhofe. I thank you for the opportunity to testify on this issue that is crucial to the safety and security of American families.

I speak today on behalf of the U.S. Public Interest Research Group, a national federation of non-partisan, non-profit State-based public interest advocates and the many other organizations that also support this legislation, including the Transportation for America Coalition, an alliance of national membership groups focused on building a modernized infrastructure and healthy communities where people can live, work and play.

As the latest wave of dangerous storms crashing into our coasts has reminded us, we as a Country are only strong and safe when our national infrastructure is sound and in a State of good repair. For that reason, we firmly believe that a Federal highway dollar is best spent on preservation and maintenance rather than building new capacity. We urge the Committee to support this legislation and to focus Federal funding on our Nation's significant backlog of aging and crumbling infrastructure.

The height of new bridge construction occurred from 1956 to 1971, during the early phase of the interState highway system. Therefore, many of the bridges that Americans travel on every day are reaching a critical age at the same time. According to a needs assessment from the Department of Transportation, the existing bridge investment backlog on the National Highway System is over \$65 billion.

Last year, America saw the horror of the Minnesota I-35 West Bridge collapse. One year later, it is important to understand the systematic causes of that tragedy in order to avoid future disasters. There is no organized lobby that pressures State officials for bridge repair. On the contrary, well-connected developers and road builders lobby aggressively on the State level for wider lanes, new branch roads and additional off ramps. Builders often prefer lucrative contracts to pour concrete and lay steel for new highways rather than the uncertainty of relatively complex and labor-intensive restoration and repair. Meanwhile, elected officials find it all too easy to defer preventive maintenance that is scarcely noticed and rarely celebrated by voters.

Over the last two decades, State departments of transportation have received vastly increased flexibility to shift funds between Federal programs to fulfill their transportation plans. The Highway Bridge Program, as you know, is the primary source of funds for highway bridge replacement, reconstruction and capital maintenance. States, however, can flex or transfer 50 percent of their Federal bridge funds into non-bridge programs. During the last 5 years, as we have heard earlier, most States divert that money into new projects, diluting the intention of the Federal program. In fact, Federal highway data shows that 36 States transferred more

money out of bridge repair accounts than into them over the span of the last 5 years. Compounding the problem, Federal funds are doled out based on formulas that often reward deferred maintenance. States receive funding based on their outstanding costs for replacing deficient bridges, but there is little accountability to ensure that States use the money for this purpose. By deferring maintenance and allowing a bridge to deteriorate to the point of replacement, States can tap into more readily available capital funds, albeit it as a much greater total cost to the taxpayers.

The legislation before us today would be a strong step in the right direction. The legislation requires that State departments of transportation address all bridges on the National Highway System that have a sufficient rating below 50 on a scale of 1 to 100 before being eligible to transfer Federal funds into other programs. This common-sense solution ensures that States address those bridges that are in worse condition than the I-35 West bridge before diverting bridge funds into other projects.

The legislation also infuses more accountability into the National Bridge repair and replacement program by ensuring that investments are based on priorities like safety and mobility and not on politics.

Next session, this Committee will be called upon to debate and write much of the next surface transportation funding authorization. In order to revamp our transportation system for the needs of the 21st century, fix it first policies and accountability for spending must be prioritized. Unless we change the way that American finances bridge repair, we remain doomed to repeat mistakes of the past. The bridge collapse in Minnesota should serve as a wake-up call.

We urge this Committee to embrace and approach the highway spending that prioritizes maintenance and repair of our existing roadways and bridges. Our Country can no longer afford the cost of inaction and misplaced priorities as our bridges continue to age and deteriorate. For that reason, we ask that you support the National Highway Bridge Reconstruction and Inspection Act.

I thank you once again for this opportunity. Thank you.

[The prepared statement of Mr. Krieger follows:]

Testimony of

John Krieger, Staff Attorney – Federal Tax and Budget Policy
United States Public Interest Research Group (USPIRG)

Senate Committee on Environment and Public Works
September 10, 2008

Madam Chairperson and distinguished Committee Members, thank you for the opportunity to testify on this issue that is crucial to the safety and security of American families. I speak today on behalf of the US Public Interest Research Group, a national federation of nonpartisan, non-profit state-based public interest advocates, and the many other organizations that support this legislation, including the Transportation for America coalition, an alliance of national membership groups focused on building a modernized infrastructure and healthy communities where people can live, work, and play.

As the latest wave of dangerous storms crashing into our coasts have reminded us, we as a country are only strong and safe when our national infrastructure is sound and in a state of good repair. For that reason we firmly believe that a federal highway dollar is best spent on preservation and maintenance rather than building new capacity. We urge the committee to support this legislation and to focus federal funding on our nation's significant backlog of aging and crumbling infrastructure.

The height of new bridge construction occurred from 1956 to 1971, during the early building phase of the Interstate Highway System. Therefore, many of the bridges that Americans travel on everyday are reaching a critical age at the same time. According to a needs assessment from the Department of Transportation, our country's existing bridge investment backlog is over \$65 billion.

Last year, America saw the horror of the Minnesota I-35 W bridge collapse, which sent drivers plummeting to their death into the Mississippi River. One year later, it is important to understand the systematic causes of that tragedy in order to avoid future disasters.

There is no organized lobby that pressures state officials for bridge repair. On the contrary, well connected developers and road builders lobby aggressively for wider lanes, new branch roads, and additional off ramps. Builders often prefer lucrative contracts to pour concrete and lay steel for new highways rather than the uncertainty of relatively complex and labor-intensive restoration and repair. Meanwhile, elected officials find it all too easy to defer preventative maintenance that is scarcely noticed and rarely celebrated by the voters.

Over the last two decades, State Departments of Transportation have received vastly increased flexibility to shift funds between federal programs to fulfill their state transportation plans. The Highway Bridge Program is the primary source of federal funds for highway bridge replacement, reconstruction, and capital maintenance. States can, however, if they wish, transfer or “flex” up to 50% of their federal bridge funds to non-bridge programs. During the last five years, most states diverted that money into new projects, diluting the intention of the program. In fact, federal highway data shows that thirty-six states transferred more money out of bridge repair accounts than into them over that span.

Compounding the problem, federal funds are doled out based on formulas that often reward deferred maintenance. States receive funding based on their outstanding costs for replacing deficient bridges, but there is little accountability to ensure that states use the money for this purpose. By deferring maintenance and allowing a bridge to deteriorate to the point of replacement, states can tap into more readily available federal capital funds – albeit at a much greater total cost to taxpayers.

The National Highway Bridge Reconstruction and Inspection Act would be a strong step in the right direction. The legislation requires that State Departments of Transportation address all bridges on the National Highway System that have a sufficiency rating below 50 on a scale of 1 to 100 before being eligible to transfer federal bridge funds into other programs. This common sense solution ensures that states address those bridges that are in worse condition than the I-35 W Bridge before diverting bridge funds into other projects.

The legislation also infuses more accountability into the national bridge repair and replacement program by ensuring that investments are based on priorities, like safety and mobility, rather than politics.

Next session, this committee will be called upon to debate and write much of the next surface transportation funding authorization. In order to revamp our

transportation system for the needs of the 21st century, “fix it first” policies and accountability for spending must be prioritized.

Unless we change the way that America finances bridge repair, we remain doomed to repeat mistakes of the past. The bridge collapse in Minnesota should serve as a wake-up call. We urge this committee to embrace an approach to highway spending that prioritizes maintenance and repair of our existing roadways and bridges. Our country can no longer afford the cost of inaction and misplaced priorities as our bridges continue to age and deteriorate. Please support The National Highway Bridge Reconstruction and Inspection Act.

Thank you once again for this opportunity.



Smart Growth America – Reconnecting America – Surface Transportation Policy Project
 PolicyLink – National Housing Conference – US Public Interest Research Group – National Association of City
 Transportation Officials – America Bikes – National Association of Realtors National Resources Defense Council – Apollo
 Alliance – LOCUS: Responsible Real Estate Developers and Investors
 Action! For Regional Equity – Transit for Livable Communities – American Public Health Association

The United States Senate
 Committee on Environment and Public Works

Sept 10, 2008

Dear Senator,

One year after the tragic collapse of the I-35 W Bridge in Minneapolis, our country's bridges remain in critical condition. **We strongly urge you to support S. 3338, The National Highway Bridge Reconstruction and Inspection Act.**

The unmet needs of our nation's aging transportation infrastructure endanger the safety and security of American families. While billions in federal funds are spent annually on new highway projects and lane expansion, our existing assets have been left behind. According to the U.S. Department of Transportation, approximately 74,000 bridges in this country are classified as structurally deficient.

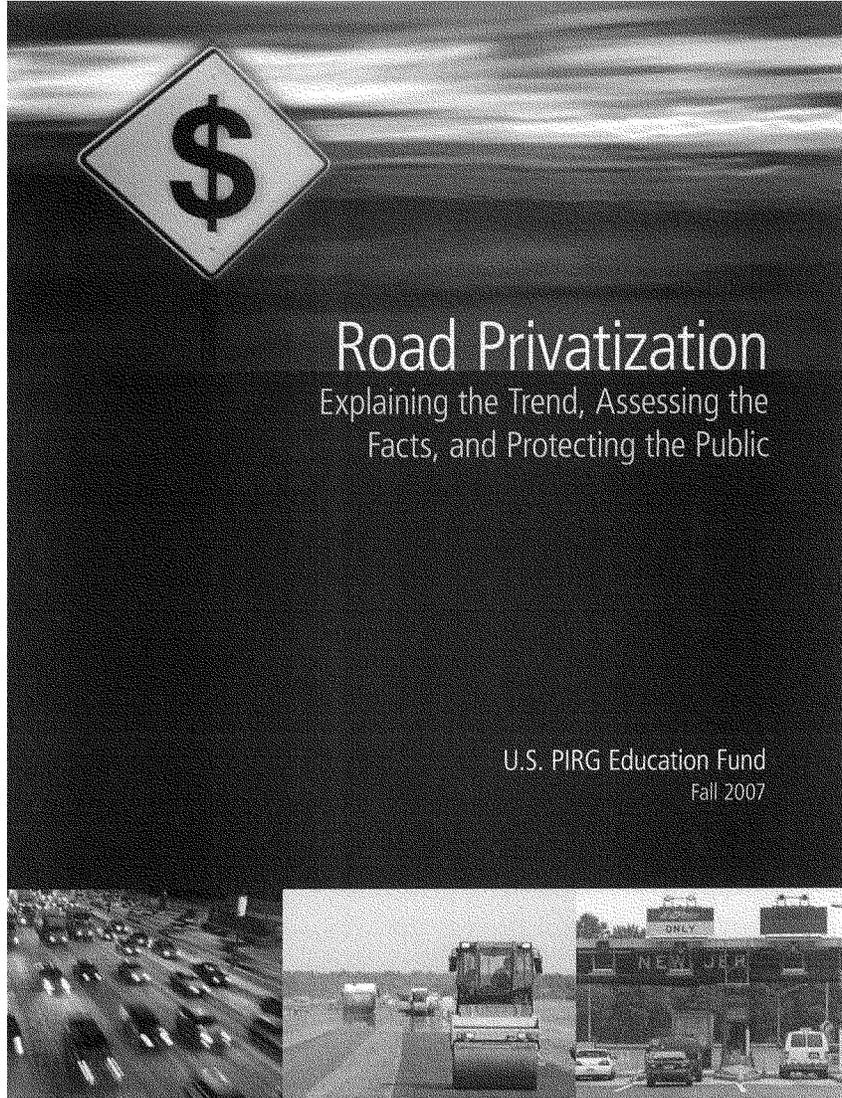
This legislation, which passed the House in July, is an important first step towards addressing our national infrastructure crisis. The bill authorizes dedicated funding for bridge repairs throughout the country and provides minimum inspection standards. The bill also requires that state Departments of Transportation address bridges on the National Highway System that are in worse condition than the I-35 W Bridge before being eligible to transfer federal bridge funds into other projects.

The tragedy in Minnesota should serve as a wake-up call for this Congress, which must embrace an approach to highway spending that prioritizes maintenance and repair of our existing roadways over new capacity. Our country can no longer afford the cost of inaction as our bridges continue to age and deteriorate. **Please support S. 3338, The National Highway Bridge Reconstruction and Inspection Act.**

Thank you,

John Krieger, Staff Attorney
 US Public Interest Research Group

Mariia Zimmerman, Policy Director
 Transportation for America



Road Privatization

Explaining the Trend, Assessing the
Facts, and Protecting the Public

U.S. PIRG Education Fund

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Table of Contents

Executive Summary	1
Introduction	3
Explaining the Surge in Road Privatization	7
Pressure from the Government Side	7
Pressure from the Investor Side	8
The Dangers of Road Privatization	10
Loss of Public Control	10
The Public Will Not Receive Full Value	12
Problems Compounded by Excessively Long Contracts	15
Lack of Transparency and Accountability	17
Short-Term Budget Gimmicks	17
Protecting Against Bad Privatization Deals	18
Notes	20

Executive Summary

Privatization of toll roads is a growing trend. During 2007, sixteen states had some privatized road project formally proposed or underway. In the last two years Indiana and Chicago signed multi-billion-dollar private concession deals for public roads for 75 years and 99 years respectively. As a result of these deals, toll rates on these roads will increase steadily and revenues will be paid to private company shareholders rather than to the public budget.

Encouraged by the enormous anticipated profits that private road operators will reap from these deals, Wall Street investors and high-priced consulting firms have promoted similar deals to other states and local governments. Although offering a short-term infusion of cash, privatization of existing toll roads harms the long-term public interest. It relinquishes important public control over transportation policy while failing to deliver the value comparable to the tolls that the public will be forced to pay over the life of the deal.

Proposed deals to construct new roads or bridges that would be privately operated are a more complicated matter. There may be instances where private companies can deliver services that the public sector

currently lacks and can not efficiently create. However, private deals for new construction should also follow the principles outlined below to adequately protect the public interest. Any potential advantages of private construction should be weighed against the disadvantages of private financing and control.

Governments have a long history of outsourcing service delivery on public thoroughfares. Private companies, for instance, operate gas stations and food service at public rest stops. But the public interest is best served by outsourcing only those functions where public capacity is lacking and where continual competition exists for privately provided service.

In general, privatization makes sense only for activities where the private sector has a clear comparative advantage over public provision of those same services. The common characteristics of road privatization deals are that they enlist a private intermediary to borrow large sums of money backed by a schedule to collect multiple decades of steadily increasing toll rates. Private proposals should thus be judged according to the relative costs and benefits of enlisting this intermediary

to borrow and to hike tolls. Governments can borrow upfront sums at substantially lower cost than can private companies. Government is also more democratically accountable than private companies when it comes to setting tolls. (In fact, according to a chorus of investment analysts, a chief contribution of the private intermediary is precisely that it can diminish public accountability for future toll hikes.) Thus toll road concessions are a bad idea precisely because they outsource activities where the private sector is less capable of serving the public.

In addition to an inability to ensure that the public will receive the full value for its future toll revenues, privatization of toll roads entails a number of additional problems. Over the long-term, these may be of even more serious concern:

- Loss of public control of transportation policy due to a fragmented road network, and an inability to prevent toll traffic from being diverted to local communities, or to change traffic patterns on toll roads without paying additional compensation to road operators.
- An inability to ensure fair or effective privatization contracts due to leases that last for multiple generations and therefore can not fully anticipate future public needs.
- The upfront privatization payoff is a short-term budget fix that does not address long-term budget problems and requires drivers and taxpayers to pay more over the long term.

For both existing toll roads and new construction, the safeguards to protect the public interest against bad privatization deals can be expressed in seven basic principles:

- **Public control** retained over decisions about transportation planning and management;
- **Fair value** guaranteed so future toll revenues won't be sold off at a discount;
- **No deal longer than 30 years** because of uncertainty over future conditions and because the risks of a bad deal grow exponentially over time;
- **State-of-the-art maintenance and safety standards** instead of statewide minimums;
- **Complete transparency** to ensure proper process;
- **Full accountability** in which the Legislature must approve the terms of a final deal, not just approve that a deal be negotiated; and
- **No budget gimmicks** because a deal must make long-term budgetary sense, not just help in the short term.

Introduction

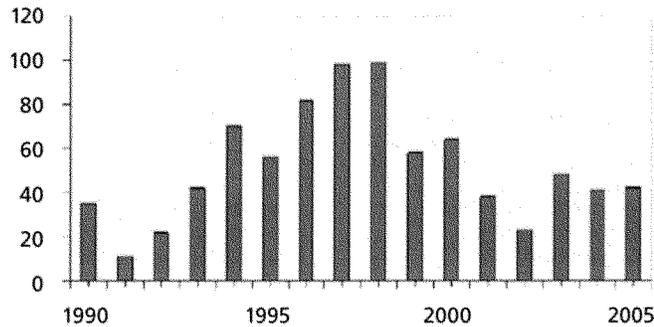
Faced with long-term budget woes and insufficient funds to sustain transportation infrastructure, state governments have experimented with privatizing roads. Numerous private investors currently offer public officials relief from the burden of managing these roads while also providing a large upfront payment. In return, the private entities seek the right to collect for themselves decades of future toll revenues and to steadily increase toll rates.

Once common only in developing countries, these road deals have spread to the United States in recent years.¹ In 2005 Chicago leased its 7.8-mile Skyway toll road to an international consortium that paid \$1.8 billion for a 99-year concession. Indiana followed with a similar a 75-year deal of its 157-mile Indiana Toll Road for \$3.8 billion. Governors in New Jersey and Pennsylvania shortly thereafter began exploring privatization options for their own well-established turnpikes. Other deals have enlisted a private company to construct or expand a new public road, and then typically operate it, in return for future toll revenue. Since 2001, agreements of one or the other type have been signed

in at least seven states, and were under way or officially proposed in at least sixteen states during 2007.² Between 1994 and early 2006, \$21 billion was paid for 43 highway facilities in the United States using various “public-private partnership” models.³ Recent legislation enabling private companies to operate public roads has passed in a majority of states.⁴

These developments mirror the earlier trend of infrastructure privatization in less developed countries. The rise in infrastructure privatization has been particularly pronounced in East Asia and in Latin America, where Enron was a major investor. In those countries, unlike the United States, access to long-term capital is a major problem for governments seeking to build infrastructure. According to World Bank records, infrastructure privatization outside of the United States reached a peak of over \$110 billion per year in 1997 and 1998.⁵ This trend largely bypassed the United States.⁶ The accompanying figure shows World Bank data for private participation in public infrastructure in the transportation sector, about half of which includes airports, seaports, or rail.

Number of Transportation Infrastructure Privatization Deals Outside U.S., 1990-2005



Source: World Bank Public Private Infrastructure data base

Many infrastructure privatization deals became high-profile failures. Two dozen private toll roads went bankrupt in Mexico after 1994. The Thai government seized one railroad that had been in private hands in 1993. Britain renationalized its rail system from Railtrack, the private company that had purchased the rail system in 2001.⁷ A World Bank study of over 1,000 infrastructure projects in Latin America and the Caribbean between 1982 and 2000 found that 55 percent of privatization contracts in transportation and 75 percent in water and sewer had been renegotiated, most during the first few years.⁸ Twenty-one toll road projects in Hungary, Indonesia, Mexico, and Thailand were subsequently taken over by the government.⁹ By the early years of the current decade, the volume of privatization deals had returned to the lower levels of the early 1990s.

With the broader global experience as background, this paper asks three vital questions about the current wave of highway privatization in the United States:

- What is driving the current toll road privatization trend?
- Do these deals benefit or harm the long-term public interest?
- How can the public best be protected?



Practical Objections to Privatizing Toll Roads

This paper focuses on the practical implications of road privatization. Privatization can make sense from a purely practical perspective when certain conditions are met.¹⁰

- First, privatization works best when private companies have some kind of proven comparative advantage over government agencies in providing a particular good or service. For instance, at least before recycling

programs were created, a variety of exhaustive studies concluded that smaller municipalities which used competitive contracting for household garbage collection had lower costs than comparable municipalities that used public agencies for collection.¹¹

- Second, the public must fully know what services it needs to contract for. For instance, it is less problematic to contract for private delivery of a ton of cement or for office windows to be washed each Friday than it would be to contract out “justice” from the courts.
- Third, privatization only succeeds when ongoing competition can discipline private contractors’ performance: either because multiple contractors can provide the same service simultaneously; or alternately because contracts are short enough, with a sufficient number of potential service providers, that unsatisfactory performers can be quickly replaced.¹²
- Finally, privatization works best when the government officials making the decision to privatize can be held accountable for the results of a deal.

“Privatization” or “Public Private Partnership”?

