

**TRANSPORTATION INFRASTRUCTURE:
ISSUES AND OPTIONS**

HEARING
BEFORE THE
COMMITTEE ON FINANCE
UNITED STATES SENATE
ONE HUNDRED TENTH CONGRESS
SECOND SESSION

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JULY 10, 2008
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TRANSPORTATION INFRASTRUCTURE: ISSUES AND OPTIONS

TUESDAY, JULY 10, 2008

U.S. SENATE,
COMMITTEE ON FINANCE,
Washington, DC.

The hearing was convened, pursuant to notice, at 10:06 a.m., in room SD-215, Dirksen Senate Office Building, Hon. Max Baucus (chairman of the committee) presiding.

Present: Senators Bingaman, Kerry, Salazar, Grassley, and Snowe.

Also present: Democratic Staff: Bill Dauster, Deputy Staff Director and General Counsel; Pat Bousliman, Natural Resource Advisor; Cathy Koch, Senior Advisor, Tax and Economics; and Jo-Ellen Darcy, Senior Environmental Advisor. Republican Staff: Elizabeth Paris, Tax Counsel; Nick Wyatt, Tax Staff Assistant; and Sherry Klutz, Special Assistant.

OPENING STATEMENT OF HON. MAX BAUCUS, A U.S. SENATOR FROM MONTANA, CHAIRMAN, COMMITTEE ON FINANCE

The CHAIRMAN. The hearing will come to order.

The prophet Isaiah said, "Build up, build up the road! Remove the obstacles out of the way of my people." And so here we are today to discuss our roads, our bridges, and our airways. We are here to discuss our transportation infrastructure: what it is, how it is funded, and how we can improve it. We are here to see whether we can remove some obstacles out of the way of the people.

And there are many obstacles.

Economists tell us that road congestion costs Americans \$78 billion a year in lost hours and wasted fuel. Engineers tell us that more than 1 out of every 4 American bridges is structurally deficient—like the bridge that collapsed in Minneapolis last August. Even on our Strategic Highway Network—which supports U.S. Military operations—more than 1 out of every 7 bridges is structurally obsolete.

They tell us that our transportation network is getting more clogged. We wait on the tarmac. We wait in traffic jams. We spend more of our lives waiting to get somewhere.

And the trends are daunting. By 2020, U.S. freight volumes are projected to increase 70 percent above their level 10 years ago. By 2050, the U.S. population will reach 420 million, 50 percent more than it was in 2000. As America grows, our infrastructure also needs to grow. If it doesn't grow smartly, we will suffer the economic consequences.

To complicate matters, the sources of funding for transportation infrastructure are in jeopardy. The Highway Trust Fund, established in 1956 to fund our national transportation infrastructure, now faces a severe revenue shortfall. The Congressional Budget Office, represented today by Director Peter Orszag, tells us so. So does the Office of Management and Budget.

In February, OMB estimated that the highway account would face a shortfall in 2009 of more than \$3 billion. What was bad news in February has become even worse news today. The Highway Trust Fund relies on fuel taxes for 90 percent of its revenues. And as fuel prices have risen to record highs, people have cut back on driving and bought less gasoline. As a result, receipts of those fuel taxes have declined sharply.

In May, the Treasury Department reported that, compared to last year, Highway Trust Fund receipts are down more than \$2 billion. We will get Treasury's revised estimate of Highway Trust Fund balances next week when OMB issues its mid-session review. This Congress must act to make sure that the Highway Trust Fund can remain solvent.

Failing to do so would cause Federal transportation funding to be cut by more than one-third. Industry experts have calculated that funding cuts of this magnitude result in about 380,000 lost jobs. That is almost as many jobs as have been lost in the entire economic slowdown since the beginning of this year.

America's infrastructure is crumbling. America's economy is stumbling. In times like these, it would be deeply irresponsible for Congress not to provide a short-term fix to the Highway Trust Fund.

This committee has been trying to shore up the Highway Trust Fund's finances for more than a year. We tried to do so most recently in June as part of an extension of another vital infrastructure program—the Federal Aviation Administration.

But a small number of Senators blocked our efforts. So, we will try again, however, perhaps this month.

Some suggest holding off on fixing the Highway Trust Fund until the next long-term reauthorization of the program. That is due in 2009. I strongly disagree.