This paper uses the term “privatization” to refer to the transfer of traditionally public functions to the private sector. Recent road deals have received attention precisely because they are shifting the way in which roadways are financed and controlled. As long-time Harvard scholar of road privatization, José Gómez-Ibañez notes, privatization has often been repackaged under different names. He explains:

“Governments have experimented with many variants of privatization, often coining special terms—such as “peoplisation” (Sri Lanka), “capitalization” (Bolivia), or “equitization” (Vietnam)—to distinguish them from the standard fare. And many consultants now prefer to use the term “public-private partnerships” to emphasize that a wide variety of forms of public-private collaboration is possible. Such changes in terminology may be useful, but they do not eliminate the basic problem of persuading the public that the terms of the partnership are fair.”¹³

This paper avoids the term “public private partnership” (or PPP) because of its lack of precision. Interlocking relationships between the public and private sector are ubiquitous across the economy. Virtually all public programs have always involved some kind of partnership between public and private sectors. Medicare is a partnership between public financing and services by private medical providers, for instance. All government departments of transportation likewise have a long tradition of using private vendors for various kinds of service provision. Any transaction between two private companies involves some kind of partnership with the public sector that underwrites risks, defines property rights, and enforces contracts. Beyond a vaguely positive connotation, the term “public private partnership” fails to define what should be included or excluded in the category.

Toll road privatization fails to meet all of these conditions. Public entities, not private companies, have a clear and significant advantage when it comes to long-term borrowing of capital: the ability to issue tax-free debt, which makes for a cost of capital significantly less than private capital. Second, toll leasing deals are too long-term to predict future transportation needs, making it impossible to be certain of the services that must be contracted. Third, toll road privatization creates a

private monopoly with no meaningful ongoing competition because toll roads rarely compete with one another and deals last for several decades. Many lease contracts further limit potential competition from improved free roads. Finally, the length of these deals insulates them from public accountability. The downsides of a deal are likely to surface only after officials have left office and the public has no recourse to change the contract.

Explaining the Surge in Road Privatization

Given the obvious practical problems with toll road privatization, why is interest so widespread right now? The current growth of road privatization in the United States is being driven by factors on both the government side and on the part of private toll road operators.



Pressure from the Government Side

Budget squeeze for transportation

Roads across the country are under great strain in terms of growing congestion and years of insufficient investment in maintenance. The American Society of Civil Engineers graded the overall condition of the nation's infrastructure a "D."¹⁴ Part of the problem is perverse rules which discourage investment in maintenance while encouraging construction of new roads.¹⁵ Regardless, states are having great difficulty finding the money to fund their

transportation programs at accustomed levels.

Governments face immediate budget crunches due to rising health, pension, energy, and construction costs. These rising costs limit states' ability to use general revenue funds for transportation. Meanwhile, gas taxes, the traditional mainstay of transportation funding have not kept up with inflation. For example, states' gas taxes have lost 43 percent of their value during the 1970s, 80s, and 90s.¹⁶ The federal gas tax, last increased in 1993, has done only slightly better.

As a result of revenue shortfalls, states will soon be unable to sustain highway spending at traditional levels. According to the American Association of State Highway and Transportation Officials, the federal Transportation Trust Fund, used for state and local projects, is projected to run into shortfall during 2009 and will need to reduce payments by 42 percent the following year unless new revenues are obtained.¹⁷ Many state level transportation trust funds are also forecast to run into shortfall in coming years.¹⁸

In the context of great investment needs and stagnant revenues, the huge upfront

payouts of toll road privatization have obvious short-term appeal.

Political benefits

Privatization of roads may also offer some political benefits to elected officials beyond the avoidance of potentially unpopular tax increases. In the short term, privatization promises a huge budget windfall, which creates budget slack and an ability to dedicate resources to favored projects. The long-term financial downside, particularly the loss of toll funds and rising toll rates paid by drivers, often is overshadowed by the short-term and initial windfall.¹⁹

Privatization may also give elected officials political cover for the toll hikes brought about by privatization deals. Potential investors claim that by outsourcing toll collection to a private company, drivers' anger over the toll hikes will not be directed at the politicians who authorized the toll hikes. Moody's bond rating agency, after conceding that governments can generate these same upfront payments by borrowing against future toll collections without privatization, offers the counterpoint that, "If they pursue the option [without privatizing], governmental authorities must take responsibility for their own toll raising decisions, rather than distancing themselves from these decisions through a long-term concession to a private entity."²⁰ Fitch bond rating service, similarly, lists as a merit of toll road privatization, the ability to "Distance government from toll increases." The report explains that, "the political risk related to toll rate increases could be minimized by transferring the authority within an overall rate-setting framework to the private sector."²¹

Recent federal rules promote privatization

Aggressive policies by the federal government and particularly the Department of Transportation (DOT) have also promoted

road privatization. The Transportation Infrastructure Finance and Innovation Act (TIFIA), passed in 1998, established funds for the U.S. Department of Transportation to spend on secured (direct) loans, loan guarantees, and standby lines of credit to attract private investment in surface transportation infrastructure.²² The TIFIA website lists \$3.7 billion in past financing and two dozen current projects as of July 2007, mostly highway projects where private entities will be paid back through user fees. The DOT also publishes model legislation for states and a newsletter to encourage privatization of roads.²³

The biggest incentives are for private "green field" deals where companies construct a toll road and then operate it and collect tolls. The federal DOT allocates over \$2 billion per year in credit which can be used to subsidize private borrowing by narrowing the difference between the public and private sector's borrowing costs. The DOT does this by providing private developers and operators access to tax-exempt bonding for highway and surface freight transfer projects. The DOT also grants private projects special federal waivers that suspend normal requirements on contracting, project finance, compliance with environmental requirements, and right-of-way acquisition.



Pressure from the Investor Side

Low-Risk Profits

In addition to the federal subsidies for green field deals, a number of factors make road privatization attractive to investors. One is the reliability of toll revenues. Compared to stocks and other investments, toll road privatization is considered a relatively secure source of long-term revenue. United

States contract law further reduces the investment risks, making deals very hard for governments to undo compared to other nations with less rigid commercial laws. Toll profits reduce investors' portfolio risk as well, because the returns on these investments depend chiefly on traffic flow, which for cars isn't closely linked to other broad market outcomes.

Vast Amounts of Private Money Seeking Toll Road Investments

With all these factors favoring toll road deals, it's no surprise that private investors have been feverishly trying to take advantage of the profit opportunities. According to a report by McKinsey, private

infrastructure funds dedicated to investment in public infrastructure grew from \$5 billion in 2004 to approximately \$45 billion in 2007. At least ten such investment funds were launched in 2006, and more than a dozen large ones are expected in 2007.²⁴ Goldman Sachs, for instance, has started a \$3 billion fund just for infrastructure privatization and consults to states about how to structure privatization deals. Morgan Stanley and Carlyle Group are putting together their own funds, while Macquarie Infrastructure Co. Trust launched its initial public offering (IPO) in December, attracting over a half billion dollars in new funds for privatized infrastructure.

"New Jersey's roadways will not be sold, and they will not be leased to either a for-profit or foreign operator."

— Governor Jon Corzine (NJ), June 28, 2007



Governor Corzine of New Jersey decided not to privatize or lease the Atlantic City Expressway, Garden State Parkway, and New Jersey Turnpike (pictured here). Governor Corzine previously served as CEO for Goldman Sachs, which advised structuring of the road privatization deals in Indiana and Chicago. (Photo: Mark Gordon)

The Dangers of Road Privatization

The economics and governance of road privatization are highly problematic. For existing roads, outsourcing borrowing against future toll revenue to a private entity is likely to produce less money than a public entity could produce. This is the case because a private toll road operator will have higher capital borrowing costs and must divert some revenues to shareholder profits. Even without these fiscal problems, long term road contracts pose a variety of serious threats to the public interest. These include fragmentation and loss of public control over transportation policy, and an inability to prescribe future needs in contracts signed decades earlier.



Loss of Public Control

Transportation policy has tremendous impacts on quality of life, health, and cost of living. It determines the level of traffic congestion and air pollution, the safety and quality of the roads, the many costs

of driving and car ownership, the availability of high-quality and affordable mass transit alternatives, and the development of future land-use patterns. What may seem beneficial from a narrow profit perspective does not necessarily benefit transportation networks more generally.²⁵ Public control of key toll roads is therefore necessary to ensure coherent transportation planning and policy making over long periods of time.

Any driver knows how events that take place on one road affect other connecting and alternative routes. Thus, toll levels, maintenance and safety standards, and congestion on a toll road have a substantial impact on the number of cars using alternative routes, including local roads and mass transit. Decisions about how to operate and manage major roadways can have the effect of creating traffic policy for an entire jurisdiction.

Road privatization elsewhere has shown that a private operator's profit motives lead to very different management decisions than a government would pursue. Four examples from recent road privatizations illustrate these potential dangers:

- **Non-Compete Clauses**—Some privatization contracts explicitly limit the state's ability to improve or expand roads. Private investors fearing that improved free roads would compete with their paying traffic obtained non-compete clauses in California, Colorado, and to a lesser extent, Indiana. In Colorado, a private toll road deal went so far as to require adjacent municipalities to add stop lights as a way to slow nearby local roads.²⁶ California, which used a private concession deal to create new toll lanes in the median of State Road 91, subsequently was forced to buy back the road because non-compete clauses prevented the state from improving the corridor and led to constant litigation. Non-compete restrictions hinder the state's ability to conduct effective transportation policy because other major roads will compete for cars with the toll roads, especially when privatization deals send toll rates sharply upwards and drivers seek alternative routes.
- **Private Toll Decisions = Broad Private Control of Traffic Management**—Private toll operators can generally increase revenues by raising toll rates, even though the higher rates will cause some trucks and cars to choose alternative routes. For the private operator, the additional toll rates more than make up for any loss of income from diverted vehicles. But from the public perspective, the diverted traffic may clog local roads, increasing congestion and pollution in local communities. Substantial traffic diversion, particularly of trucks, resulted in the wake of the 1991 New Jersey Turnpike toll hike. New Jersey responded by rolling back some of the toll hike for trucks to entice them back onto the Turnpike, a move that would not have been possible under privatization,

at least not without paying the private firm for the lost revenue. From a private toll road operator's perspective, the gridlock and pollution on local roads may actually be desirable because drivers will be more likely to pay still-higher tolls.

It's important to recognize just how much control over toll policy private operators gain via the maximum toll hike schedule that privatization deals provide. If the rules for increasing toll rates under the Chicago toll road deal had applied to the Holland Tunnel since its inception, that roadway could presently charge a one-way toll of more than \$180. As a practical matter, an operator would be unlikely to charge that price because nearly all drivers would instead take alternate routes. But the operator would be free to charge whatever the market would bear to maximize profits. Moreover, in order to maximize profits, the toll operator can also offer discounts to particular types of motorists and encourage traffic between certain exits or at certain times. Together these provisions enable the operator to dictate who drives on the toll roads at what times.

- **Creates "Tax" on Normal Policy Making**—The Indiana deal also requires the state to pay investors compensation for reduced toll revenue when the state performs construction such as to add an exit or build a mass transit line down the median. This compensation would add significantly to the cost of construction, and the state could potentially not afford to do the work it would otherwise perform. As an added complication, the exact level of these future payments might be subject to dispute and lawsuits. Transportation policy should be made

according to what's best for the public, not limited by what kinds of extra payments may have to be made to a private operator.

- **Inability to guarantee state-of-the-art safety and maintenance standards**—The public may want major traffic arteries to have cutting-edge safety technologies and road management upkeep; but road operators do not know what these will cost. Private operators want protection against large increases in safety or maintenance costs. The Indiana privatization deal, as a result, does not guarantee state-of-the-art standards. Under that deal, the state of Indiana can require the operator only to meet generally applicable safety standards. To get state-of-the-art, Indiana must pay the cost of constructing and maintaining the higher standards, as well as compensate the private company for any lost tolls caused by the construction. In other words, if Indiana intends to bring its toll road up to state-of-the-art standards, it must pay dearly.

In the future, new standards may include things such as new surfaces, embedded road sensors, or technologies that are not currently envisioned. The Chicago Department of Transportation, for example, has recently conducted a study which finds that using a new type of road surface that includes recycled rubber is slightly more expensive than regular asphalt but creates a number of public benefits. It reduces the strain on sewers and other water infrastructure because the surface is porous enough to allow water to return back into the ground. It also creates an outlet for used tires that are otherwise difficult and costly to dispose of in landfills. Despite the potential public benefits, a private operator would most likely be dissuaded from upgrading to this standard by the

extra costs and few benefits for their own bottom line. Since the new technology was developed after the Chicago road deal, its installation isn't in the contract. Chicago would presumably miss out on the benefits unless they were going to pay more to the road operator.²⁷



The Public Will Not Receive Full Value

Private investors are so eager to purchase existing toll roads that they are willing to offer impressive up-front payments in order to collect future tolls from the public. To give a sense of scale, the \$1.8 billion sum paid for the 99-year lease on Chicago's Skyway is enough to pay every resident in Chicago a one-time sum of \$643.²⁸ The consortium that purchased a 75-year lease to operate the Indiana Toll Road paid an even greater sum: \$3.8 billion. Potential privatization deals for the New Jersey and Pennsylvania turnpikes mentioned payments between \$10 billion and \$30 billion. For elected officials struggling to plug chronic budget shortfalls, these short-term windfalls are enticing.

As impressive as the upfront payments are, they pale in comparison to the likely value of the tolls traded for them, and are less money than public entities could generate doing the same financing themselves.

Financial analysis by experts in asset valuation confirms how privatization deals and offers have failed to supply full value for the future tolls that private companies are expected to collect.

- Analysis of the Indiana and Chicago deals by Dennis Enright of NW Financial, a New Jersey investment bank, found that the private

investors in those deals would likely recoup their investment in less than 20 years. That analysis is confirmed in at least Indiana's case by the company that won the bid. The company Macquarie sent investors a presentation asserting an "Anticipated 15 year pay-back to equity."²⁹ Given that Indiana's deal is 75 years long, and Chicago's is 99 years, the analysis demonstrates that governments in these states received far less for their assets than they are worth.

- Economist and long-term valuation expert Roger Skurski at the University of Notre Dame finds that the \$3.85 billion Indiana Toll Road lease should have more reasonably been valued at \$11.38 billion.³⁰
- In Texas, the Department of Transportation initially excluded the public toll authority from bidding to build and run a new toll road they planned near Dallas, even though it connected to another one of their roads. The winning \$3.1 billion private bid would have generated an estimated 12.5 percent rate of profit on its equity investment and would have required the public to compensate Cintra, the private company, if a "competing roadway" was built within 20 miles. One state senator initiated hearings which led to a temporary moratorium on private deals and the toll authority was allowed to bid. The public authority's bid offered an estimated \$1.9 billion in additional proceeds, calculated on a net present value basis, despite the public entity's higher estimated investment for constructing the road itself.³¹ The state was able to cancel its initial contract with the private operator.
- In testimony before the New Jersey

Assembly's Transportation Committee, securitization expert Peter Humphreys made clear that without privatization the state could generate a large upfront payment even without aggressive toll hikes. By securitizing future toll revenue, he calculated, the state could generate an up front payment of \$1.2 billion for each annual \$100 million of future toll revenue it securitized for 15 years. Given that New Jersey tolls currently generate \$700 million a year, a single deal without a single toll hike would then generate \$8.4 billion over 15 years.³²

Figuring out the fair price for a toll road is a high-stakes guessing game. The long-term value of the upfront payment itself depends on predicting correctly the extent to which inflation will erode the value of those dollars and what rate of return investors could have otherwise garnered with the money. Expected revenues depend on future toll rates and how many cars and trucks will use the road, as well as whatever lesser revenue may be obtained from service-area vendors and development of future advertising and amenities. Private concession deals attempt to reduce uncertainty by indexing future toll rates to factors such as inflation and the growth of the national economy; but much uncertainty remains on the revenue side. Meanwhile, the road operator's costs will depend on factors such as future maintenance and improvements, the number of workers that will be employed, and the cost of providing road safety and snow removal. All of these factors will themselves be influenced by future trends in transportation technology and demographics. The actual cost for a private operator will depend also on which unanticipated future road improvements their lawyers would be able to force the state to pay for.

Despite the uncertainty over actual future costs and revenues on toll roads, a

number of factors prevent the public from receiving full value for a concession deal.

Private Investors Have Higher Costs of Capital

Private companies have higher long-term borrowing costs than public entities. According to analysis by Dennis Enright at the investment bank NW Financial Group, public sector costs for raising capital through debt are a full 35 percent less than the lowest cost of money that a private entity can hope to obtain.³³ The actual financing arrangements, would, of course, be more complicated; but the basic public advantage when it comes to the cost of raising debt stacks the cards against a private deal.³⁴ Government will continue to have lower borrowing costs because it can issue tax-free public-purpose bonds, and bond traders are willing to accept lower interest rates on public bonds.

The higher cost of capital alone means privatization deals will create significant public losses. Even when multiple private companies bid for a public toll road, their higher long-term borrowing costs will get passed onto the public in the form of a lower upfront payment than the government could raise borrowing against the same future toll hikes without using the private road operator as an intermediary. Stated differently, privatization requires greater toll hikes to generate the same upfront payment as would be necessary without privatization. According to the NW Financial Group study, "doing such a deal with non-public ownership will result in tolls 20 to 30 percent higher than a public deal of equal size."³⁵

There's no debate about whether public borrowing costs are lower than the private sector. Deloitte, a major consultant on privatization projects, argues for instance, that, "with the maturing of the private finance market in the United Kingdom, the financing costs difference between the private cost of capital and public borrowing

is now in the range of only 1-3 percentage points."³⁶ Defenders of road privatization may argue that private-sector efficiencies will offset the private sector's higher borrowing costs, but the higher costs themselves are not at issue.

Minor Potential Cost Savings on Existing Toll Roads Do Not Offset the Higher Costs

Privatization advocates often counter concerns about the high capital costs of privatization by talking about potential efficiency increases from private operators. Relatively minor cost savings may be gained by avoiding public-sector rules about hiring standards.³⁷ Overall, however, the potential savings are so financially limited that road companies do not even mention them to their own investors. Macquarie Investment Group, in its own PowerPoint presentation to investors on the Indiana deal, reports "no significant cost savings envisaged."³⁸ Similarly, a leaked document from a private operator proposing a \$30 billion deal in New Jersey explicitly states that the value is due to toll rate increases, not operating efficiencies.³⁹ In sum, private operation cannot be expected to produce sufficient cost savings to offset the high costs of privatization.

Privatization decisions should be distinguished from other kinds of modernization that may accompany privatization efforts. Modernization can be accomplished under either public or private auspices. A particular public toll authority may, for instance, be slow to adopt electronic tolling while a potential private operator promises to install the new technology promptly. In this case, the elected officials have the authority to instruct the toll authority to modernize, even if they have to pass new legislation or appoint new toll authority managers to speed the process. Alternately, the public could hire the private operator just to install the new system.

Modernization does not require a private operator and the associated loss of public value and control.

Modernization should similarly be distinguished from privatization in situations where the state seeks to build a new toll road or expand an existing one. There are potential gains and risks to outsourcing construction project design and oversight to a private firm. In some cases a private builder in a “design-build” project may better manage the risk of cost overruns. But, as problems with Boston’s Central Artery “Big Dig” project managed by Bechtel/Parsons Brinckerhoff illustrate, private outsourcing can lead to its own problems with cost, safety, and quality.⁴⁰

The point is that service provision should be distinguished from financing and long-term ownership. Giving greater discretion and incentives to a private builder need not entail private ownership or private financing of the completed road.

Private Deals Must Also Cover Private Shareholder Profits

While the high capital costs of privatization alone ensure the public cannot get as much value from a private deal as it could from a public one, the money the public loses in these deals is also driven by the high profits the investors make. For instance, Cintra, one of the companies purchasing the Chicago Skyway, revealed that it anticipates to bring in a 12.5 percent return on the equity they invested.⁴¹ Whatever the profit share allocated to shareholders, this is a net loss to the public.

Transaction Costs

Privatization deals also create significant legal and monitoring costs. For governments to try their best to avoid unintended consequences, they must spend dearly on high priced lawyers and analysts to conduct asset evaluation, performance monitoring,

and contract enforcement. Goldman Sachs was paid \$20 million for financial advice on the Indiana privatization deal and \$9 million for the Chicago Skyway deal.⁴² The state of Texas similarly spent \$19 million on upfront legal fees and an environmental study of the proposed deal to build State Highway 121.⁴³ Many of these costs would also be incurred if the government opts to use a public entity such as the turnpike authority to securitize future toll revenues for an upfront payment. Under a private deal, however, additional state inspectors and lawyers would be needed to interpret the contract and litigate to ensure that the private operator was upholding the terms of the deal.



Problems Compounded by Excessively Long Contracts

The loss of control and lost value from privatization are greatly compounded by the fact that the contracts last much longer than the public can foresee or for which elected officials can be held accountable. The Chicago and Indiana lease deals will stretch for multiple generations: 99 years and 75 years respectively. Private investors prefer deals at least 50 years long, because that length allows them to qualify for favorable tax treatment.