When Congress passed the last transportation bill, it provided funding guarantees to States through fiscal 2009. As we turn our attention to the next reauthorization, we must honor those guarantees. Now is not the time to revisit the carefully balanced compromises of the last bill.

I am not suggesting that the system is perfect. The Government Accountability Office will testify today that our surface transportation programs are short on more than money. GAO says that our transportation programs are also short on objectives and accountability.

GAO contends that what began as a bold national plan to establish an Interstate Highway System has become a disparate series of programs lacking a clear national purpose.

I look forward to exploring GAO's testimony on how we might improve our surface transportation programs, how we get more purpose. I look forward to working through these difficult issues, as we prepare for Highway Trust Fund reauthorization for 2009.

And I also look forward to hearing CBO elaborate on its recent transportation infrastructure work. Last year, Senator Grassley and I asked CBO to analyze spending on infrastructure by Federal, State, and local governments.

CBO produced a major report on public spending on the construction, operation, and maintenance of our infrastructure. And the report's findings are the basis of the testimony that we will hear from Director Peter Orszag today.

CBO and GAO's work suggests that we should take a longer view. It suggests that, in enacting the next surface transportation bill, we should consider a wider range of transportation modes and financing mechanisms.

We must recognize that these modes and mechanisms may not apply equally in all areas of the country. But we must also recognize that, in the long term, we cannot sustain the status quo.

So let us examine how we build the roads, the bridges, and airways. Let us see if we can remove some obstacles. Let us see if we can clear the way for all of the people.*

Senator Grassley?

**OPENING STATEMENT OF HON. CHUCK GRASSLEY,
A U.S. SENATOR FROM IOWA**

Senator GRASSLEY. Well, everybody knows that the next Congress is facing a monumental task, probably greater than a lot of the transportation bills that I have worked on, as we go through this process of reauthorizing our surface transportation laws.

The Senate Finance Committee obviously, from the standpoint of our fundraising responsibilities, plays a vital role in the process. Of course, it is going to take more than one hearing to have us understand the problems that we face.

So, in this first meeting I want to commend the chairman for focusing on improving transportation, which is essential for our economy, our trade, and the vitality of our States. He has been a true leader for many years in this area, and I am pleased to continue to be his partner in pursuit of sound, sustainable highway policy.

We started this effort in 2001 when I was chairman with a look at the epidemic proportions of fuel fraud throughout the system. Through multiple bills signed into law by the President, we have shut down billions of dollars of fuel fraud scams to bring more financial stability to the trust fund, and more importantly to make sure everybody pays their fair share.

In addition, we have totally updated the fuel system to recognize the Nation's need for alternative fuels. The volumetric ethanol excise tax credit, commonly known as VEETC, also stabilized the trust fund with billions of new dollars and gave State and local governments and schools refundable excise credits of 50 cents per gallon for all alternative fuels that they use in their vehicles. These are all good solutions produced by hardworking people on this committee.

Our current system is no longer sustainable to meet our country's transportation needs. I am not sure that this is fully under-

*For more information, see also, "Overview of Selected Tax Provisions Relating to the Financing of Surface Transportation Infrastructure," Joint Committee on Taxation staff report, July 8, 2008 (JCX-56-08), <http://www.jct.gov/publications.html?func=startdown&id=1283>.

stood by the country at large, and that is very important for us to change. These hearings will help in that regard, but it is not the only way it must be done.

The testimonies we will hear today will provide us with many things that we need to carefully consider as we develop the next bill. Just a few of the questions are: how to define the Federal role in surface transportation; how to more rigorously evaluate, analyze, and assess projects; how to create a sustainable surface transportation program; and how much funding is needed for the next bill, with emphasis upon the last one being decided by what we decide as policies in those first three questions.

Finally, we cannot forget that we are, right now, facing an immediate crisis before we get to the reauthorization of the surface transportation bill. The Highway Trust Fund is expected to have a shortfall in funding at the authorized levels of SAFETEA-LU for fiscal year 2009. That stands for "Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users." Chairman Baucus and I have committed ourselves to filling this shortage of funds, and, at least as part of one bill within the last 6 months, we voted out provisions to do exactly that. So, I think we have shown our commitment to keeping that promise.

The Senate Finance Committee has aggressively included ways to fill the short-fund. However, these proposals have not yet been enacted into law, and we must get that done. It is vital that Congress hold up our end of the current law and keep the Highway Trust Fund whole in the short term so that we can focus on long-term policy and financing solutions as we meet our surface transportation needs.