To appreciate how profound future changes will be over these time frames, they must be put in perspective. Consider these transportation-related milestones: Henry Ford introduced the Model T in 1908, 99 years ago; the George Washington Bridge opened in 1931, 76 years ago; and Congress created the interstate highway system in 1956, 51 years ago. Similarly, population changes during these

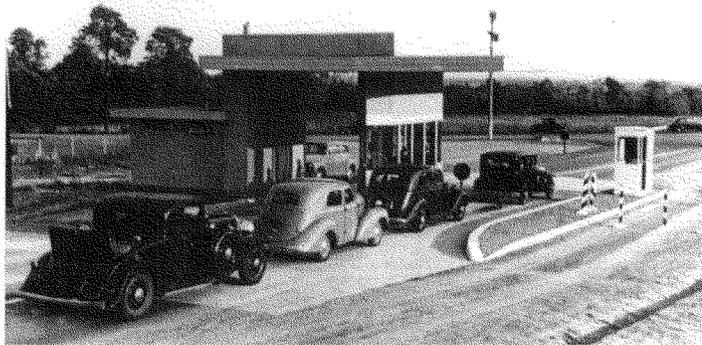
time periods can be dramatic. Metropolitan areas have doubled their populations in the course of a few decades, creating huge changes in transportation needs. Massive, unforeseeable changes will likely take place for transportation technology, networks, demographics, and the distribution of population over time frames like those in the Chicago and Indiana deals. In the face of such uncertainties, governments cannot predict their transportation needs, nor the revenue potential of the toll roads, well enough to negotiate a deal that fairly allocates risks, dictates policy, or sets a fair price.

No contract can be well crafted enough to solve these problems. Even the most public-minded elected officials with the best lawyers and consultants can not draw up a leasing or concession contract that will predict the public's needs and contingencies in the distant future. Ambiguities in the future interpretation of a contract under unforeseen circumstances may have huge stakes and may need to be litigated. Officials should not believe that they can outfox lawyers for private toll-operating entities in drawing up these contracts.

Professor José Gómez-Ibáñez at Harvard

who has written numerous books on infrastructure privatization describes this problem as “the overuse of long-term concession contracts as the method of regulation.” He explains that, “the concession contract attempts to describe completely the obligations of the private firm to the government and vice versa, and it can not be changed unilaterally by either party. ...The main risk with concession contracts is that an unforeseen event will make the contract unworkable for one or both parties. In such cases, the parties face a difficult choice of whether to renegotiate the contract or try to live with its unsatisfactory terms until the concession expires.”⁴⁴

Beyond the uncertainties inherent in a multi-generational time frame, an additional issue of good-government arises: disenfranchisement of future generations of voters. Private investors specifically seek out essential thoroughfares which lack attractive alternative routes. These highways are vital infrastructure, integral to the daily lives of residents. So long as the State, directly or through a Turnpike Authority, retains control over its toll roads, voters have the ability to hold decision-makers accountable. Turning over control of the



Cars lining up for the opening of the Pennsylvania Turnpike in 1940 (Photo: Pennsylvania Turnpike Commission).



Winter road maintenance in the early days of the Pennsylvania Turnpike. (Photo: Pennsylvania Turnpike Commission.)

roads to private investors eliminates that accountability and binds future voters to present-day decisions. Doing so for several generations of voters is simply anti-democratic.



Lack of Transparency and Accountability

Given the profound implications of road privatization, no deal should be approved if the public has not had the opportunity to review, question and comment upon it. The Indiana and Chicago leasing deals were finalized with very little public deliberation or oversight. Texas would have lost billions of dollars in lost revenue if public hearings did not expose the higher payoff that could be offered by the public authority. Full transparency requires public hearings plus disclosure of a potential deal's terms, and any related contracts and subcontracts well before a decision is made.

Likewise, citizens need to be able to hold their representatives accountable for their decision to approve (or not approve) any privatization deal. Opinion polls show the public generally opposing road privatization.⁴⁵ In order to avoid a situation in which

the executive branch approves a deal which legislators subsequently disavow, the legislature should also be required to vote on the final terms of any potential deal. This is akin to the way that Congress is required to ratify trade deals negotiated by the federal executive branch. Legislators who must defend their votes will listen more closely to the public. Needing legislators' votes, states' governors must also be more attentive to public opinion.



Short-Term Budget Gimmicks

Politicians sometimes have a penchant for one-shot "solutions" that actually aggravate long-term budget problems. The payoff structure of road-privatization deals tends to lead to fiscally irresponsible budgeting. States or local officials may be attracted by the immediate payoffs of privatization deals because they face long-term revenue shortfalls that prevent them from funding public programs or force them to face criticism for tax increases. But because privatization payoffs are financed through future toll revenues, they can actually make future budget shortfalls worse.

For instance, the Indiana Toll Road deal used a 75-year lease to finance a ten-year transportation plan. Whatever structural budget shortfalls Indiana faced before the deal will return in year 11, but the state will need to face these shortfalls without the yearly revenue from its toll road or the possibility of raising those tolls for public purposes in the future.

If privatization deals are really intended to address long-term budget needs, then their proceeds should be dedicated to paying off other kinds of long-term budget shortfalls, such as debt and transportation trust funds.

Protecting Against Bad Privatization Deals

When considering potential privatization deals, public officials need to apply basic principles and to benchmark potential deals against the performance of similar borrowing and toll increases by a public authority. For “green field” deals to build new roads, public officials should specify exactly how private entities might add value, and whether those more limited tasks might be outsourced while retaining broader public control and financing.

Basic public interest principles can protect against bad privatization deals. The following seven guidelines can help public officials spot a lemon of a privatization deal, one that does not adhere to the following conditions:

- **Public control** retained over decisions about transportation planning and management without financial penalties;
- **Fair value** guaranteed so future toll revenues won't be sold off at a discount. Any upfront payment must exceed what a public entity could deliver, and windfall revenues must be shared if future traffic exceeds projections;

- **No deal longer than 30 years** because of uncertainty over future conditions and because the risks of a bad deal grow exponentially over time;
- **State-of-the-art maintenance and safety standards** instead of statewide minimums;
- **Complete transparency** to ensure proper process;
- **Full accountability** in which the Legislature must approve the terms of a final deal, not just approve that a deal be negotiated; and
- **No budget gimmicks** because a deal must make long-term budgetary sense, not just help in the short term.

Transparency and accountability will force public officials to face difficult questions. When forced to measure up to these public interest principles, public officials are less likely to see high-priced road sell offs as an “easy out” to their difficult budget problems. There are no easy and attractive answers to questions such as what happens

if diverted traffic from increased tolls leads to gridlock in nearby communities.

Public interest protections also prompt investors to internalize some of the risks that the public would otherwise incur from privatization. Many potential investors may be discouraged by a lack of secrecy or by the possibility of disruptions to future traffic flow, for instance. Investors may also reduce the upfront amounts they are willing to offer. But the tradeoffs will be more realistically expressed in the sale price.

By challenging privatization proposals to financially outperform what the public sector could produce with the same borrowing and toll increases, privatization proposals can be evaluated more pragmatically. Promised operational efficiencies can be evaluated on their own terms. And ideological claims that assert infrastructure privatization will “untap the dormant value of public assets,” can be understood as little different from taking out a second mortgage on one’s home.

If it is established that the public toll road authority or other public special-purpose entities can deliver better financing than private bidders, this still does not mean that public “monetization” of future tolls is a good idea. It should be evaluated the way any bond issuance or other borrowing would be: by judging whether the benefits of upfront investments would outweigh the longer-term debt burden.

If public agencies are going to outbid private contractors, they must be able to make a credible commitment that the agency will actually follow through in raising tolls. The state may need to circumvent statutory debt limits or have them

removed. “There is no doubt,” according to a study by the Keston Institute for Public Finance and Infrastructure Policy, “that if the public sector was willing to increase tolls at the same rate proposed by private investors that the public sector could raise as much money as the private sector through long-term concession deals.”¹⁶

Similarly, when considering any potential privatization deal, it is important to spell out exactly where privatization would be expected to generate increased value. Government agencies may, for instance, lack certain kinds of technical expertise. The government may lack the capacity to install or manage electronic toll paying or certain kinds of new bridge-building techniques, for example. The government may even have less ability to contain construction costs. Once the specific public shortcomings have been identified, it will be possible to consider whether the government might outsource those activities separately or whether it would be cost efficient for the public sector to build those capacities in-house.

For existing toll roads, there simply are not enough potential efficiency gains for toll concession deals to advance the public interest. It is harder to make overall assessments of potential deals for new road construction through private companies that would claim future toll revenues. But no private deal should go forward unless the government is certain that the identified benefits can not be purchased separately and that the benefits truly outweigh the many associated downsides of road privatization.

Notes

1. Private infrastructure deals are common in Europe as well; but most such deals tend to be much shorter in length and the state typically retains much greater control, below-inflation toll increases, and revenue sharing. According to the World Bank's Private Participation in Infrastructure database, European road concession deals (such as in Indiana or Chicago) totaled \$4.2 billion between 1990 and 2005. This comprises about 2 percent of total private investment in European public infrastructure. Concession deals in Europe constituted only 29 percent of all transport-sector deals. See http://ppi.worldbank.org/explore/ppi_exploreRegion.aspx?regionID=3
2. Private leasing projects have been implemented since 2001 in Alabama, California, Illinois, Indiana, Michigan, Texas, and Virginia. New privatization initiatives have been officially proposed or are moving forward in Alaska, Colorado, Florida, Georgia, Illinois, Indiana, Missouri, New Jersey, Nevada, New York, Ohio, Oregon, Pennsylvania, Texas, Utah, and Virginia.
3. Deloitte Research, *Closing America's Infrastructure Gap? The Role of Public Private Partnerships* (2007).
4. Government Accountability Office, "Highway Finance: States' Expanding Use of Tolling Illustrates Diverse Challenges and Strategies," GAO-06-554, June 2006, pp.20-25.
5. Based on the World Bank's Public Private Infrastructure database (PPI) which counts only privatizations that grant operational control to a private firm. See José A. Gómez-Ibáñez, Dominique Lorrain, and Meg Osius, "The Future of Infrastructure Privatization," Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University (June 2004). Current levels of privatization in developing countries have revived behind telecommunications deals, but the total is still 30 percent below its peak in real terms. See "Revival of private participation in developing country infrastructure," *Gridlines* Note # 16 (Jan. 2007).
6. One reason privatization of infrastructure has been modest in the United States is simply because the U.S. never had much public infrastructure to speak of in the industries where privatization took place: no state telecommunications company, energy company, civilian shipyards, airline, or electricity generation and transmission. John D. Donahue, *The Privatization Decision: Public Ends, Private Means* (NY: Basic Books, 1989), p. 6. Municipalities in the United States have experimented with privatized service delivery. While these moves make headlines, the overall trend is more ambiguous because challenges with monitoring and a desire to better steer the process often prompt municipalities to subsequently contract these services back in. For a discussion, see M.E. Warner with Mike Ballard and Amir Hefetz, 2003. "Contracting Back In - When Privatization

- fails," chapter 4, pp. 30-36 in *The Municipal Year Book 2003*. Washington, DC: International City County Management Association (2003).
7. José A. Gómez-Ibáñez, Dominique Lorrain, and Meg Osius, "The Future of Infrastructure Privatization," Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University (June 2004).
 8. José Luis Guasch, "Concessions of Infrastructure Services: Incidence and Determination of Renegotiations—An Empirical Evaluation and Guidelines for Optimal Concession Design", manuscript, World Bank, May 2002, cited in José A. Gómez-Ibáñez, Dominique Lorrain, and Meg Osius, "The Future of Infrastructure Privatization," Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University (June 2004).
 9. Gisele F. Silva, "Toll Roads," World Bank, Public Policy for the Private Sector, Note 224 (December 2000).
 10. For more comprehensive discussion of the preconditions for successful privatization, see David Lowery, "Consumer Sovereignty and Quasi-Market Failure" *Journal of Public Administration Research and Theory*, (1998) pp.137-172; John D. Donahue, *The Privatization Decision: Public Ends, Private Means* (NY: Basic Books, 1989); Oliver Williamson, "Public and Private Bureaucracies: A Transaction Cost Economics Perspective," *Journal of Law, Economics and Organization* 15, 1 (1999):306-342; M.E. Warner and Amir Hefetz, "Pragmatism over Politics: Alternative Service Delivery in Local Government, 1992-2002," chapter in *The Municipal Year Book 2004*. Washington, DC: International City County Management Association (2004).
 11. John D. Donahue, *The Privatization Decision: Public Ends, Private Means* (NY: Basic Books, 1989).
 12. Donahue's broad survey of public versus private efficiency across a wide range of services bears this out. He observes, "Without a credible prospect of replacement, it is hard to harness private capabilities to public purpose." See John D. Donahue, *The Privatization Decision: Public Ends, Private Means* (NY: Basic Books, 1989).
 13. José A. Gómez-Ibáñez, Dominique Lorrain, and Meg Osius, "The Future of Infrastructure Privatization," Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University (June 2004).
 14. American Society of Civil Engineers, "2005 Report Card for America's Infrastructure," available at <http://www.asce.org/report-card/2005/index.cfm>
 15. See, for example, David Westerling and Steve Poflak, *Our Legacy of Neglect: The Longfellow Bridge and the Cost of Deferred Maintenance*, Pioneer Institute White Paper, No. 40 (July 2007).
 16. Robert Puentes and Ryan Prince, *Fueling Transportation Finance: A Primer on the Gas Tax* (Brookings Institute, March 2003).
 17. American Association of State Highway and Transportation Officials, *Transportation: Invest in Our Future; Revenue Sources to Fund Transportation Needs* (April 2007).
 18. For instance, *Transportation Finance in Massachusetts: An Unsustainable System*, Findings of the Massachusetts Transportation Finance Commission (March 28, 2007); *Putting the Trust Back into the New Jersey Trust Fund*, Connecticut, New Jersey, New York Regional Planning Association (July 2005); Matt Sundeen and James B. Reed, *Surface Transportation Funding: Options for States*, National Council of State Legislators (Dec. 2006)
 19. Governments may become less reluctant to hike tolls as a result of electronic tolling technologies, such as EZ Pass. Tolls around the country are increasingly paid through electronic transponders that withdraw funds electronically from drivers' bank accounts. Electronic tolling makes toll collection and processing more efficient and convenient, while allowing cars to pay tolls without coming to a complete stop. Research suggests that electronic tolling also makes toll hikes more politically palatable. MIT economist Amy Finklestein examined data at 123 tolling facilities around the U.S. and found that electronic tolling (like EZ-pass) results in governments raising tolls more quickly. Automated tolling results on average in tolls that rise at a rate 75 percent faster than manual tolling would over time. One strong piece of evidence that drivers don't notice electronic tolls as much is that an increase in electronic toll rates reduces driving only 11 percent as much as the same increase reduces driving for manually collected tolls. See Amy Finkelstein, "E-Z Tax: Tax Salience and Tax Rates," NBER Working Paper No. 12924 (February 2007). The author tests a number of alternative hypotheses for why else this might be the case.

20. Moody's Investor Service, "Monetizing" and Other Creative Solutions for Financing U.S. Transportation Capacity: Multiple Roads to the Same Destination," Special Comment, June 2007, p. 2.
21. Fitch Ratings, "Special Report: U.S. Toll Road Privatizations: Seeking the Right Balance" (March 22, 2006).
22. <http://tifa.fhwa.dot.gov/> The TIFIA statute was enacted as part of the Transportation Equity Act for the 21st Century (TEA 21, Public Law 105-178, §§1501-04), as amended by the TEA 21 Restoration Act (Title IX of Public Law 105-206) and the Safe, Accountable, Flexible, Effective Transportation Equity Act: A Legacy for Users (SAFETEA-LU, Public Law 109-59). The substance of the legislation is codified within sections 601 through 609 of title 23 of the United States Code (23 U.S.C. §§601-609), with supporting regulations appearing in part 80 of title 49 of the Code of Federal Regulations (49 CFR 80).
23. <http://tifa.fhwa.dot.gov/> viewed August 21, 2007.
24. Research in Brief, "Private-investment opportunities for public transport," The McKinsey Quarterly (April 2007).
25. See also the position paper, "Public Interest Concerns of Public-Private Partnerships" by the House Transportation and Infrastructure Committee Chair, James Oberstar, available at <http://transportation.house.gov/media/file/press/ppp%20guidelines%20veritas.pdf>
26. *Rocky Mountain News*, "Road Fight is Hardy Perennial," December 12, 2005, available at http://www.rockymountainnews.com/drmn/local/article/0,1299,DRMN_15_4308424,00.html
27. The Chicago Skyway deal is not public record, so we can not say for sure what provisions it contains. Speculation here is based on the fact that, under public criticism, the government has not divulged any public interest provisions. Investors also are unlikely to promise to install technologies for which they have no idea of the costs.
28. The 2005 Census lists a Chicago population of 2.8 million people.
29. Macquarie Investment Group, "Indiana Toll Road," PowerPoint presentation, slide 5.
30. Roger Skurski, Professor of Economics, University of Notre Dame, report prepared for trial testimony May 15, 2006 in *Bonney, et al v. Indiana Finance Authority, et al*, St. Joseph County, Indiana Superior Court.
31. Dennis Enright, "Texas Hold 'em: Will the State Go All In to Public-Private Partnerships ("CDAs") and Lose \$2 billion?" NW Financial (April 2007).
32. Peter Humphreys is a partner at the law firm of McDermott, Will & Emery, where he heads the securitization practice. McDermott, Will & Emery is the 13th largest law firm in the country. He calculated that securitization by the state would yield an estimated upfront payment of \$8.4 billion.
33. Dennis J. Enright, "The Public Versus Private Toll Road Choice in the United States," NW Financial Group, LLC (June 2007), p. 8.
34. The public-private spread may typically be one to three percentage points in interest rates for debt. A relatively small portion—perhaps 20 percent on average—of an upfront payment would need to be financed through equity for private investors, while for public investors this cushion is covered by a toll revenue covenant that promises a "coverage ratio" in which revenues are expected to exceed expected payments by a prescribed percentage. The public sector could choose to reinvest that surplus amount, use it to reduce future toll hikes, or even securitize the revenue as a future income stream on the private bond market at comparable rates that a private entity would use to finance the equity portion of its upfront payment. Whether or not the public sector has a cost advantage on the equity side is debatable. The lower overall capital costs for the public sector are not.
35. Dennis J. Enright, "The Public Versus Private Toll Road Choice in the United States" NW Financial Group, LLC (June 2007), p. 10. As home buyer know well, a percentage point or two can make a huge difference in a long-term mortgage.
36. Deloitte Research, *Closing America's Infrastructure Gap? The Role of Public Private Partnerships* (2007).
37. National Association of State Highway and Transportation Unions, Highway Robbery II: *The Many Problems With Outsourcing Design, Engineering, Inspection & Supervision of Federally-Funded Transportation Projects: Increased Costs, Reduced Quality & Safety*, (May 2007).
38. MIG (Macquarie Infrastructure Group) PowerPoint presentation, "Indiana Toll Road," Slide 22, "Operating Expenses."
39. Governor Corzine's Remarks on the FY08 Budget Agreement, June 28, 2007, available at

http://www.state.nj.us/governor/news/speeches/070628_budget.html

40. National Association of State Highway and Transportation Unions, *Highway Robbery II: The Many Problems With Outsourcing Design, Engineering, Inspection & Supervision of Federally-Funded Transportation Projects: Increased Costs, Reduced Quality & Safety*, (May 2007).

41. Dennis J. Enright, "The Public Versus Private Toll Road Choice in the United States" NW Financial Group, LLC (June 2007).

42. Daniel Schulman, "The Highwaymen," *Mother Jones* (January/February 2007).

43. Jeffrey N. Buxbaum and Iris N. Ortiz, "Protecting the Public Interest: The Role of Long-Term Concession Agreements for Providing Transportation Infrastructure," USC Keston Institute for Public Finance and Infrastructure Policy, Research Paper 07-02 (June 2007), p. 9.

44. José A. Gómez-Ibáñez, Dominique Lorrain, and Meg Osius, "The Future of Infrastructure Privatization," Working Paper, Taubman Center for State and Local Government, Kennedy School of Government, Harvard University (June 2004).

45. For example, in New Jersey the Farleigh Dickenson PublicMind Poll conducted February 27th through March 4th found only 17 percent of the public supported a turnpike lease, compared to 58 percent against it—a ratio of more than three to one.

46. Jeffrey N. Buxbaum and Iris N. Ortiz, "Protecting the Public Interest: The Role of Long-Term Concession Agreements for Providing Transportation Infrastructure," USC Keston Institute for Public Finance and Infrastructure Policy, Research Paper 07-02 (June 2007), p. 8.

The Federal Bridge Program

How States Under-Fund Bridge Safety

The bridge program provides federal assistance to repair or replace aging bridge infrastructure. Even though over 80,000 bridges are still dangerously unsafe, bridge repair remains a low priority in many states, and billions of dollars in bridge program funding has been diverted to other uses.

The bridge program dates to 1978, when Congress greatly expanded funding to address a bridge system that was rapidly deteriorating and threatening public safety. As recently as 1992, 1 in 5 bridges nationwide were classified as structurally deficient*. The bridge program is designed to address this threat head-on; each state receives funds based on its share of the total cost to repair or replace all deficient bridges nationwide. Thus all states have access to the funds necessary to make essential repairs.

Bridge Safety a Low Priority in Many States

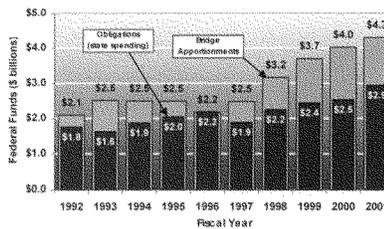
Although Congress has allocated \$29.3 billion to the bridge program over the last ten fiscal years, many bridges continue to have chronic safety problems. Bridge quality has improved overall since ISTEA was enacted, but even today, over 83,000 bridges - 14% - are structurally deficient. Off-system (local) bridges are especially troubling, with deficiency rates over twice that of their on-system (federal) counterparts.

A deeper look reveals significant differences among states in bridge

improvement rates. While a number of states have made significant progress on bridge repair, several states have made dangerously little progress. 12 states actually have more structurally deficient bridges today than they did a decade ago.

Why has bridge safety declined in some states while it improves in others? Although the bridge program is designed to put federal dollars where they're most needed, many states fail to take full advantage of the funding available to them. Overall, the states have spent only 73% of the bridge funding allocated by Congress over the last decade—the lowest obligation rate of TEA-21's five core programs. And the trend is getting worse; states have used only 67% of bridge funds allocated during the first four years of TEA-21. The result is that billions of bridge program dollars—nearly \$8 billion since ISTEA's enactment—have been diverted to other programs and priorities.

Bridge Program Under-Spending, 1993-2001



* FHWA defines structurally deficient bridges as those that "have been restricted to light vehicles, require immediate rehabilitation to remain open, or are closed." This classification is distinct from "functionally obsolete," which are bridges whose capacities no longer support the roads they service. Some studies combine the two categories, and therefore report even higher rates of bridge deficiency than those reported here.

How States Short-Change Bridge Repair

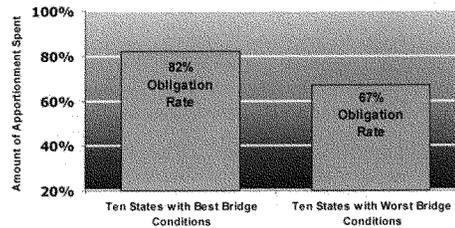
States that under-fund bridge safety do so in a variety of ways. Most take advantage of a loophole in the TEA-21 funding mechanism resulting from the discrepancy between state apportionments, which are specified by program (Interstate Maintenance, Bridge, etc.), and obligation authority, which is not. As detailed in STPP's decoder, "The Transportation Funding Loophole," it is left to states to decide how to allocate overall budget dollars among various programs. Often, states use their discretion to fully fund traditional highway building programs while under-funding critical repair needs like the bridge program. Several such states are ones that the bridge program's funding formula is designed to help the most.

Another diversion technique involves the Discretionary Bridge Program, which provides bridge funding on a project-specific basis. To be eligible for discretionary funds, a state must not have transferred any of its apportioned bridge funds to other uses. But some states use the loophole described above to divert bridge dollars elsewhere without losing eligibility for discretionary funds. For example, in FY 2000-2001, Illinois received over \$12 million in discretionary bridge funding, even though it obligated only 52% of its regular apportionment during that same time, and shifted millions to other programs. By under-obligating its bridge program, the state was able to "transfer" its bridge funds elsewhere and *still* receive discretionary funds without incurring any penalty.

A state-by-state comparison shows the difference between states that use their bridge program dollars and those that don't.

As shown in the graph above, the ten states with the best bridge conditions

Structural Deficiency and Bridge Spending



have spent 82% of their federally apportioned bridge funds since 1992. By contrast, the ten states with the worst bridges have spent only 67% of their bridge funds since 1992. For example, Pennsylvania, with nearly 25% of its bridges deemed structurally deficient, has left unused or transferred over \$1.2 billion in bridge program funding (see Table 1 below).

But while Pennsylvania is the most striking example of bridge under-funding, most states are guilty to some degree. Overall, states have neglected nearly \$8 billion apportioned for bridge repair, choosing instead to focus on new construction projects and other priorities. This shift in funding dollars violates the intent and spirit of the original legislation, which was to allocate bridge funding based on where it was most needed.

Sources:

- Federal Highway Administration. *Conditions and Performance Report*, 1999
- Federal Highway Administration. *Financing Federal-Aid Highways*, 1999.
- STPP, Analysis of FHWA Bridge Classification Information
- STPP, "The Transportation Funding Loophole," *Decoding Transportation Policy & Practice #5*.

For further information, see:

<http://www.transact.org>
<http://www.tea3.org>

<http://www.antc.net>

Table 1. Bridge Program Apportionments and Obligations By State, Ranked by Structural Deficiency Rate (Dollar amounts in millions)

Rank: Most Defic.	State	% Struc. Defic. Bridges 2001	Number of Structurally Deficient Bridges 2001	Bridge Apportionments (1992-2001)	Bridge Obligations (1992- 2001)	% Of Funds Obligated	Unobligated Balance, Bridge Program*
50	Oklahoma	33.5%	7,605	\$516.2	\$407.0	78.8%	\$125.2
49	Missouri	25.8%	6,083	\$960.8	\$674.2	70.2%	\$209.1
48	Rhode Island	25.0%	187	\$232.5	\$160.3	69.0%	\$73.5
47	Pennsylvania	24.7%	5,390	\$2,883.5	\$1,627.1	56.4%	\$125.5
46	South Dakota	23.3%	1,398	\$108.4	\$79.8	73.6%	\$28.0
45	Mississippi	22.0%	3,694	\$427.2	\$364.1	85.2%	\$70.4
44	Iowa	20.1%	5,036	\$431.9	\$238.3	55.2%	\$140.9
43	North Dakota	19.3%	871	\$72.3	\$55.5	76.7%	\$19.7
42	Michigan	18.9%	2,012	\$841.9	\$630.9	74.9%	\$211.0
41	Louisiana	18.2%	2,425	\$686.5	\$560.0	81.6%	\$140.7
40	Hawaii	18.0%	193	\$185.0	\$135.3	73.2%	\$47.8
39	West Virginia	17.3%	1,172	\$561.6	\$490.4	87.3%	\$103.8
38	Nebraska	17.3%	2,678	\$263.7	\$195.5	74.3%	\$76.6
37	Alabama	17.1%	2,677	\$526.0	\$414.5	78.8%	\$111.3
36	Vermont	16.7%	452	\$154.8	\$128.7	83.8%	\$26.5
35	New Hampshire	16.4%	386	\$155.2	\$116.8	75.3%	\$45.6
34	Maine	15.0%	354	\$188.0	\$145.1	77.2%	\$28.6
33	North Carolina	14.8%	2,513	\$795.9	\$676.2	85.0%	\$129.8
32	New Jersey	14.6%	930	\$1,438.8	\$1,273.2	88.5%	\$120.7
31	Utah	14.2%	389	\$126.4	\$89.4	70.7%	\$34.4
30	Massachusetts	14.0%	696	\$1,157.1	\$751.6	65.0%	\$140.5
29	New York	13.8%	2,405	\$2,929.5	\$2,444.0	83.4%	\$413.6
28	Wisconsin	13.8%	1,862	\$324.9	\$321.2	98.8%	\$21.9
27	Kansas	13.5%	3,465	\$438.7	\$337.4	76.9%	\$64.9
26	South Carolina	13.1%	1,187	\$341.5	\$324.8	95.1%	\$28.7
25	Wyoming	12.6%	389	\$71.9	\$59.4	82.6%	\$8.2
24	Indiana	12.5%	2,257	\$387.7	\$326.4	84.2%	\$64.7
23	Arkansas	11.9%	1,479	\$348.1	\$313.8	90.1%	\$36.0
22	Ohio	11.8%	3,305	\$1,086.7	\$733.1	67.5%	\$285.0
21	Alaska	11.8%	169	\$150.2	\$69.9	46.5%	\$50.7
20	Montana	11.4%	570	\$137.5	\$125.9	91.6%	\$4.9
19	California	11.1%	2,631	\$2,067.2	\$851.9	41.2%	\$619.9
18	Georgia	11.0%	1,578	\$543.2	\$413.8	76.2%	\$159.9
17	Illinois	10.7%	2,725	\$1,000.6	\$806.5	80.6%	\$193.7
16	Virginia	9.6%	1,222	\$674.4	\$283.8	42.1%	\$150.2
15	Minnesota	9.5%	1,221	\$260.1	\$227.5	87.5%	\$67.5
14	New Mexico	9.2%	348	\$91.0	\$61.3	67.4%	\$29.7
13	Tennessee	9.1%	1,760	\$615.9	\$469.8	76.3%	\$150.1
12	Kentucky	8.8%	1,189	\$393.0	\$331.7	84.4%	\$71.5
11	Maryland	8.8%	436	\$450.1	\$259.7	57.7%	\$75.7
10	Connecticut	8.7%	362	\$681.0	\$570.8	83.8%	\$123.5
9	Idaho	7.9%	320	\$88.4	\$69.6	78.8%	\$20.5
8	Colorado	7.4%	596	\$226.4	\$217.8	96.2%	\$16.4
7	Washington	6.9%	551	\$748.5	\$591.6	79.0%	\$189.9
6	Texas	6.6%	3,182	\$1,188.1	\$925.8	77.9%	\$202.3
5	Delaware	5.7%	47	\$93.9	\$61.9	66.0%	\$33.7
4	Oregon	5.0%	362	\$404.4	\$274.1	67.8%	\$58.0
3	Nevada	4.4%	67	\$76.7	\$56.2	73.2%	\$20.6
2	Arizona	2.8%	194	\$81.2	\$67.7	83.3%	\$10.0
1	Florida	2.7%	300	\$580.5	\$563.4	97.1%	\$10.2
Total		14.2%	83,318	\$29,195.0	\$21,376.4	73.2%	\$5,122.9

*Because of transfers out of the Bridge program into other road programs, the unobligated balance (the unspent apportionment) for the Bridge program is not equal to the difference between apportionment and obligation.

Table 2. Structurally Deficient Bridges (Percent), by Federal-Aid System (On or Off System*), 1992 and 2001

State	1992			2001			Percentage-Point Change, 1992-2001 All Bridges
	Local (Off System) Bridges	Federal-Aid (On System) Bridges	All Bridges	Local (Off System) Bridges	Federal-Aid (On System) Bridges	All Bridges	
All U.S. States	29%	13%	21%	20%	9%	14%	-7%
Alabama	35%	11%	23%	26%	9%	17%	-6%
Alaska	21%	7%	10%	12%	11%	12%	2%
Arizona	8%	1%	3%	6%	2%	3%	0%
Arkansas	43%	10%	23%	21%	6%	12%	-11%
California	12%	4%	6%	12%	11%	11%	5%
Colorado	21%	8%	14%	9%	6%	7%	-7%
Connecticut	18%	14%	15%	16%	6%	9%	-6%
Delaware	13%	9%	10%	8%	4%	6%	-5%
Florida	7%	2%	4%	6%	1%	3%	-1%
Georgia	29%	8%	17%	19%	5%	11%	-6%
Hawaii	14%	15%	15%	25%	16%	18%	3%
Idaho	15%	6%	11%	10%	6%	8%	-3%
Illinois	21%	14%	18%	12%	9%	11%	-7%
Indiana	28%	10%	20%	18%	5%	12%	-8%
Iowa	22%	9%	19%	25%	10%	20%	1%
Kansas	31%	8%	21%	20%	5%	14%	-8%
Kentucky	19%	5%	13%	12%	4%	9%	-5%
Louisiana	22%	26%	25%	27%	9%	18%	-7%
Maine	20%	12%	15%	21%	10%	15%	-1%
Maryland	14%	7%	10%	12%	6%	9%	-2%
Massachusetts	28%	15%	18%	17%	13%	14%	-4%
Michigan	30%	19%	23%	22%	17%	19%	-5%
Minnesota	19%	11%	16%	12%	7%	10%	-6%
Mississippi	43%	25%	33%	31%	12%	22%	-11%
Missouri	50%	24%	40%	32%	17%	26%	-14%
Montana	18%	4%	10%	19%	3%	11%	1%
Nebraska	39%	12%	30%	23%	6%	17%	-13%
Nevada	12%	3%	5%	9%	3%	4%	-1%
New Hampshire	30%	13%	21%	23%	10%	16%	-4%
New Jersey	32%	22%	25%	19%	13%	15%	-10%
New Mexico	13%	6%	8%	14%	8%	9%	1%
New York	63%	52%	57%	18%	10%	14%	-43%
North Carolina	27%	17%	23%	17%	11%	15%	-9%
North Dakota	37%	6%	25%	29%	5%	19%	-6%
Ohio	18%	14%	16%	15%	7%	12%	-4%
Oklahoma	48%	17%	35%	50%	20%	33%	-1%
Oregon	14%	7%	9%	6%	4%	5%	-4%
Pennsylvania	28%	23%	25%	27%	22%	25%	-1%
Rhode Island	28%	16%	18%	29%	24%	25%	7%
South Carolina	17%	6%	11%	15%	11%	13%	2%
South Dakota	33%	8%	22%	32%	13%	23%	1%
Tennessee	25%	14%	20%	12%	7%	9%	-11%
Texas	27%	4%	13%	14%	2%	7%	-6%
Utah	21%	10%	14%	15%	14%	14%	0%
Vermont	32%	14%	23%	17%	16%	17%	-6%
Virginia	14%	9%	11%	12%	8%	10%	-2%
Washington	9%	13%	11%	7%	7%	7%	-4%
West Virginia	28%	24%	26%	18%	17%	17%	-9%
Wisconsin	28%	22%	25%	16%	11%	14%	-11%
Wyoming	26%	2%	10%	22%	7%	13%	3%

*Bridges that are eligible for federal-aid highway funds are commonly called "On-system" bridges, as opposed to "Off-system" bridges. Off-system bridges tend to serve local needs more and to be owned by local government. Federal funds provided through the Bridge Program are available to all types of bridges, with at least 65% going to On-system bridges and at least 15% going to Off-system bridges.

Memorandum

Sept. 15, 2008

To: Environment and Public Works Committee
From: John Krieger, Staff Attorney
 US Public Interest Research Group

Re: Follow-up Questions for Written Submission

Questions from:
 Senator Benjamin L. Cardin

(I) There is substantial interest in some sectors to privatize much of America's infrastructure, from roads and bridges, to drinking water and wastewater facilities. Are you aware of any data that would indicate that privately owned bridges are any safer than publically owned bridges? Are there any data that demonstrate that over the expected life of an infrastructure project like a bridge or highway that the private sector provides better maintenance of those assets?

The privatization of our nation's infrastructure, specifically our roads and bridges, is a rapidly emerging and, in some ways, alarming trend. In so much as the sale of a road or bridge is used for up-front capital for a state that is facing a budget deficit, the transaction can be a short-term gimmick with long-term consequences. After all, the function of transportation is inherently public. Please see the attached report, *Road Privatization: Explaining the Trend, Assessing the Facts, and Protecting the Public*, in which US PIRG's Phineas Baxandall lays out seven principles that are crucial to protecting the public interest in any road privatization deal.

To my knowledge, no data exists to prove that the private sector can better maintain infrastructure. In actuality, because the private sector is driven by profit and not public protection, regular maintenance and inspection of a privately-owned transportation asset must be specifically required in the original agreement. Most private entities will attempt to negotiate for the lowest possible obligation when it comes to preventative maintenance and upkeep. Given the long-term nature of these agreements, a state must explicitly require state-of-the-art maintenance and safety standards, among other public interest protections, before approving a sale of a public asset.

Senator Bernard Sanders

I. Given the large unobligated balances in the Highway Bridge Program program, could federal restrictions or cost-share requirements be preventing states from spending more on their bridges?

When a state DOT makes it a specific priority to address infrastructure repair, the federal program should accommodate that decision. However, unobligated balances do not represent states that have prioritized maintenance but not been able to spend transportation dollars due to cost-share requirements. Those balances, I believe, represent states that have not prioritized the program. A state-by-state comparison by The Surface

Transportation Policy Partnership (attached) shows the difference between states that prioritize maintenance and put up the state share and those that don't. The ten states with the best bridge conditions spent 82% of their federally apportioned bridge funds between 1992 and 2002. By contrast, the ten states with the worst bridges spent only 67% of their bridge funds over the same period. Most all federal transportation programs require a state match, and while transportation budgets may be constricted on the state level, those states that prioritize maintenance and system preservation have been able to partner with the federal government to perform better for the public by reducing their total amount of structurally deficient bridges.

2. The Department of Transportation has documented that there is a consistently higher rate of deficiency among rural bridges, compared to urban. Given that a single bridge may have much more importance for the connectivity of a rural community this is a very troubling fact.

Could you comment on the factors that might have created this situation?

Local rural bridges represent the highest percentage of deficiency, with close to a quarter of the subset graded as structurally deficient. This is mainly a failure of priorities. Transportation funding is consistently focused on increasing capacity, especially in urban areas to keep up with growth patterns that have created congestion problems. Urban bridges get replaced and upgraded along the way in a transportation funding strategy based on congestion mediation, while rural bridges continue to age and deteriorate. Smarter growth patterns and increased transit in urban areas should instead be prioritized to maximize existing road capacity in the cities. Additional funding should then go to maintaining the system based on repair needs in both urban and rural areas. Transportation funding that is geared towards new urban super-highways leads only to more gridlock, more pollution, increased oil demand, and unaddressed system-wide infrastructure needs.

Senator BOXER. Thank you, Mr. Krieger.

As I have explained to my Ranking Member, I have given the gavel to Senator Klobuchar, because I need to go to a noon meeting. Mr. Ridley, know that I join in all the wonderful things that Jim Inhofe said about your career. I am just leaving because I have this urgent meeting, and I am turning this over to Senator Klobuchar. After you finish, she will do her 5 minutes and then go to Senator Inhofe, then I have told her, as long as she wants to keep you here, questioning you, she should feel free to do that. We will read it all in the record.

Thank you all, and thank you, Senator Inhofe.

Senator KLOBUCHAR.

[Presiding]. Mr. Ridley.

**STATEMENT OF GARY RIDLEY, DIRECTOR, OKLAHOMA
DEPARTMENT OF TRANSPORTATION**

Mr. RIDLEY. Madam Chair and distinguished members of the Committee, my name is Gary Ridley. I am the Director of the Oklahoma Department of Transportation, and as with all State DOT directors, a member of the American Association of State Highway and Transportation Officials, or AASHTO.

On behalf of the State of Oklahoma and AASHTO, we want to thank you for the opportunity to be with you this morning to offer testimony related to the content of Senate Bill 3338 and House Resolution 3999 with regard to increasing the effectiveness of the Federal Bridge Program.

In the current form, the proposed legislation seeks overall highway-bridge program improvement through increased levels of Federal involvement, and also focuses attention on several perceived deficiencies in the National Bridge Inspection program. We would submit that the deteriorating conditions of our Nation's transportation infrastructure is no secret. It is not the result of lack of Federal involvement, a mismanaged investment strategy or a failed bridge inspection program. In plain terms, it is a result of the failure to provide the necessary financial resources to properly maintain and expand the very system that helped make this Country what it is today.

An increase in the bridge inspection frequency will only duplicate the documentation of known bridge deficiencies, just as the creation of a new 5 year plan will only reemphasize how woefully ill-prepared we are to face the Nation's future with a clear knowledge and understanding of the shortcomings of our past.

In that context, we would offer the following observations concerning the bill. A risk-based prioritization system, subject to the approval of the Secretary, affords little opportunity to improve the Federal bridge program, but will certainly contribute to another layer of Federal bureaucracy. Bridge management systems used in each State are already designed to consider risk-based factors and are being enhanced to incorporate risk-based modeling. The prioritization of bridge rehabilitation and replacement must begin with bridge management and must carefully be vetted by State transportation professionals to ensure that a balanced approach to managing all transportation assets is being implemented.

It is unlikely that the requirement for load rating all bridges on the Federal Aid system every 24 months will yield meaningful information. However, load ratings should be reevaluated when the conditions observed in the field have changed significantly from the as-built condition of the structure. Also, the posting of safe load-carrying capacities for each bridge indicates that load rating tonnage, posted tonnage, would be required for all bridges. Such methodology would diminish the effectiveness of posting only those bridges incapable of carrying legally loaded trucks.