It is my hope that we can have an important national dialogue in the coming days so that Congress can act in a prudent manner to reauthorize the highway bill, and I hope that that national dialogue goes well beyond the Congress of the United States.

And, finally, with regards to one of our witnesses, Jayetta Hecker, I understand that she is going to be ending a long, successful career as a government servant, or retiring. It is my understanding she has been a strong partner with this committee over the last 7 years, at least that I know of, and I wish you my hearty congratulations and appreciation for your dedicated work.

If I could, Mr. Chairman, I would like to recognize that this is Elizabeth Paris's last participation in a hearing before this committee. She has worked for this committee since before I got here, and in that process she has done great work for our committee. She is going to be sworn in within less than a month as a judge on the U.S. Tax Court. So, thank you to Jayetta, and thank you to Elizabeth.

The CHAIRMAN. Thank you very much, Senator.

I would now like to introduce our two witnesses. First, Dr. Peter Orszag, Director of the Congressional Budget Office, who is well on his way to becoming a member of the "Frequent Witness Club." [Laughter.]

And second, Jayetta Hecker, Director for Physical Infrastructure Issues at the Government Accountability Office. As Senator Grassley noted, this may be Ms. Hecker's last hearing after a career of nearly 40 years. Ms. Hecker has testified 90 times before Congress,

about 5 times before this committee. She is plainly a member of the “Frequent Witness Club.”

Also, as Senator Grassley said, I would like to commend, honor, and recognize Elizabeth Paris, a staffer of the committee for many years. I think this could be her last hearing before she becomes a member of the Tax Court, and we thank her as well.

So, Dr. Orszag, why don't you proceed?

**STATEMENT OF DR. PETER R. ORSZAG, DIRECTOR,
CONGRESSIONAL BUDGET OFFICE, WASHINGTON, DC**

Dr. ORSZAG. Thank you very much, Senator Baucus, Senator Grassley, members of the committee.

I would like to make five points this morning. First, Federal spending on infrastructure is dominated by transportation, and within transportation, dominated by highways. This first chart, which you should also have in front of you, suggests that in 2004, according to our definition of “infrastructure,” the Nation spent about \$400 billion, of which the Federal Government accounted for about \$60 billion, and of that \$60 billion, about half was dedicated to highways. So, in other words, at least in terms of the Federal Government's involvement, highways loom large in infrastructure spending.

Second, growing delays on our roads and air travel suggest that targeted additional infrastructure spending would be economically justifiable. For example, over the past decade, Vehicle Miles Traveled have risen by about 15 percent, whereas lane miles have risen by only about 3 percent. Those differential trends are expected to continue.

The next chart shows you that estimates that we have reviewed on the spending levels that would be required to maintain current levels of services and that would pass economic cost/benefit analyses suggest additional spending could be warranted. So, for example, just to focus on highways, the Nation is currently spending a little bit under \$70 billion a year on highways; spending that would be required to maintain current levels of services is closer to \$80 billion, and economically justifiable investments—that is, the investments that would pass an economic efficiency test—are close to \$130 billion.

Third, the economic returns to the projects vary significantly. So it is not correct to just say, oh, put an additional \$10 billion, or \$60 billion, or \$70 billion into highways and you are all set. It depends very sensitively on which investments are made. Those numbers are dependent on specific projects, so again, project returns vary substantially.

In addition, those estimates are dependent on the current system of basically lack of pricing of infrastructure. The Federal Highway Administration has suggested that widespread use of congestion pricing would reduce the necessary investments by \$20 billion, which is striking because that suggests that, with widespread use of congestion pricing, the investments needed to maintain current levels of services would actually be slightly lower than what we are currently spending.

Fourth, Federal support itself could be much more efficient. The GAO has found that roughly half of the grants made by the Fed-

eral Government for highways have been offset by reductions in other State spending, and that that share increased during the 1990s. Another major form of Federal support for infrastructure spending is the tax exemption on State and local bonds. The document that the Joint Committee on Taxation produced for this hearing raises questions about the efficiency of that form of support for infrastructure spending.

For example, if you look at the observed yield spread between State and local bonds and other bonds, anyone who is above a 21-percent marginal tax bracket in 2006 or 2007 yielded a greater benefit. In other words, the cost to the Federal Government was larger than the benefit delivered to the State and local governments.