The development of a new 5 year performance plan for bridge inspection and bridge rehabilitation and replacements to be approved by the Secretary provides no tangible benefit. The Bridge Inspection Program is clearly described in the National Bridge Inspection Standards, and the opportunity for Federal input and oversight already exists through the review of the approved, mandated State-wide Transportation Improvement Plan, or STIP. It is safe to say that States already utilize the bridge condition information provided by their bridge management systems, along with a host of other considerations, to identify transportation system deficiencies in formulating and prioritizing the investment strategies presented in their STIP. A new performance plan provides no new enhanced information beyond that which exists today and does nothing to improve the inspection program or to expedite bridge program or project delivery.

Undoubtedly, the National Bridge Inspection Program can be improved upon. However, the focus of any improvement should be with qualitative nature, rather than simply quantitative. We would offer the following observations in that support.

When determining bridge inspection frequency, structural deficiency is not the true measure of structural integrity and should not be exclusively used as a trigger for annual inspection cycles. Bridges should be, and are already placed on a more frequent inspection cycle based on the condition of the main structural members and traffic volumes.

The frequency of inspection of fracture-critical members should be based on a documented, in-depth assessment of condition of that member and the amount of truck traffic that is carried by the structure. Truck traffic is a driving force behind fracture-critical member fatigue cycles. Therefore, fracture-critical members with low average daily truck traffic may not need to be inspected at the same frequency as fracture-critical members carrying large volumes of traffic.

Ultimately, sound engineering judgment should be used for inspection frequency in determinations for both structural deficiency and fracture-critical bridges. These considerations and judgment are self-evident in the fact that States have implemented an inspection frequency of 12 months or less on almost 7,000 of the Nation's 25,000 structurally deficient Federal Highway Aid Bridges.

With regard to possible changes to increase the effectiveness of Federal bridge program and bridge inspection procedures, we request your consideration of the following recommendations. The membership of AASHTO's Standing Committee on Highways, or SCOH, is representative of the best transportation engineers in the Country and therefore, the world. This standing committee, made

up of transportation professionals, should be tasked with the evaluation of the bridge program and the National Bridge Inspection Standards in order to return improvement recommendations back to Congress for their consideration.

The further consideration of S. 3338 and H.R. 3999 should be limited to the appropriation of \$1 billion to be utilized exclusively for the construction contracts to rehabilitate or replace structurally deficient bridges on the National Highway System and mandate the obligation of these funds with 18 months of apportionment.

In conclusion, we would reiterate that the further assessment, inspection, documentation and prioritization of deficient bridges will not make them better bridges. The only way to begin to reverse the current trends is to substantially increase the Federal investment in all facets of our national transportation system, both bridges and pavements. We would be happy to answer any questions.

[The prepared statement of Mr. Ridley follows:]

WRITTEN TESTIMONY

Senate Environment and Public Works Committee

**“Improving the Federal Bridge Program: Including an
Assessment of S. 3338 and H.R. 3999”**

Wednesday, September 10, 2008

**Gary M. Ridley, P.E.
Director, Oklahoma Department of Transportation**

TABLE OF CONTENTS

SECTION 1	3 - 10
Oklahoma Department of Transportation, Director Gary Ridley, Oral Testimony, Senate EPW Committee, September 10, 2008	
SECTION 2	11 - 14
Oklahoma Department of Transportation Comments and Concerns, August 28, 2008	
SECTION 3	15 - 17
American Association of State and Highway Transportation Officials Comments and Concerns, August 28, 2008	
SECTION 4	18 - 21
Pennsylvania Department of Transportation, Secretary Al Biehler, Letter to Representative James L. Oberstar, Chairman, House of Representatives Transportation and Infrastructure Committee, August 7, 2008	
SECTION 5	22
American Association of State and Highway Transportation Officials, Letter to Representative James L. Oberstar, Chairman, House of Representatives Transportation and Infrastructure Committee, July 22, 2008	
SECTION 6	23 - 28
Virginia Department of Transportation, Chief Engineer Malcolm Kerley, Oral Testimony, House of Representatives Transportation and Infrastructure Committee, September 5, 2007	
SECTION 7	29 - 33
American Association of State and Highway Transportation Officials, Membership Listing	
SECTION 8	34 - 42
American Association of State and Highway Transportation Officials, Standing Committee on Highways (SCOH) Charge Statement, Subcommittee Structure and Membership Listing	
SECTION 9	43 - 44
Federal-Aid and Non Federal Aid Highway Bridge Numbers, August 28, 2008	

Oral Testimony

Senate Environment and Public Works Committee

**“Improving the Federal Bridge Program: Including an Assessment of
S. 3338 and H.R. 3999”**

Wednesday, September 10, 2008

**Gary M. Ridley, P.E.
Director, Oklahoma Department of Transportation**

- **Madam Chairwoman and distinguished members of the Committee, my name is Gary Ridley. I am the Director of the Oklahoma Department of Transportation and, as with all State DOT Directors, a member of the American Association of State Highway and Transportation Officials (AASHTO).**
- **On behalf of the State of Oklahoma and AASHTO, we want to thank you for the opportunity to be with you this morning to offer testimony related to the content of Senate Bill 3338 and House Resolution 3999 with regard to increasing the effectiveness of the Federal Bridge Program.**
- **In the current form, the proposed legislation seeks overall Highway Bridge Program improvement through increased levels of Federal involvement and also focuses attention on several perceived deficiencies in the National Bridge Inspection Program.**
- **We would submit that the deteriorating condition of our Nation's transportation infrastructure is no secret. It is not the result of a lack of Federal involvement, a mismanaged investment strategy**

or a failed bridge inspection program. In plain terms, it is a result of the failure to provide the necessary financial resources to properly maintain and expand the very system that helped make this Country what it is today. An increase in the bridge inspection frequency will only duplicate the documentation of known bridge deficiencies. Just as the creation of a new Federally approved 5-year plan will only re-emphasize how woefully ill-prepared we are to face our Nation's future with the clear knowledge and understanding of the short-comings of our past.

- In that context, we would offer the following observations concerning the Bill:
 - A risk-based prioritization system subject to the approval of the Secretary affords little opportunity to improve the Federal Bridge Program, but will certainly contribute another layer of Federal bureaucracy. Bridge management systems used in each State are already designed to consider risk-based factors and are being enhanced to incorporate risk-based modeling. The prioritization of

bridge rehabilitations or replacements must begin with bridge management and must be carefully vetted by state transportation professionals to insure that a balanced approach to managing all transportation assets is being implemented.

- It is unlikely that the requirement for load rating ALL bridges on the Federal-Aid system every 24 months will yield meaningful information. However, load ratings should be reevaluated when the conditions observed in the field have changed significantly from the as-built condition of the structure. Also, the posting of the “safe load-carrying capacities” for each bridge indicates that a load rating-based tonnage posting would be required for all bridges. Such a methodology would diminish the effectiveness of posting only those bridges unable to carry legally loaded trucks.
- The development of a new 5-year Performance Plan for bridge inspections and bridge rehabilitations and replacements to be approved by the Secretary provides no

tangible benefit. The bridge inspection program is clearly described in the National Bridge Inspection Standards (NBIS) and the opportunity for Federal input and oversight already exists through the review and approval of the mandated Statewide Transportation Improvement Plan (STIP). It is safe to say that states already utilize the bridge condition information provided by their bridge management systems along with a host of other considerations to identify transportation system deficiencies and formulate and prioritize the investment strategies presented in their STIPs. A new “performance plan” provides no new or enhanced information beyond that which exists today and does nothing to improve the inspection program or to expedite bridge program and project delivery.

- Undoubtedly, the National Bridge Inspection Program can be improved upon. However, the focus of any improvements should be of a qualitative nature rather than simply quantitative.

We would offer the following observations in support:

- **When determining bridge inspection frequency, structural deficiency is not a true measure of structural integrity and should not be exclusively used as a trigger for an annual inspection cycle. Bridges should be and are already placed on a more frequent inspection cycle based on the condition of the main structural members and traffic volumes. The frequency of inspection of a fracture critical member should be based on a documented, in depth assessment of the condition of that member and the amount of truck traffic that is carried by the structure. Truck traffic is the driving force behind fracture critical member fatigue cycles. Therefore, fracture critical members with low average daily truck traffic may not need to be inspected at the same frequency as fracture critical members carrying large volumes of traffic.**
- **Ultimately, sound engineering judgment should be used for inspection frequency determinations for both structurally deficient and fracture critical bridges. These considerations and judgments are self evident in the fact that State's have**

implemented an inspection frequency of 12 months or less on almost 7,000 of the Nation's more than 25,000 structurally deficient Federal-Aid Highway bridges.

- With regard to possible changes to increase the effectiveness of the Federal Bridge Program and bridge inspection procedures, we request your consideration of the following recommendations:
- The membership of the AASHTO Standing Committee On Highways (SCOH) is representative of the best transportation engineers in the country and therefore, in the world. This Standing Committee made up of transportation professionals should be tasked with the evaluation of the Highway Bridge Program and the National Bridge Inspection Standards in order to return improvement recommendations to the Congress for their consideration.
- The further consideration of the content of S. 3338 and H.R. 3999 should be limited to the appropriation of \$1,000,000,000 to be utilized exclusively for construction contracts to rehabilitate or replace structurally deficient bridges on the National Highway

System and to mandate the obligation of the funds within 18 months of the date apportioned.

- **In conclusion, we would reiterate that the further assessment, inspection, documentation and prioritization of deficient bridges will not make them better bridges. The only way to begin to reverse the current trends is to substantially increase the Federal investment in all facets of our National transportation system to include both bridges and pavements. We would be happy to answer any questions you may have.**

Environment and Public Works Committee Hearing**September 10, 2008****Follow-Up Questions for Written Submission****Questions for Ridley (response date September 15, 2008)****Questions from:**

Senator Frank R. Lautenberg

- 1. Don't the traveling public and their families deserve to know that their government is taking a truly risk-based approach to fixing the country's bridges?**

The American public deserves a government focused on providing a world class transportation system that serves their needs and a State Department of Transportation that considers all aspects of the asset in order to provide for their safe and efficient travel. They should have confidence that their DOT is utilizing the resources made available wisely and investing in improvements with a balanced and calculated approach. Risk is certainly a factor that must be considered when determining an investment strategy and most bridge management systems already allow for such a basis of determination. However, the management of the overall transportation asset is best left to the States and not left to Federal mandates and bureaucracy.

- 2. Wouldn't it be a waste to fix bridges which aren't in as bad shape as others, assuming they are used equally?**

All bridges that have problems are in need of repair and any investments to preserve or replace these assets would be difficult to consider as a waste. However, rarely are the resources available to fix all problems on all bridges. Therefore, priorities must be established and the nature of the deficiencies must be considered first. "Bad shape" has many definitions in the elemental bridge inspection and evaluation world and a truly equal utilization of any two structures would be difficult to identify. Solid data gathering and analysis and sound engineering judgment must be utilized when establishing the priorities for bridge repair and replacement with consideration for not only structurally deficient bridges but functionally obsolete bridges along with the scheduled improvements to the roadway sections that approach them.

Senator Benjamin L. Cardin

- 1. As I read S. 3338/HR 3999, the legislation seems to restrict funding to bringing structurally deficient bridges back into national standards. As you read the legislation, do you believe that the funding restrictions provide enough flexibility to spend Highway Bridge Program funds on new bridge inspection technologies such as radar and ultrasound?**

New research and technologies bring about new understanding and capabilities. The application of these technologies is important where it is determined to be warranted. While HR 3999 does seem to be somewhat restrictive, the Federal Government already provides millions of dollars to fund many types of transportation research and the utilization of such inspection technologies is already eligible for Federal bridge funding and, in some cases already in use.

2. How important is it that states retain this kind of flexibility?

It is critical to maintain broad based flexibility when utilizing Federal transportation funding, however, the \$1 billion encompassed by HR 3999 could easily be directed by the States for bridge repair or replacement.

3. As bridge inspections require an analysis of information of a technical nature, it seems reasonable to me that at least one professional engineer be required to be on every bridge inspection team. However, the legislation requires that the Team Leader must be a professional engineer? How important is it for the Team Leader to be a professional engineer?

It is important to have a qualified professional engineer as a team leader for the inspection of complex structures. Complex structures include all fracture critical members and all bridges of unusual design and construction, or any type defined by 23 CFR 650.305, *Complex Bridge*. However, it is not sufficient to simply be a professional engineer. The PE should also have a minimum level of hands on bridge inspection experience and the appropriate National Highway Institute bridge inspection training course work. Structures that are not complex or fracture critical could have a non-PE team leader qualified through education and experience and supervised by a Program Manager that is a qualified PE.

4. Do state DOTs employ senior staff with management expertise that are not engineers?

Many State DOTs employ non-PE managers and management. However, these personnel are not asked or required to render engineering decisions related to the evaluation of complex structures or management decisions for the bridge inspection program.

5. If they have professional engineers as part of their Team, shouldn't they be able to serve as Team Leaders?

Certainly, it should be left to each individual State DOT to determine the organizational structure that would best support such a requirement. Team leaders performing inspections on complex structures must be educated in engineering principals and methods to adequately, safely, and thoroughly inspect such a structure as well as to report critical findings to bridge owners.

Senator Bernard Sanders

1. The Department of Transportation has documented that there is a consistently higher rate of deficiency among rural bridges, compared to urban. Given that a single bridge may have much more importance for the connectivity of a rural community this is a very troubling fact. Could you comment on the factors that might have created this situation?

Inherently, during the past 50 years urban systems have often been expanded and/or reconstructed with greater frequency than our rural systems due to growing traffic volumes and changing demographic patterns. Therefore, in many cases the urban systems are "newer." However, this fact should not be considered a reflection of an "urban verses rural" importance determination. In addition, the sheer numbers and age of rural bridges often far exceeds those that would be classified as urban. Especially for States such as Oklahoma, where much of our original highway and non-highway transportation system was established on a one-mile section line grid and encompasses many miles as a result.

The State DOT has a responsibility to balance their available resources to serve all. In Oklahoma, we

have recently placed a priority on the replacement of load posted bridges or bridges that cannot carry a legally loaded truck. These bridges have a detrimental impact on travel and commerce and cause undo hardship for our rural and often agricultural economies.

- 2. To get federal funding for bridge projects states and municipalities must come up with at least 20% of the total cost of the project, even for bridges on the federal system. For your state, and in your opinion for others, does that cost-share increase the total amount of funds for bridge projects?**

Obviously, the 20% match requirement results in a larger expenditure of funding on Federal-Aid projects simply due to the infusion of State funding.

- 3. Given the backlog of important bridge work and the fact that the states are not using many available federal bridge dollars would it make sense to lower this required match for a period?**

Yes. It could reduce the balance of this program and lessen the need to transfer bridge funds in order to have greater flexibility in delivering projects.

- 4. Given the large unobligated balances in the Highway Bridge Program program, could federal restrictions or cost-share requirements be preventing states from spending more on their bridges?**

Absolutely.

Senator James M. Inhofe

- 1. We have spoken many times in the last few days about this, but could you recount for my colleagues what have you done in Oklahoma since last Friday to manage the Highway Trust Fund crisis?**

We deferred all previously anticipated awards of both State and Federal-aid construction contracts to be considered at the regularly scheduled meeting of the Transportation Commission on Monday, September 8, 2008.

We announced and notified all contractors that the September 18, 2008 bid letting would likely be cancelled, barring any significant change in the funding situation.

We delayed the issuance of work orders on previously awarded construction contracts.

We began to seek points of closure on active highway design and construction contracts that would have facilitated the suspension or cancellation of further work, being mindful of the immediate risk to the safety of the traveling public.

We suspended further acquisition of Rights-of-Way to support future construction projects.

- 2. How does this compare to what your colleagues heading other state DOTs are doing?**

The Department had to react quickly due to the fact that a large percentage of our program is funded with Federal-aid and because our Transportation Commission was due to meet the following Monday. States with similar funding mixes had to react with the same aggression and States that are not as dependent on the Federal-aid program had more flexibility in their approach to financing the shortfall.

3. Why has funding been historically transferred out of the Highway Bridge Program and diverted to other eligible funding categories?

States transfer funding for a variety of reasons including the somewhat restrictive requirements of the federal bridge eligibility determinations. The determination of eligibility for bridge program funding is narrowly focused and often does not support the implementation of needed multi-faceted projects. The resulting appearance is that funding is being diverted, when in actuality the states spend significantly more money on their bridge programs (FFY 2004-\$10.5 B) than is available through the Federal Highway Bridge Program (FFY 2004 -\$5.1 B).

4. If this is related to the high level of red tape associated with this program, how could we improve the program to make it more workable for the states?

The Federal government must continue to seek ways to deliver the Federal-aid program in a manner that allows states to select and prioritize projects in accordance with their unique needs. Broadening federal eligibility requirements, revisiting matching ratios and reducing the number of funding categories and codes would be great steps towards an improved program.

5. Would you consider the inspection of all structurally deficient and fracture critical bridges by licensed professional engineers on an annual basis to be a beneficial improvement that would save lives and result in improved investment decisions?

No. We do not believe an increased frequency of inspections for all structurally deficient and fracture critical bridges by professional engineers would yield meaningful information. Where warranted, states already inspect bridges that present specific concerns at a greater frequency. The current inspection program is sound and provides the data and information necessary to guide an investment strategy. The real deficiency of most investment strategies is a general lack of the financial resources to effect the needed improvements in a timely manner.

6. States cannot rely exclusively on the Federal Government to address and resolve all transportation deficiencies. What is being done by states to address the transportation infrastructure problems?

A growing number of state legislatures have recognized the condition of the transportation system and are doing all they can at the state level to infuse resources into the repair and maintenance of their infrastructure. Many are tapping non-traditional revenue streams such as use taxes, income taxes, and user fees rather than the historic volumetric gasoline tax. States are also developing very sophisticated asset management systems that can assist their decision makers in investing their available resources wisely.

7. What should the role of the Federal Government be in addressing the nation's bridge problem?

The Federal Government should provide financial resources and technical support to the states for their utilization and should re-focus their efforts on determining the future of the National Transportation System and network. If we are to again achieve a true world class National Transportation System that will meet the needs of generations of Americans to come, then the initiative must begin at the National level by providing adequate funding and direction. One must only look to history for the answers, as the enormous success of the Interstate System was directly related to the National concern and the vision and direction provided by the leaders of the time. States cannot be expected to overcome the significant obstacles of reconstructing our National Transportation System without the same provision of National resources and vision for our future.

Senator KLOBUCHAR. Thank you very much, Mr. Ridley, and thank you to all of our panelists.

I was noticing, Mr. Herrmann, that in your testimony, you talked about how over \$12 billion should be spent annually on bridge repair, is that right?

Mr. HERRMANN. That goes back to the Report Card in 2005. It was \$12.4 billion. I think it was FHWA's statistics.

Senator KLOBUCHAR. I thought it was an interesting figure, because there are some estimates that that is how much we are spending a month in Iraq to build, among other things, bridges in Iraq. So you are saying that \$12 billion a year, and then we are now spending only around \$4 billion a year on bridge repair, is that right?

Mr. HERRMANN. I think AASHTO came up with a number from the Federal Government, \$5 billion, and I think from States and other sources there is another \$5 billion. So it is about \$2 billion short.

Senator KLOBUCHAR. OK. And you know what we are trying to do is, one, I agree with Mr. Ridley, we are trying to inject more funding into the system. We have tried to do that in several stimulus packages and other things. But the other thing we are trying to do is make sure the money that we have is spent in the right way. One of the things that Congressman Oberstar, because he has limited time, wasn't able to say that he has looked at this, and in Minnesota, in the 5-years leading up to our bridge collapse, only 51 percent of the bridge repair money was spent in that way. It was spent on other things. So that is why he and I are both so focused on trying to put safety standards in place and make sure that the money is spent in the right way.

So could you tell me what the consequence, the on the ground consequence that you think there is of not spending the money we have designated, although it is not enough, in the right way? Then also not having enough money, period, for our own infrastructure?

Mr. HERRMANN. Obviously the statistic came out that our average bridge is 43 years old. About the time that these were designed, their design life was about 50 years.

Now, bridges can be made to last longer, but they need maintenance, and they do need rehabilitation. If we don't have sufficient funding, we can't do that, and the rate of structurally deficient bridges will increase. As I stated earlier, if we take a look at the average over the past couple of years, the rate of decreasing that deficient bridge number is actually decreasing. So it is going to take longer to get rid of deficient bridges at the present rate.

Senator KLOBUCHAR. And the bill that we have here in the Senate that is similar to Congressman Oberstar's bill makes its allocation based on a formula that takes into account public safety. Do you think that is a key criteria for determining the funding?

Mr. HERRMANN. ASCE's canon of ethics puts public safety, health and welfare above everything for an engineer. So public safety is an excellent way to regard removal of deficient bridges.

Senator KLOBUCHAR. Thank you.

Mr. Krieger, you were talking, which was kind of interesting, about why you think this is going on at the State levels. I tried to figure out why, in the past 5 years, as Congressman Oberstar had

pointed out, in our State, 51 percent of the bridge money went to that maintenance. We had some State issues as well with a lack of funding. You believe, I wondered if you could expand on this, that you have issues of, there is not really a bridge repair lobby, that people aren't focused on that, it is not very glamorous, it is not very sexy and it is not as interesting as maybe building new projects. Do you want to expand on that?

Mr. KRIEGER. Yes, thank you.

We have been engaged over the last, for quite some time on the State level, trying to push, within State DOTs and State elected officials to do the right thing and to look at maintenance and repair. What happens is, in a lot of cases, there is pressure that comes from the outside and from the inside to do the thing that leads to the big ribbon-cutting. Those that push for the maintenance and repair and point to some of the things that their constituencies see, which are bridges in really bad shape, are kind of deemed as Chicken Littles.

So there is definitely this sense of what is more popular among the voters and also this sense of, if you are an elected official or an appointee, in your time in office doing the thing that gets you the most political capital, which is not necessarily maintenance and repair.

Then on top of that, in the situation of the flexing funds back and forth, it is logistically and politically difficult to do some of these maintenance and repair projects when it is easier to do some of the other new projects that, as I said before, are more politically popular.

Senator KLOBUCHAR. OK. We will go back to that for Senator Inhofe. I do think this is a combination of what you and Mr. Herrmann have talked about, with the lack of focus on this bridge repair, which is why we are doing this bill, but also what Mr. Ridley is referring to, which is the lack of funding, period. So thank you.

Senator Inhofe?

Senator INHOFE. Thank you, Madam Chairman.

First of all, let me repeat, since it has been a long meeting, we may have forgotten how serious the problem is in Oklahoma. We are actually third in the number of bridges, only behind Texas and California. A lot of people don't realize that. The State of ill repair is about the worst in the Nation.

Second, I don't like to have, in these discussions, bringing in political things, talking about how much you spend in Iraq or the war on terror and all that. We have a problem. I am ranked usually as the most conservative member of the U.S. Senate. And yet I am a big spender in some areas. One is national defense, but the other clearly is infrastructure. I would like to remind, I know that Mr. Ridley knows this, that when I was the author, at that time the Republicans were majority, I authored the 2005 Transportation Reauthorization Bill and characterized it as the largest non-military authorization bill in this Nation's history. I think it was.

But I also said it was inadequate. It wasn't enough. And it just barely maintained what we have today, and it didn't take care of this crisis that is out there that everybody knows is there. That is

why this should not be a partisan discussion. We need to spend more money on infrastructure, it is a crisis, we recognize that.

Mr. Ridley, you and I have talked several times in the last few days. Could you recount for my colleagues and for the record what you have done in Oklahoma since last Friday to manage this highway finance Trust Fund crisis?

Mr. RIDLEY. On Monday, Senator, we had our Transportation Commission. And we had a little over \$80 million worth of projects that we had open bids just 2 weeks before that was going to be taken to the Commission for approval.

One of those, quite frankly, was a \$40 million project on a half a billion dollar bridge that we are replacing in Oklahoma City that is structurally deficient, that has 250 fracture-critical members on it. It is one that certainly needs to be replaced. But we had to ask the Commission to defer that letting until the crisis here in the Trust Fund is solved. We also suspended all right-of-way acquisition for any of our projects. And depending on what takes place, I informed the Commission, depending on what takes place with the Trust Fund over the next few days, we may suspend work on construction projects, have to, because of the cash-flow of the reimbursement of the billing from the Federal Trust Fund.

Senator INHOFE. You have done a good job of it. I would assume that your counterparts in other States, you have had communication with them. The same thing is happening there, in most States.

Mr. RIDLEY. That is correct. All States are different in their approach. We rely, 85 percent of our construction program currently is Federal funds. Consequently, any disruption in making payments by the Trust Fund will have a dramatic effect on our cash-flow.

Senator INHOFE. We have talked also, Mr. Ridley, about the upcoming 2009 reauthorization bill. I have mentioned to you that some of this concern that is out there, that money is not going all to surface transportation, in fact, I have seen this in the last 22 years that I have been on both the House Committee and then the Senate Committee, that it goes to other areas. One of our meetings preparing, that we have had here with Senator Boxer, preparing for the 2009 reauthorization bill, we have talked about funding mechanisms and trying to isolate these things to have each one pay for its own. We are trying to address this. But it is a crisis that is out there.

Now, Mr. Krieger, I am going to ask you, but I want to ask Mr. Ridley first, it is my understanding, and I am not sure about Oklahoma, but in many States, money is indeed transferred out of the bridge account. One reason for that, as I said in my opening statement, when Mr. Oberstar was here, is that there is so much red tape in there that they can actually use that money to repair and to rebuild bridges in another account that doesn't have the same red tape and maybe get more for the dollars. Do you think either Oklahoma or some other States are using this rationale?

Mr. RIDLEY. Absolutely, Senator. The problem with using the money in the bridge account, because of the guidance, if you will, by the Federal Government, makes it so extremely difficult to use those moneys for bridge rehabilitation at times.

Let me give you an example, Senator, that you are very familiar with. Oklahoma, not unlike Minnesota, had a bridge tragedy itself in 2002. Our bridge was knocked down, not collapsed. We started immediately to put a plan in place to rebuild that bridge. Federal Highways told us that we could not use bridge funds to replace that bridge, because the last inspection of it had it rated as an 80. And not until we had some calls from your office and some others was the decision made that yes, we could. We were going to have to remove money out of our bridge program into the NHS in order to be able to rebuild the bridge back, rather than just use the money out of the bridge program, which certainly seems somewhat foolish with us.

Senator INHOFE. And I remember being there with Secretary Peters the day after this, and with you. And she recognized that. That is one of the reasons that we did it the way we did it. I applaud you for getting that done.

By the way, that job, I am sure you have the numbers on this, but it was done like in two-thirds of the time that they thought it was going to be done. It was so similar to the tragedy that took place between Port Isabel, Texas, and South Padre Island, just a few weeks before, when it was rammed by a barge. So you really performed well.

I think that is a good way of putting it.

Mr. Krieger—I know, I am going over.

Senator KLOBUCHAR. That is OK, go ahead.

Senator INHOFE. It would be very difficult, I think, for you to try to analyze how much of the 36 that you use actually did come back for bridge use that didn't come back to that account. And you might have a comment about that, or maybe there is a methodology that can be used. It would be interesting for all of us up here to know how much of this diversion actually did go back into bridges. Do you have any thoughts on that?

Mr. KRIEGER. I don't have a specific answer to that. What I can speak to is that the ISTEA bill built in quite a bit of flexibility for States. This is where the flexing comes from in the first place. And that flexibility, when not matched specifically with accountability, as you know, any time you have flexibility and you don't match it with a level of accountability, and I think we have heard that repeatedly during this hearing today, has led to the situation that we are at now.

That is why we specifically support the legislation that is before us today, is because what it does, it says, there is a national crisis, a national priority, let's get these bridges, regardless of State lines, let's get these bridges inspected, inspected correctly, categorized, prioritized and then fixed. We have engaged the public in this discussion and have tried to get the public really as engaged as possible. They know nothing of these kind of rescissions and complex formulas and things like that. But what they do know is a crisis, and they do know national priorities.

Senator INHOFE. You answered the question. But what you might do is kind of look at that and see if there is a way to determine, because I think it would be worthwhile knowing. I have worked at the local level and at the State level. Unfortunately, here in Washington I have to say that there is this mentality that if it isn't done

in Washington and directed from Washington, it is not going to be right. This bothers me. I have always said, even back in the days when I was mayor, the closer you are to the people, the better ideas you have on resolving these problems.

Mr. Ridley, we talked about the bridges and the dangers there. We all know that, we know that certainly from our Oklahoma experiences. In fact, we have, in Oklahoma City one of the concerns I have on this delay is what is going to happen on that cross-town. We have chunks of rock that are falling down and very likely could kill somebody. So there is a lot of danger there.

But do you make a conscious evaluation of the relative dangers of other things, too? There are other dangers in the Highway Bill and the highway construction. Do you have any comments on that, on what you would do to try to address the thing that all of us feel is the most significant, and that is dangers to health or human life?

Mr. RIDLEY. Certainly, Senator, a DOT director or a State has to balance the program. And let me give you some examples. The tragedy that took place in Minnesota, our hearts really went out for them because of what took place in 2002 in Oklahoma. But we need to realize, last year, those 13 people that were killed with that collapse was terrible, a terrible tragedy. At the same time, last year over 40,000 people were killed on our highways. In my State, on the roads that I am responsible for, last year over 500 people were killed on the roads that I am responsible for, none of them in a bridge collapse.

We have a real problem, not only just in Oklahoma, but in all States. Twenty-five percent of our roads in Oklahoma are critical or inadequate. That means they don't have shoulders on them, poor horizontal and vertical sight distance, bad geometrics, no recovery area for an errant vehicle, so that they can bring a car under control or bring it back up on the highway.

In 25 percent of our roads, those that are critical or inadequate, over 50 percent of all accidents occur. So we know that there are problems that we can correct. But without the funds, we cannot. So you balance the problems with our bridges along with the problems with our roadways to develop a plan. Federal Government provides us, about 16, 18 percent of the Federal program is tied to bridges under the BR program. We spend about 26, 27 percent on bridges. So it is not that we are not spending money on bridges. And other States do as well.

But you have to marry it with everything else. A lot of things that happen with the fatality accidents across the Country are certainly driver error. But I don't think that a 16 year old girl driving on a two lane highway at night in a rainstorm, drops her wheel off the edge line, where there is no shoulder, no recovery area, poor horizontal and vertical sight distance, that the penalty for that mistake ought to be personal injury or death. But that is certainly what can happen. We see it every day on our system, across the Country.

So you can't just focus on bridges, oblivious to everything else. You have to balance it with all aspects of transportation and certainly safety is a prime consideration of our State. And I know it is with the other 49.

Senator INHOFE. I appreciate that very much.

Just one last short question. The problem that we are going to have right now if we don't get this thing through, we have to have, and I think the Chairman and I both agree on this, we have to have this fixed, we have come up with a fix that I think is good and it is going to have to be done.

If it isn't, and you look at all the problems, I don't know whether you have had a chance to look and see in terms of jobs how many penalties, for example. You have contracts, you have let contracts. There are penalties involved if we don't live up to our part of this. It is going to cost the State of Oklahoma and the Federal Government penalties. There are going to be delays, there could be lawsuits. I know you have thought about all of these unintended consequences. And right-of-way acquisition, all these things. It is chaotic. We could go on and on.

I just hope that this hearing will reflect that this isn't just in the State of Oklahoma, but by not doing this fix now instead of waiting until next year, the consequences are dire, not only in money, but in lives, Madam Chairman.

I applaud you, Director Ridley, for the great job that you have done. We are truly blessed in the State of Oklahoma to have your service.

Thank you, Madam Chairman.

Senator KLOBUCHAR. Thank you very much, Senator Inhofe. I also thank you, Mr. Ridley, for your work that you have done. I was just in Oklahoma at Fort Sill, bidding farewell to some of our troops. It was 109 degrees as I called Senator Inhofe to say hello and how much I enjoyed the weather when I was there.

[Laughter.]

Senator KLOBUCHAR. I can imagine the heat has its own impact, just as the cold does in Minnesota, on the roads. And obviously, I support and we badly, on our side of the aisle, want to get that fix done to the transit fund. We have tried now three times and have been blocked. We hope, with the Administration helping us this time, that we will be successful.

But I did want to get at this issue of priorities with funding in general. This isn't just about bridges, as we pointed out. This is about our infrastructure funding. I know, Senator Inhofe, you mentioned it was partisan. But I do think in the end we only have so much money and we have to decide how we are going to divide it up. I was thinking, my daughter had a slumber party with six girls and two extra came. They had ordered this pizza and they had it all divided up—this is a mom's way of looking at the world—and the extra guests came. I saw them all trying to figure out how they were going to divide up the extra pizza.

That is what this is all about. It is about limited resources and how we are going to spend them. That is why I have an issue with some of the priorities that we have had in the past when we are spending \$12 billion a month in Iraq and bridges are falling down in the middle of Minnesota.

So I appreciate that you understand that this infrastructure should be a key priority.

Senator INHOFE. Madam Chairman, I might just say that we have the Defense Authorization bill on the floor. I have an amendment, so if you will excuse me. I will leave their fate in your hands.

Senator KLOBUCHAR. Very good. I think I will just have a few more minutes here.

Back to the GAO report, Mr. Ridley, you correctly State that this is about funding, first and foremost, that is what it is about. But we have this issue of bridge funding, and we are dealing, we know we are not going to get everything we want in funding here, so we are figuring out how, with this one program, can we better fund it. We have in the GAO report some suggestions which clearly indicate that the current system provides States with an incentive to not replace or repair their bridges, just because of the way that it works. We heard from the head of the GAO.

Do you think that is a problem, the way the current system works?

Mr. RIDLEY. I think maybe evidence to the contrary, Madam Chair. In recent years, out of the Federal Trust Fund, a little over \$5 billion was set aside for bridge replacement, bridge rehab. Yet States have spent over \$10 billion, as Mr. Herrmann had said. It doesn't look to me like States are robbing from the bridge fund to do other things, it looks like they are using the ability to be able to move funds in order to adequately try and handle the bridge problem.

Again, I can refer to Oklahoma easier than I can others, in the last 30 months, we have repaired or replaced 242 bridges for a cost over \$900 million. So we are trying to tackle our bridge program. As I mentioned earlier, some 27 percent of all of our funds in our 8 year program are tied to bridge replacement and bridge repair, major rehabilitation.

I would assume that other States would do the same thing. They have a responsibility to the people that they work for to do the same thing.

Senator KLOBUCHAR. Obviously I am struggling with what happened in our State, where we know we have this one fact and maybe some other money we know was also used for bridge repair, that only 50 percent was really used for bridge repair. We also know that there was some knowledge that there were some problems with the bridge. Obviously no one wanted this to occur, it wasn't intentional.

But we are just trying to figure out, Congressman Oberstar and I, how we could best target those funds. What we are concerned about is that some of these funds have been going to less high priority projects. Secretary Peters and the Administration believes that the Federal Government in fact needs to develop better outcome measures for how this money is spent. Could you comment on that?

Mr. RIDLEY. As I stated, I think that we appreciate the look-see at our bridge program nationally and how we do the inspection. Again, Madam Chair, I think that if you task, if this Committee or Congress or the Senate would task the professionals that are in all States, the State chief bridge engineers which are on a committee, so there is 50 of them, some of the smartest minds that I have ever been around, if you would task them to look at the bridge inspection standards, see if there are things that could be done differently and make a better bridge program, and have them report back to you shortly, I think they would.

This is our bridge management system that we use in Oklahoma. About all States have a bridge management system that uses a lot of risk factors in the modeling to ensure that everything is considered when you are making selections of bridge projects, either rehabilitation or replacement. So I think there are some things out there that maybe are not universally known. But again, I would ask you to use these professionals. Again, they are some of the best minds I know. Have them report back to you. I am sure there are some things that could be changed for major improvement. I truly believe that.

Senator KLOBUCHAR. Mr. Krieger's point, and I am sure you will most likely say from your experience with Oklahoma, this hasn't happened, but do you think it is possible in another State, I won't even name one, that there could be some incentive to want to put money into more glamorous projects instead of this ongoing work of maintenance and that that could lead to some of these problems about not putting money into maintenance?

Mr. RIDLEY. Again, that is an idea that I don't know I could comment on. I know in our State, asset preservation is a big part of what we do. You have to look at preserving your existing assets before you add any new assets. Certainly other States are pressured with other things as far as congestion is concerned that they may have to deal with in adding additional assets. I can't comment on that.

But we focus very heavily on asset preservation, which may mean replacement of bridges, it may mean replacement of pavement or adding shoulders, but improving the asset that we currently have.

Senator KLOBUCHAR. Thank you.

Just a few last questions. Mr. Krieger, do you think the provision that we have in our bill aimed at prohibiting any congressional or Administration earmarks that could divert the funding from our most pressing problems, based on public safety, would be adequate to address some of the problems we have been facing here as we look at where these funds have been going?

Mr. KRIEGER. Yes, I certainly think that it is an important provision. As I said in the testimony, and again as we have heard from other witnesses today, there is, in the case of this being a large, an important national priority that you have to, to the degree that is possible, extract the politics as much as possible and just attack the problem. I think that is what your legislation does extremely well.

The one thing, as far as this flexing question goes, the one thing that we do know as a fact is that close to \$5 billion over 5 years has been flexed out of the Highway Bridge Program, the national program, and put into other places. We don't know exactly in every case where that has gone. But it has happened, and it is very much the sense of, a homeowner, and I think we heard this analogy earlier from the Chairperson, that homeowner with a cracked foundation, instead of it deferring, it is almost like, when you are taking this \$5 billion out and putting it on other places, it is like building a big pool in your back yard or an extension in the house when you have a cracked foundation. We have to really address that foundation.

Senator KLOBUCHAR. All right. Thank you very much.

Thank you, Mr. Herrmann, Mr. Krieger, everyone, for being here this long time. I will end, Mr. Ridley, with a good Oklahoma story for you. When I went to that deployment ceremony in what was 109 degrees, it was so hot that 37 people fainted. They are all fine, they got treatment. I went home from Oklahoma that day with our National Guard, and I called a friend and I was telling her the story. My 13 year old daughter heard me talking and she ran to the top of the stairs, the ceremony was an hour long, she said, "Daddy, Mommy talked so long that 37 people fainted."

[Laughter.]

Senator KLOBUCHAR. I would point out, I only spoke 4 minutes. So with that story, I will end our hearing so everyone can go to lunch.

Thank you very much. We appreciate it.

[Whereupon, at 12:35 p.m., the committee was adjourned.]

[Additional material submitted for the record follows.]

STATEMENT OF HON. THOMAS R. CARPER, U.S. SENATOR
FROM THE STATE OF DELAWARE

The last two times we have reauthorized the Nation's surface transportation law, our priority has been giving states as much flexibility as possible in the use of that money. As a former Governor, I support letting states determine their transportation priorities and where money is most needed.

However, we can go too far. We still have to answer to the Federal taxpayer with regard to how their money is being spent. In terms of the Bridge Program, this means making sure the taxpayer dollars are going to bridges most in need of repair. It means ensuring that progress is made in the maintenance of bridges to keep American drivers safe.

Currently, states with the most deficient bridges get the most money, which makes sense. But when we allow states to flex that money into other programs while neglecting structurally deficient bridges then it starts to seem like our formula rewards bad behavior. I am proud that Delaware has one of the best Bridge programs in the country and we have very few structurally deficient bridges. However, we too face our challenges.

The Corps of Engineers maintains four bridges over the C&D Canal that cuts through the middle of my state. Two of those bridges—the St. Georges and the Summit Bridge—currently have weight restrictions on them while repair work is being done. We need to make sure funding is available to do this kind of important work. But we need to make sure progress is being made to ensure bridges are being repaired to keep American drivers safe.

As we consider reauthorization of this program, it may be time to require that states meet performance standards to demonstrate progress in repairing bridges that need it.

STATEMENT OF HON. BENJAMIN L. CARDIN, U.S. SENATOR
FROM THE STATE OF MARYLAND

Thank you, Madam Chair. Everyday 4 billion vehicles cross bridges in the United States. The American Society of Civil Engineers, in its 2005 Report Card for America's Infrastructure, found that 27.1 percent, or more than 160,000 of the nation's 600,000 bridges, were structurally deficient or functionally obsolete.

In Maryland 29 percent of my state's bridges were rated as structurally deficient or functionally obsolete. The Maryland State Highway Administration has cited an unfunded preservation need of \$221 million just for bridge replacement and rehabilitation.

Madame Chair, we have a lot of bridges in America and they need a lot of work. I join my colleagues in supporting a bold investment plan to save our nation's bridges. I also think we need to begin to utilize promising technologies that improve the thoroughness of bridge inspections.

Just last month in Maryland, a tragic accident on the eastbound span of the Chesapeake Bay Bridge sent an 18-wheel tractor trailer over a jersey barrier and

into the Chesapeake Bay, killing the driver. The original span of the Bay Bridge opened in 1952. The accident last month marks the first time that a vehicle has jumped the bridge's jersey rail. In many respects that is an enviable safety record, but it is clearly not good enough.

Maryland Governor O'Malley ordered State transportation officials to immediately investigate the causes of the crash and to re-inspect the bridge. State inspectors found corroded steel in the U-bolts, which fasten the barriers to the deck of the bridge. According to the chief engineer of the Maryland Transportation Authority, the U-bolt corrosion had been overlooked in the past because routine annual inspections are visual.

This corrosion was identified only because ultrasound and radar were used to penetrate into the structure of the bridge. This discovery demonstrates the advantage of newer technologies for bridge inspection. We know Maryland is not the only State that has experienced bridge corrosion, or tragedy related to deteriorating bridges, in recent years.

The memories of the collapse of a bridge on InterState 35 West in Minneapolis just over a year ago, which killed 13, are still with us. In addition to the public safety concern, this is an economic and American competitiveness issue.

The U.S. Chamber of Commerce points out that without significant repairs and new construction, our aging roads, bridges, and transit cannot begin to handle the growing transportation needs that commuters, emergency responders, truckers and delivery drivers, and law enforcement require on a daily basis. The economy depends on the soundness of our bridges as well.

We are seeing that impact right now. The lane closures on the Chesapeake Bay Bridge are having a major impact on the economic vitality of my state's economy, especially on the Eastern Shore. We need a bold investment plan for our nation's bridges and other infrastructure.

We also need to utilize the latest in screening and inspection technologies—such as radar, ultrasound and other electronic sensors—to assess which bridges need attention first. These technologies can save money and save lives. Washington needs to once again take the development of our national infrastructure as a serious national issue, for our security, our economy, and to ensure American competitiveness. This hearing and the legislation we are considering start us down that neglected path.

Thank you.

To: EPW Staff
From: The Office of U.S. Senator Amy Klobuchar
Date: September 10, 2008
Re: July 28, 2008 Minneapolis Star-Tribune article to be submitted for the Record

StarTribune.com | MINNEAPOLIS - ST. PAUL, MINNESOTA

Clue on 35W bridge might have been missed

By **TONY KENNEDY**, Star Tribune

July 28, 2008

The National Transportation Safety Board has not ruled out the possibility that Minnesota transportation officials missed a potential clue to the impending failure of the Interstate 35W bridge, NTSB Chairman Mark Rosenker said Monday.

One year after the structure collapsed, killing 13 people, the federal agency is still studying whether photos of critical gusset plate connections taken by inspectors in 1999 should have prompted MnDOT to take action, Rosenker said. The photos showed bowing or warping of the plates.

"Should that be a signal or a symptom of an upcoming catastrophe? We don't know yet, but that's being analyzed as we speak," he said. "We believe we'll have that answer."

Rosenker declined to disclose any new findings. But his comments were a shift from a controversial statement he made in January that there was no way for MnDOT to have known about the gusset plate defect.

Rosenker said the final probable-cause report on the bridge collapse will be complete within 90 to 100 days. The findings will be aired at a public meeting of NTSB board members that could last two days, he said.

The process should answer all questions about MnDOT's 40-year stewardship of the bridge, he said.

"You will have an excellent idea of what happened and why," Rosenker said.

Over the next "days and weeks," investigators will post certain findings in the case at www.nts.gov. Rosenker said the final docket of public information will include 19,000 pictures of the bridge and a computerized video model of how the structure fell.

Since early on in the investigation, the federal agency has linked the accident to weight on the bridge deck having overwhelmed steel gusset plates. The plates were originally

designed in the mid-1960s to be 1/2-inch thick instead of the necessary 1 inch, the NTSB has said.

Rosenker said the final report also will address whether MnDOT officials approved the loading of heavy construction materials on the bridge. Weight loads from the repaving project have been studied as a possible contributing factor in the collapse.

Rosenker said other questions that will be covered in the final report include whether high temperatures or vibration from the repaving work contributed to the collapse. He said the report also will answer whether heavily corroded bearings on the bridge played a role in its failure.

Besides determining a precise probable cause for the disaster, the NTSB is likely to make new safety recommendations. For one thing, Rosenker said, it has contacted about one-third of all state transportation departments in an effort to find the best approach to creating, approving and implementing bridge engineering designs.

Action and diagnoses

In Minnesota, MnDOT has moved to fix flawed practices exposed during early scrutiny of the bridge disaster. For instance, MnDOT had a history of inaction when it came to repairing corrosion, locked bearings and other problems that were spotlighted year after year in bridge inspection reports.

MnDOT said in June that a new process has been implemented to ensure that inspection reports receive internal review by specially designated decisionmakers.

Two investigative reports related to the collapse have already been produced, and various parties to pending litigation have been forming conclusions about the disaster.

On Friday, for instance, the repaving contractor released findings from an engineering study that blamed the collapse on undersized gusset plates and "load creep" unrelated to the repaving underway when the bridge collapsed.

Kyle Hart, the attorney representing Progressive Contractors Inc., said two previous construction projects ordered by MnDOT added 4.08 million pounds of concrete to the bridge. He said that additional weight, coupled with years of unchecked corrosion in the bridge's superstructure, left almost no margin of safety in terms of load capacity.

"If the bridge had been properly designed and maintained or repaired, the weight we placed on the bridge during construction would have been far below the amount of weight necessary to initiate collapse," Hart said.

Oberstar's involvement

During the early months of the NTSB investigation, Rosenker drew sharp criticism from U.S. Rep. Jim Oberstar, chairman of the House Transportation and Infrastructure Committee. The Minnesota Democrat said in January that Rosenker made rushed public remarks about the investigation that seemed to rule out corrosion, maintenance and metal fatigue as contributing factors. The congressman was irked by the NTSB's decision not to hold a public hearing midway through the investigation.

Late last week, Oberstar said he is confident that the final report will show multiple causes for the failure. He also said that he's seen no evidence of partisanship in the investigation.

"If the board does its job, it will cite corrosion, metal fatigue, under-design of the gusset, failure to conduct periodic, effective inspection of and maintenance of the bridge structure itself," Oberstar said. "A combination of those factors should be the principal elements of probable cause for failure of the bridge."

He said the NTSB's final report on the bridge collapse will arrive in time to influence next year's congressional funding decisions on surface transportation across the country.

Tony Kennedy 612-673-4213

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Oral Testimony

House Transportation and Infrastructure Committee

September 5, 2007

Malcolm T. Kerley, P.E.

**Chair, Highway Subcommittee on
Bridges and Structures
American Association of State Highway and
Transportation Officials**

- Mr. Chairman, my name is Malcolm Kerley. I am the Chief Engineer for the Virginia Department of Transportation. I chair the Highway Subcommittee on Bridges and Structures of the American Association of State Highway and Transportation Officials (AASHTO).
- On behalf of AASHTO, I want to thank you for holding this hearing and to express our support for your proposed National Highway System Bridge Reconstruction Initiative.
- I am here to provide you and the public with the answers to some critical questions that have arisen since the tragic collapse of the Interstate 35W bridge in Minneapolis:
 - 1. What have states done since the accident to make doubly sure the nation's bridges are safe?
 - 2. How are states investing bridge money?
 - 3. Are current funding levels adequate for the job at hand?
- The State Departments of Transportation consider bridge safety and preservation to be one of our highest priorities, and a responsibility we take very seriously.
- Every state conducts a thorough and continual bridge inspection and rehabilitation program. America's bridges are inspected every two years by trained and certified bridge inspectors,

conditions are carefully monitored, and, where deterioration is observed, corrective actions are taken.

- While we know all states comply with federal bridge inspection standards, each state has a responsibility to ensure that it develops more detailed program appropriate to its unique circumstances.
- Since August 1, in compliance with federal requests, every state has reviewed or is in the process of re-inspecting its steel deck truss bridges. Based on the reports of this review, we can say that these bridges are safe.
- Nonetheless, of the almost 600,000 bridges across the country, roughly 74,000 (or 12.4%) are classified as “structurally deficient.” This means that one or more structural condition requires attention. This may include anything from simple deck repairs to reinforcement of support structures.
- Classifying a bridge as “structurally deficient” does not mean that it is unsafe. But it does mean that work is needed.

How are states spending their bridge funding?

- As age and traffic take a toll on bridge conditions, states wage a daily campaign to preserve them in good condition.
- The good news is that since 1990 states have reduced, by almost half, the number of structurally deficient bridges on our nation’s

highways.

- Reports alleging a diversion of federal bridge funding are misleading because they focus only on federal Bridge Program data and fail to look at the total picture of all the resources states commit to bridge improvements.
- **The fact is that states are spending dramatically more money on bridges than is provided under the Highway Bridge Program.**
- In 2004 the federal Highway Bridge Program provided \$5.1 billion to the states.
- States actually spent \$6.6 billion in federal aid for bridge rehabilitation. State and local funding added another \$3.9 billion for bridge repairs.
- As the FHWA reports, in 2004, a total of \$10.5 billion was invested in rehabilitation by all levels of government.
- Transfers between federal programs are simply a project management tool, and do not reflect actual levels of state bridge spending.

Are Current Funding Levels Adequate for the Job at Hand?

- Clearly the answer is no. A huge backlog of bridge needs still remains. According to the U.S. DOT's 2006 *Conditions and Performance Report*, needed repairs on National Highway

System bridges alone total over \$32 billion, which includes over \$19 billion needed on Interstate Highway System bridges.

- SAFETEA-LU increased guaranteed spending levels for highways and transit by 38 percent over the previous bill. But for the Bridge Program, SAFETEA-LU increased annual funding levels by only 6 percent.
- That funding has been eroded by dramatic increases in materials costs – steel, concrete, fuel, asphalt – which have increased an average of 46 percent from 2003-2006.
- Thus, we are left with a program that does not have enough funding to overcome the system backlog.

AASHTO commends Chairman Oberstar's efforts to improve the national transportation infrastructure. This Bridge Rehabilitation proposal is a good first step.

- We also recommend streamlining processes that delay needed repairs on our nation's highway system, and allowing the use of proprietary engineering-related products that could spur innovation in long-term solutions.
- The tragic Minneapolis bridge collapse has rightfully caused us to examine our bridge programs nationally. AASHTO and the State DOTs stand ready to act upon any recommendations of the National Transportation Safety Board and to work with the

Congress to address the nation's transportation investment needs. I would be glad to answer any questions you may have.



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF TRANSPORTATION
HARRISBURG, PENNSYLVANIA 17101-1900

OFFICE OF
SECRETARY OF TRANSPORTATION

August 7, 2008

Honorable James L. Oberstar, Chairman
Committee on Transportation and
Infrastructure - U.S. House
B-370A Rayburn House Office Building
Washington, D.C. 20510

Honorable Barbara Boxer, Chair
Environment and Public Works Committee
U.S. Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

Honorable John Mica
Ranking Minority Member
Committee on Transportation &
Infrastructure - U.S. House
2163 Rayburn House Office Building
Washington, D.C. 20510

Honorable James Inhofe
Ranking Minority Member
Environment and Public Works Committee
U.S. Senate
456 Dirksen Senate Office Building
Washington, D.C. 20510

Dear Chairman Oberstar, Chairwoman Boxer, Representative Mica and Senator Inhofe:

As Congress considers HR 3999, The National Highway Bridge and Reconstruction Act of 2008, I would like to offer some comments on this important legislation, which will provide much needed additional federal resources for bridge repair and reconstruction projects in Pennsylvania.

Pennsylvania leads the nation with the highest number of structurally deficient bridges. PennDOT has nearly 4,000 structurally deficient bridges greater than 20' with another 2,100 owned by local municipalities. PennDOT is working diligently to address this crisis. In the past five years, we have made significant state investments in our bridges. In 2006, PennDOT invested an unprecedented \$558 million in 894 bridge projects statewide with \$133 million being spent on bridge preservation and the remaining \$425 million devoted to rehabilitating and replacing structurally deficient bridges. In 2007, that investment was over \$700 million.

Under Governor Rendell's FY 2008-09 "Rebuild Pennsylvania" program, a combination of federal and state funds, including \$350 million in bond funds, will underwrite an accelerated bridge program. The combined funding will allow PennDOT to start repair or replacement of 411 structurally deficient bridges this fiscal year.

PennDOT supports the primary initiatives in HR 3999 as a way to improve bridge safety. Two issues we keenly support are listed below with our comments for improvement:

August 7, 2008

Page 2

1. Providing an additional \$1 Billion for the rehabilitation or replacement of structurally-deficient bridges carrying routes on the National Highway System (NHS).

Additional federal funding is crucial to addressing Pennsylvania's needs. This initiative could be further improved by expanding the funding eligibility to all structurally deficient bridges, including those on non-NHS routes. In Pennsylvania, 52% of our structurally deficient State bridges and nearly 100% of our local bridges that carry non-NHS routes would not be eligible as currently written.

2. Requiring a risk-based prioritization for reconstruction of deficient bridges.

PennDOT developed its own Risk Assessment tool to prioritize its bridges based on structural deficiency to ensure the critical bridges were being fixed. HR 3999 could be improved by limiting the risk prioritization to only those bridges that are structurally deficient to focus on improving bridge safety, rather than including bridges that are functionally obsolete as currently written. Further, such a risk-based prioritization should be implemented on an individual state basis, not on a nationwide basis, as conditions and demands on bridges vary significantly. For example, a prioritization tool with a heavy weighting factor on earthquake risk may allocate few resources to Pennsylvania bridges less exposed to that risk.

PennDOT has concerns with certain provisions of HR 3999 and offers the following comments:

1. Non-transferability of bridge funds – PennDOT has repeatedly demonstrated that the current flexibility on fund transfers has reduced our program administrative costs..

This flexibility enables Pennsylvania to more effectively administer its highway/bridge program, but this has not meant that bridge projects have been short-changed. From 2003 through 2006, for example, Pennsylvania received \$1.67 billion in federal bridge apportionments, transferred a little over 40%, but still made bridge investments of \$2.38 billion. Bridge funds have been transferred to less-restrictive State Transportation Planning funds where they were used to rebuild Interstate bridges. A further example is that federal bridge funds can only be spent on bridges 20 feet and longer. PennDOT owns nearly 10,000 bridges between 8 feet and 20 feet in length; nearly 2,000 of these bridges are structurally deficient. Some of the transferred funds have gone to repair these structures. We concur with AASHTO's opinion that such funding flexibility should be continued.

2. Detailed requirements for the bridge inspection program – HR 3999 contains some specific changes to the very technical inspection program. Such changes may limit the ability of the inspection program to address new challenges or use new technology in a timely manner if controlled by legislation.

PennDOT agrees with AASHTO's comment that the wording "in consultation with the States" should be added to various sections (See attachment) of the bill to ensure the ongoing collaboration between States and DOT in the regulatory process continues. Some items of particular concern include:

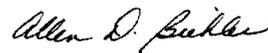
- **Immediate load rating of bridges** – All Pennsylvania bridges have current load ratings. PennDOT policy requires that these ratings be re-computed after inspections have identified changes in structural conditions. If the HR 3999 provisions requiring statewide re-analyses of all bridges were ordered, it could be a one time cost to Pennsylvania of \$20 M - \$30 M in precious resources for our 23,000+ National Bridge Inventory System (NBIS) bridges.

August 7, 2008
Page 3

- **Increased requirements for inspection team leaders** – The proposed requirements for professional licensure or 10 years experience will likely have the unintended consequence of delaying bridge inspections in Pennsylvania. With over 23,000 NBIS bridges in the Commonwealth to inspect, PennDOT has an aggressive inspection training and certification program in place that meets and exceeds the federal standards without the additional requirements proposed. The proposed qualification standards could disqualify certain team leaders who have demonstrated a high-standard of inspection expertise, thus hindering PennDOT's ability to conduct statewide inspections.
- **More frequent inspections requirement for structurally deficient bridges and for fracture critical bridges** - The proposed annual inspections are unnecessary to guarantee safety for many of these bridges. PennDOT uses the guidance provided in the current FHWA Bridge Inspection Reference Manual to set the appropriate frequency and scope of inspections for individual bridges. Accordingly, Pennsylvania already performs annual inspections on approximately 2,000 bridges. Requiring additional, unnecessary inspections (estimated at 1,000 inspections costing \$1M-\$2M annually) would reduce the available resources needed to ensure safety of other bridges.

We appreciate your continued focus and support in improving the safety of the nation's bridges. If more information would be helpful, we would be pleased to provide it.

Sincerely,



Allen D. Biehler, P.E.
Secretary of Transportation

Attachment

cc: The Honorable Edward G. Rendell
PA's Congressional Delegation

ATTACHMENT

Regarding our concerns regarding the detailed requirements to the bridge inspection program on Page 2 of our letter, PennDOT recommends the following revisions to HR 3999 to ensure the ongoing collaboration between the States and the DOT on the regulations governing the bridge safety inspection program continues, :

Amending HR 3999 Version 7/10/2008 (6:38 pm)

Page 4, Line 15

Following the word "Secretary", insert the phrase " , in consultation with the States,"

Page 8, Line 22

Following the word "Secretary", insert the phrase " , in consultation with the States,"

Page 9, Line 16

Following the word "Secretary", insert the phrase " , in consultation with the States,"

Page 14, Line 17

Following the word "Secretary", insert the phrase " , in consultation with the States,"

August 28, 2008
Oklahoma Department of Transportation
Comments and Concerns regarding H.R. 3999

SEC.2. Highway Bridge Program

(a) Bridges on Federal-Aid Highways-

Existing:

‘(b) Bridges on Federal-Aid Highways – The Secretary, in consultation with the States shall—

- ‘(1) inventory all bridges on Federal-aid highways that are bridges over waterways, other topographical barriers, other highways and railroads;
- ‘(2) identify each bridge inventoried under paragraph (1) that is structurally deficient or functionally obsolete;
- ‘(3) assign a risk-based priority for replacement or rehabilitation of each such bridge after consideration of safety, serviceability, and essentiality for public use and public safety, including the potential impacts to emergency evacuation routes and to regional and national freight and passenger mobility if the serviceability of the bridge is restricted or diminished; and
- ‘(4) determine the cost of replacing each such bridge with a comparable facility or of rehabilitating such bridge.

Proposal:

Rather than setting up a risk based priority system in the legislation and requiring approval from the Secretary of Transportation, it would be a better approach to work with the existing bridge management systems. Bridge management systems like the AASHTOware Pontis already consider risk based factors.

Reasoning:

There are currently 44 states that are licensing the AASHTOware Pontis bridge management software. This software is already shifting toward a utility based approach that incorporates risk based modeling. A new system is not needed. Developing a risk sensitive process within the existing framework of Pontis is what is called for.

(c) ‘(5) ‘(A) ‘(ii) Calculation of Load Ratings

Existing:

The State shall—

- ‘(1) not later than 24 months after the date of enactment of this paragraph, calculate the load rating for all highway bridges described in subsections (b) and (c) that are located in the State;

‘(II) at least once every 24 months thereafter, reevaluate and, as appropriate, recalculate the load rating for each such bridge; and

‘(III) ensure that the safe load-carrying capacities for such bridges are properly posted.

Proposal:

The State shall update or cause to be updated load ratings for all span structures and update these load rating calculations as conditions change in the field which requires recalculation of the safe load carrying capacity. The State shall also ensure that such bridges that do not meet existing strength requirements are properly posted.

Reasoning:

The requirement for load rating **ALL** bridges on the Federal Aid system every 24 months would be very burdensome for State and Local transportation agencies. Load ratings should be reevaluated when the conditions observed in the field have changed significantly from the as-built condition of the structure. Some condition changes that would require updating a load rating, but not limited to, are as follows:

- Dead load conditions have significantly changed on the superstructure.
- Condition of the main load carrying members in the superstructure has deteriorated significantly, i.e. beams, pier beams.
- The bridge owner and/or team leader inspecting the bridge feel that the current load rating is in error.

SEC.3. National Bridge Inspection Program

‘(d) Frequency of Bridge Inspections-

Existing:

‘(1) IN GENERAL – Subject to paragraph (2), the standards established under subsection (a), at a minimum, shall provide for—

‘(A) annual inspections of structurally deficient highway bridges using the best practicable technologies and methods;

‘(B) annual in depth inspections of fracture critical members, as such terms are defined in section 650.305 of title 23, Code of Federal Regulations (as in effect on the date of enactment of this paragraph); and

Proposal:

‘(A) The State shall inspect structurally deficient bridges on a more frequent inspection schedule when the NBI condition state of the superstructure or substructure (NBI Item 59 or 60) reach a condition state of 3, Serious Condition. The condition of the deck shall not enter into this decision. The period between inspections is not to exceed 24 months. There will be no requirement for

increased inspection frequencies for structurally deficient bridges with low traffic volumes. Functionally obsolete bridges will be inspected on a frequency not to exceed 24 months.

(B) The State shall perform in-depth fracture critical inspections on bridges located on NHS routes on a more frequent inspection schedule based on average daily traffic and average daily truck traffic and the condition of the fracture critical member as well as the presence and severity of fatigue details. The period between inspections is not to exceed 24 months. There will be no requirement for in-depth fracture critical inspection of fracture critical members on structures carrying low traffic volumes with no evidence of fatigue or fracture.

Reasoning:

(A) Structural deficiency is not a true measure of structural integrity and should not be used as a trigger for an increased bridge inspection frequency. A bridge should be placed on an increased inspection schedule based on the condition of the main structural members and traffic volume. The NBI rating of the deck (NBI Item 58) should also not be a trigger for increased inspection frequency. In Oklahoma, a significant percentage (23%) of on-system structurally deficient bridges are structurally deficient based on the NBI rating of the deck. Increasing the frequency of inspection of these structures based purely on being structurally deficient would not yield any more beneficial information than inspections based on a 24 month inspection cycle. Ultimately, sound engineering judgment should be used for inspection frequency determinations.

(B) Requiring that all fracture critical members be inspected on an annual basis makes an inaccurate assumption of all fracture critical members. A fracture critical member is defined as a steel member with a tension component that the failure of said member could result in the collapse of a portion of or complete collapse of the structure. The frequency of inspection of a fracture critical member should be based on member condition and the amount of traffic that is carried by the structure, specifically truck traffic. Truck traffic is the driving force behind fracture critical member failure. Fracture critical members with low average daily traffic or low average daily truck traffic should not be inspected at the same frequency as fracture critical members carrying large volumes of traffic.

(f) Qualifications of Program Managers and Team Leaders

Existing:

(A) an individual serving as the program manager of a State be a professional engineer licensed under the laws of that State.

(B) an individual serving as a team leader for a State for the inspection of complex bridges or follow-up inspections of bridges for which there has been a critical finding be a licensed professional engineer; and

(C) an individual serving as a team leader for a State for the inspection of all other bridges be a licensed professional engineer or have at least 10 years of bridge inspection experience.

Proposal:

(A) An individual serving as the program manager of a State shall be at a minimum a licensed and registered professional civil engineer with 4 years of bridge inspection experience in addition to successful completion of the 80 hour NHI bridge inspection training course and the NHI Fracture Critical Bridge Inspection course.

(B) Team leaders performing inspections of complex structures shall be at a minimum a licensed and registered professional civil engineer with 4 years of bridge inspection experience in addition to successful completion of the 80 hour NHI bridge inspection course and successful completion of the NHI Fracture Critical Bridge Inspection course. (Complex structures shall include all fracture critical members and all bridges of unusual design and construction, or any type defined by 23 CFR 650.305, *Complex Bridge*.) Follow-up of critical findings should only be performed by personnel with the same qualifications.

(C) Team leaders performing inspections of standard structures shall have a minimum of 5 years of bridge inspection experience in addition to successful completion of the 80 hour NHI bridge inspection course. (Standard structures shall include, but are not limited to reinforced concrete boxes, redundant structures, and non-fracture critical members.)

Reasoning:

(A) An individual charged with overall responsibility of a bridge inspection program should be a licensed and registered professional civil engineer. A program manager must be educated in engineering principals and methods as well as possess a keen understanding of the bridge inspection and reporting process. An individual can adequately fulfill these requirements through education, licensure, and experience.

(B) Team leaders performing inspections on complex structures must be educated in engineering principals and methods to adequately, safely, and thoroughly inspect such a structure as well as to report critical findings to bridge owners. Personnel tasked with follow-up of structures with critical findings must be as qualified as those personnel performing the inspections.

(C) Team leaders performing the inspection of non-complex structures need not have the same education and licensure as those team leaders performing inspections of complex structures. Generally, non-complex structures do not have unusual design features or are not constructed of unusual materials and therefore not as susceptible to the same type of scrutiny as a complex structure.

Comments and Concerns regarding HR 3999

American Association of State Highway and Transportation Officials (AASHTO)

General:

- Overall, the draft bill is so restrictive that it inevitably sets up a “worst first” process and pays only lip-service to true bridge asset management processes.
 - The goal of a “worst first” process seems logical enough – fix the worst bridges first – but in reality the process allows good bridges to deteriorate to the point where they are more expensive to address than if earlier, more cost-efficient measures were instituted earlier in the bridge life-cycle.
 - Thus, funding is not used to its best advantage and the agency is continually playing “catch-up.” Economists have repeatedly determined that “worst first” is not the best approach for making improvements to systems like our nation’s bridge infrastructure.
- In addition, the bill will add a significant amount of extra paperwork, both for the states and the federal government, which will not add value to the process nor will it increase the speed of bridge replacements and rehabilitation. The money and staff time spent on keeping up with the reports and submittals could be spent more effectively on actual maintenance and repair of the bridges.

Specific Comments:

- Inflexibility in Transfers of Federal Bridge Funding
 - States have proven time and again that although they transfer money out of the restrictive “bridge program,” they still spend significantly more money overall on bridge maintenance, rehabilitation, and replacement. However, this draft bill restricts transfers even further, providing almost zero flexibility to transfer funding to more flexible programs – such as STP – where administration is simpler and projects can be realized more quickly.
 - An example of the potential problem with the current language would be an historic bridge that may be “eligible for replacement” due to functional obsolescence – Even though the community wants to keep it “as is,” this would preclude the State from ever being able to make funding transfers. (see pg 11, line 1-4)
- Performance Plan Too Restrictive
 - The restrictive requirements of the Performance Plan and its associated Approval Process (pgs 7-9) would likely lead states to segment their funding pots and report on state and federal funding separately, thus creating unnecessary administrative burden.
 - Federal bridge funds would be included in the required Performance Plan
 - More staff will be needed to write and update these plans, and more staff will be needed at the federal level to review and respond to these plans – This is not a “value-added” process.
 - State funds would likely be kept separate because of the restrictions in the federal requirements, thus producing two sets of books.

- The unintended consequences would include more work and a disjointed planning process for bridge management and funding.
 - The Performance Plan also does not allow for unexpected situations.
 - The annual approval process and funding restrictions does not easily allow states to react quickly when an unexpected situation arises and needs immediate attention.
 - The current verbiage in part (II) of the Performance Plan section (pg 8, lines 3-6) could be interpreted such that the bridges included in the plan need to be rehabilitated or replaced within the 5-year plan window, which is unrealistic for all but the simplest of bridge replacement projects.
 - If the performance plan requirement is kept, a more reasonable expectation is to update it every *two* years (pg 7, line 21) to keep it consistent with one full cycle of inspections.
- Immediate Recalculation of Load Ratings for All Highway Bridges Unnecessary
 - The requirement to recalculate the load rating for all highway bridges (pg 7, lines 5-10) over the next two years, regardless of their current condition or status, is unnecessary and simply a paperwork exercise for the majority of situations.
 - Normally, a State DOT does not recalculate load ratings every two years – only if a change in the inspection ratings would indicate that the load rating might have changed.

Additional Issues for Consideration

- Potential Security Issue with Release of Information
 - There is a potential security issue related to the sections of the draft bill that require State DOTs to “report critical findings” and to “make information more readily available and more easily understood by the general public.” Simply put, we are telling people in laymen’s terms the precise location of all of our critical infrastructure weak spots.
- Federal/State Coordination in Development of Processes Should be Encouraged
 - AASHTO recommends adding “in consultation with the States” to various sections of the draft bill to ensure that the USDOT utilizes the wealth of experience and expertise of the engineers in the State DOTs in developing processes, criteria, etc., related to the bridge program (e.g., pg 4, line 15; pg 8, line 22)
- Detail Could Limit Approaches Used
 - The section on Minimum Requirements of Inspection Standards is unnecessarily detailed. Pg 14, lines 8-12, discuss testing with “a state of the art technology” that detects fatigue cracks “as small as 0.01 inches...”. While AASHTO suspects this wording to be a requirement to use a specific (but not directly mentioned) proprietary product, the unintended consequences will include restricting the inspectors’ engineering judgment, adding to inspection costs, and precluding the use of other more effective processes and devices.

- AASHTO recommends removing this section and leaving the engineering decisions to the engineers.
- Time Frame for Independent Review Too Short
 - The time allotted for the review of the risk-based priorities by the National Academy of Sciences is too short – Could potentially be only 6 months
 - AASHTO recommends modifying wording in (ii) Report to Congress to state “Not later than 1 year after entering into appropriate arrangements with the Secretary, the Academy shall...”
- Qualifications for Team Leader Too Restrictive
 - The requirement for a team leader that conducts inspections of “complex” (which is undefined and open to interpretation) bridges or follow-up inspections on critical findings to be a professional engineer is not the best assurance of an accurate or quality result. Professional engineers, while licensed after 4 years of work experience and schooled in civil engineering, do not necessarily have any bridge inspection expertise and, it is safe to say, most do not.
 - A previous version of the bill (from April 2008), which allowed for a licensed professional engineer OR 10 years or more of bridge inspection experience, is much more reasonable and will provide for a more knowledgeable inspection work force.



Pete Rahn, President
Director, Missouri Department of Transportation

John Horsley, Executive Director

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July 22, 2008

The Honorable James Oberstar
Chairman
Committee on Transportation and Infrastructure
U.S. House of Representatives
2365 Rayburn House Office Building
Washington, D.C. 20515-2308

Dear Congressman Oberstar:

I am writing to you on behalf of the American Association of State Highway and Transportation Officials (AASHTO) which represents the transportation agencies of the fifty States, the District of Columbia and Puerto Rico.

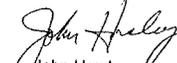
First, we appreciate your leadership in restoring and building bridges throughout the United States. Your efforts on behalf of the state transportation agencies throughout the years have been highly regarded and we know we can count on you as an ally for preserving our nation's transportation infrastructure. Regrettably, however, we would like to express our opposition to certain provisions of H.R. 3999, The National Highway Bridge Reconstruction and Inspection Act.

H.R. 3999 would severely restrict the transfer of federal bridge funding. States have proven time and again that although they transfer money out of the restrictive "bridge program," they still spend significantly more money overall on bridge maintenance, rehabilitation, and replacement. For example, in 2004, the latest year for which we have data, state and local governments spent a total \$10.5 billion on bridges, more than twice as much as apportioned and allocated under the \$5.1 billion federal-aid bridge program. The total \$10.5 billion level of investment happened despite transfers out of the federal-aid bridge program. States are forced to make such transfers because of the inflexibility of the bridge program. The provision in H.R. 3999 that further limits transfers will only make the program more rigid and preclude appropriate bridge asset management.

H.R. 3999 also sets up a "worst first" process with its risk-based performance planning process. States have found true bridge asset management programs to be more effective in preserving and extending the life of the nation's bridges. Further, this performance planning process would add a significant amount of paperwork and bureaucracy to planning for bridge replacement and rehabilitation.

Please consider our concerns with these provisions of H.R. 3999, The National Highway Bridge Reconstruction and Inspection Act. Please contact Janet Oakley at 202-624-3698 if you or your staff have questions or need additional information.

Sincerely yours,



John Horsley
Executive Director

**American Association of State Highway and Transportation Officials
Membership List**

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Wednesday,
September 03,
2008

STANDING COMMITTEE ON HIGHWAYS (SCOH)

Officers

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Vice Chair: Neil Pedersen, Maryland
Secretary: King Gee, FHWA
AASHTO Liaison: Ken Kobetsky

Charge Statement

The committee shall develop all major engineering standards, guides, and policies for the highway program and either as a unit or through its subcommittees, investigate, study and report on all engineering activities and developments, including all phases of road and bridge design, construction, maintenance, traffic requirements, roadside development, aesthetics, tests and investigations of materials, protection of the environment; make recommendations regarding needed research, promote and encourage technology transfer by member states and related research agencies; and be responsible for providing the full range of highway engineering publications for the Association. It shall identify and receive reports from its subcommittees and task forces as to federal regulatory mandates of national concern, and provide reports thereon. It shall provide guidance and direction to its subcommittees and task forces on technical issues, review of work plans, and identifying key policy areas through its councils.

The councils are identified as the Council on Project Delivery and the Council on Operations. These councils shall be composed of various subcommittees, task forces and sub-units duly established and function within the Standing Committee on Highways. New subcommittees, task forces or other sub-units within the Standing Committee on Highways will be assigned to one of the councils as deemed appropriate by the Chair and with the approval of the committee as a whole. A simple majority of the committee members is required to approve such an action.

The chairs of the assigned SCOH subcommittees, task forces, assigned sub-units to the council, and other members as recommended by SCOH shall be members of the councils. The chairs may designate their vice-chair or another designee to attend council meetings as necessary. The chair of the council shall be recommended by SCOH and appointed by AASHTO's President. The chair of a council shall appoint one of the members as the vice-chair of the council.

The Councils will have the authority to task the respective subcommittees, task forces, and sub-units within SCOH with providing technical assistance in support of its directives.

The subcommittees, within the framework of the engineering standards and policies developed by the Standing Committee on Highways and formalized by the Association, shall develop such technical details, guides, manuals, specifications, and other publications appropriate for their individual activities and needs. All subcommittees and special committees subordinate to the Standing Committee on Highways shall report to the Chair thereof.

All task forces established under a committee or subcommittee shall report to the chair thereof. The committee is delegated the authority to take appropriate action on behalf of the Association on matters submitted to it by the Special Committee on U.S. Route Numbering, and shall report such actions to the Board of Directors.

The standing committee shall be responsible for administering NCHRP 20-7 on behalf of AASHTO. This program is aimed at providing rapid solutions to small or modest research problems having general applicability to the states. While project proposals may be made by any AASHTO Member Department, a decision to proceed shall be by majority vote of this committee.

Each Member Department shall be entitled to membership on the Standing Committee. The member shall be designated by the Chief Executive Officer of the Member Department, and should be the person considered as the

Department's Chief Highway or Engineering Officer.

AASHTO Staff Liaison

Ken Kobetsky

Reporting Committees

- Subcommittee on Bridges and Structures
- Subcommittee on Construction
- Subcommittee on Design
- Subcommittee on Highway Transport
- Subcommittee on Maintenance
- Subcommittee on Materials
- Subcommittee on Right of Way and Utilities
- Subcommittee on Systems Operation and Management
- Subcommittee on Traffic Engineering (NCUTCD)
- Special Committee on U.S. Route Numbering
- NTPEP Oversight Committee
- Value Engineering Task Force
- AASHTO Technology Implementation Group (AASHTOTIG)

Reporting Joint Committees

- AASHTO/ACEC: Joint AASHTO - American Council Of Engineering Companies Committee
- AASHTO/AGC/ARTBA: Joint AASHTO - Associated General Contractors - American Road And Transportation Builders Association Committee



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West Virginia WV

All Federal Aid Highway Bridges
 All Func Class Except 08, 09, and 19
 As of August 28, 2008

	# Bridges	# SD	# FO	# Def	SD Bridges	
					Insp Freq > 12	
ALABAMA	8,156	446	1,404	1,850	166	
ALASKA	720	62	122	184	62	
ARIZONA	5,599	123	451	574	104	
ARKANSAS	8,053	346	1,129	1,475	146	
CALIFORNIA	17,538	2,437	2,898	5,335	2,385	
COLORADO	4,622	313	617	930	258	
CONNECTICUT	3,025	214	801	1,015	194	
DELAWARE	572	8	97	105	2	
DIST. OF COL.	201	17	133	150	17	
FLORIDA	8,469	123	1,215	1,338	105	
GEORGIA	8,678	299	1,202	1,501	268	
HAWAII	873	83	313	396	74	
IDAHO	1,985	121	253	374	4	
ILLINOIS	11,868	1,123	1,258	2,381	548	
INDIANA	7,782	541	1,123	1,664	539	
IOWA	7,703	851	478	1,329	777	
KANSAS	11,559	462	1,083	1,545	354	
KENTUCKY	5,236	337	1,425	1,762	265	
LOUISIANA	6,948	447	1,477	1,924	55	
MAINE	1,313	136	302	438	124	
MARYLAND	2,961	154	566	720	102	
MASSACHUSETT	3,933	470	1,806	2,278	71	
MICHIGAN	6,725	924	1,191	2,115	721	
MINNESOTA	5,787	367	312	679	0	
MISSISSIPPI	8,293	766	976	1,742	396	
MISSOURI	9,919	1,529	1,474	3,003	420	
MONTANA	2,402	48	332	380	46	
NEBRASKA	5,368	254	238	492	227	
NEVADA	1,293	23	186	209	14	
NEW HAMPSHIRE	1,207	130	195	325	29	
NEW JERSEY	4,833	526	1,235	1,761	525	
NEW MEXICO	2,946	248	168	416	184	
NEW YORK	9,815	909	3,410	4,319	738	
NORTH CAROLINA	7,073	695	1,200	1,895	695	
NORTH DAKOTA	1,830	62	43	105	55	
OHIO	12,165	829	2,189	3,016	0	

All Non Federal Aid Highway Bridges
 Func Class 08, 09 and 19 Only
 As of August 28, 2008

	# Bridges	# SD	# FO	# Def	SD Bridges	
					Insp Freq > 12	
ALABAMA	7,712	1,366	895	2,261	257	
ALASKA	481	96	138	234	96	
ARIZONA	1,770	84	249	333	76	
ARKANSAS	4,489	631	1,018	1,649	78	
CALIFORNIA	6,870	901	1,182	2,083	817	
COLORADO	3,786	290	325	615	279	
CONNECTICUT	1,155	158	309	467	139	
DELAWARE	285	14	35	49	2	
DIST. OF COL.	41	4	30	34	4	
FLORIDA	3,209	182	616	798	119	
GEORGIA	5,900	706	821	1,527	613	
HAWAII	243	59	48	107	57	
IDAHO	2,140	231	234	465	25	
ILLINOIS	14,234	1,377	812	2,189	1,348	
INDIANA	10,761	1,497	1,404	2,901	1,495	
IOWA	17,095	4,391	1,940	5,431	3,519	
KANSAS	13,958	2,433	1,371	3,804	1,897	
KENTUCKY	8,396	983	1,912	2,895	479	
LOUISIANA	6,372	1,310	821	2,131	1,036	
MAINE	1,079	218	201	419	187	
MARYLAND	2,202	249	528	777	199	
MASSACHUSETTS	1,110	143	392	525	33	
MICHIGAN	4,212	747	448	1,195	652	
MINNESOTA	7,333	800	205	1,005	11	
MISSISSIPPI	8,729	2,212	364	2,576	836	
MISSOURI	14,285	2,827	2,150	4,977	2,605	
MONTANA	2,568	363	270	633	358	
NEBRASKA	10,103	2,158	967	3,125	1,987	
NEVADA	443	29	41	70	13	
NEW HAMPSHIRE	1,151	268	243	512	89	
NEW JERSEY	1,641	200	352	552	200	
NEW MEXICO	920	156	157	313	85	
NEW YORK	7,545	1,253	1,661	2,914	702	
NORTH CAROLINA	10,816	1,765	1,636	3,401	1,764	
NORTH DAKOTA	2,621	672	221	893	577	
OHIO	15,901	2,051	2,544	4,595	4	

OKLAHOMA	12,860	1,998	1,226	3,224	1,616	OKLAHOMA	10,731	3,681	562	4,243	2,987
OREGON	4,274	262	904	1,166	160	OREGON	3,017	217	413	630	109
PENNSYLVANIA	11,883	2,830	2,852	5,682	2,427	PENNSYLVANIA	10,433	3,430	1,952	5,382	2,415
RHODE ISLAND	615	131	203	334	128	RHODE ISLAND	126	35	54	89	33
SOUTH CAROLINA	5,556	632	687	1,319	403	SOUTH CAROLINA	3,665	629	173	802	92
SOUTH DAKOTA	2,790	266	129	385	259	SOUTH DAKOTA	3,130	364	142	1,106	324
TENNESSEE	8,642	391	1,376	1,767	390	TENNESSEE	11,238	890	1,500	2,390	886
TEXAS	32,699	391	5,622	6,013	356	TEXAS	17,905	1,525	3,466	4,961	1,429
UTAH	1,884	100	223	323	88	UTAH	969	90	92	182	86
VERMONT	1,336	230	265	495	230	VERMONT	1,379	303	264	567	302
VIRGINIA	7,722	505	1,472	1,977	21	VIRGINIA	5,725	732	1,048	1,780	34
WASHINGTON	4,537	261	1,252	1,513	219	WASHINGTON	3,102	156	576	732	93
WEST VIRGINIA	3,397	529	677	1,296	283	WEST VIRGINIA	3,847	544	999	1,543	331
WISCONSIN	6,950	468	605	1,094	476	WISCONSIN	6,881	774	295	1,069	761
WYOMING	1,900	170	130	300	167	WYOMING	1,136	226	169	395	121
PUERTO RICO	1,445	146	556	702	134	PUERTO RICO	725	85	374	459	82
TOTALS	315,980	25,754	51,481	77,235	18,027	TOTALS	285,365	47,106	37,709	84,815	33,315

Deficiency does not include the 10-yr rule

Deficiency does not include the 10-yr rule

211