This suggests that that form of support through the tax code is relatively inefficient. Alternative forms—for example, tax credit bonds—could be a more efficient way of supporting State and local government activity. I would make a broader point. There are inefficiencies often associated with a deduction/exclusion approach to Federal support of various activities, whether it is retirement saving, infrastructure spending, health care, or what have you. Tax credit approaches are often more efficient from an economic perspective than a deduction exclusion approach.

Finally, with regard to the Highway Trust Fund, or in particular the highway account of the Highway Trust Fund, our March baseline did suggest that it would be exhausted in 2009, and an imbalance of roughly \$1.5 billion would occur during that time period.

Since March, gas price increases have caused gas consumption to decline since that March baseline was put together, and so the incoming revenue will be lower than what we projected in March. Therefore, the imbalance in 2009 will be more significant.

Many people have wondered why this is occurring. I would just point out that the Congress purposely saw the balance in the Highway Trust Fund and tried to have it exhausted by the end of 2009 in the SAFETEA-LU Act, and you are going to come pretty close.

You are going to be off by months, but in terms of what you were trying to accomplish, the reason that the trust fund is being run down and exhausted in 2009 was an explicit decision to increase spending because there was a balance in the trust fund that policymakers wanted to run down.

Thank you very much.

[The prepared statement of Dr. Orszag appears in the appendix.]

The CHAIRMAN. Thank you, Dr. Orszag.

Ms. Hecker?

STATEMENT OF JAYETTA Z. HECKER, DIRECTOR, PHYSICAL INFRASTRUCTURE ISSUES, GOVERNMENT ACCOUNTABILITY OFFICE, WASHINGTON, DC

Ms. HECKER. Thank you very much, Mr. Chairman, Senator Grassley, and other members. I am very honored to be here.

This is, as you have said, a critical juncture in transportation policy, and the challenges facing the Nation are quite substantial. The work that I speak to represents a body of work that a number of professionals here have worked on for many years, and I thank

them. It is their hard work that supports the broad observations that we have.

What I will cover is four broad points: the performance of the system; a framework that we have proposed for restructuring the Federal role in transportation; and then I will try to spend most of my time on the funding and financing issues. As you know, we have a recent report on public/private partnerships and the protection of the public interest in those, and I will try to summarize some of the critical issues and focus on the tax issues that came up during that review.

The first issue about the structure and performance of the system, very briefly. I think you have seen our work. We have concluded that the whole system is broken. It does not have clear goals, it does not have clear roles for different levels of government, it does not have performance built in, it does not have accountability, it does not use the best tools.

It is basically structured the way it was largely 50 years ago, and it is not sustainable. There is not much to commend other than, it is in place and it represents a lot of political compromises, but it is not really getting the needs of the country addressed. In your opening statement you called for the building up of the roads. We do not have a policy that is really doing that in a rational, effective way.

That has led us to call for comprehensive, systematic reform. We like to help the Congress by giving you the guidelines of what we think the steps would be to really formulate a strategic, targeted, efficient transportation policy that really meets the needs of the Nation.

The first step is absolutely getting the goals clear. Not goals in preparatory language—we have always had language there that talks about the national interest, and competitiveness, and performance and efficiency—but getting real goals, quantifiable goals, performance goals that then become the structure of performance and accountability; in effect saying, “This is what we want to buy,” whether it is about congestion relief, whether it is about the maintenance and rehabilitation of the interstate highway system—an asset that in many places is crumbling and its performance is being impaired—whether it is safety goals, or whether it is metropolitan mobility, or freight mobility, which actually isn’t even part of the current program.

So getting those goals defined is absolutely step one, including getting them clear, and defining the relative roles of government. That has gotten very muddy post-interstate. Basically everything we give the States, they can largely use for everything, so the concentration of where the national interest is and where the Federal focus is is very muddled.

As I said, once you get those goals right, it leads to the performance outcomes. That is what you want to buy, that is what you are going to incent, that is what you are going to reward. Then you build in the accountability for that. As I said, the tools are outdated. We think the key tool for expending program funds at work is return on investment.

We were asked to do a review of the role of cost/benefit analysis in transportation. We went State by State by State. We found that

rarely is it done and, where it is done, it is hardly ever the key factor for how States invest transportation resources. So we have a need for new kinds of tools and decision making, and then of course we need a sustainable program.

That allows me to turn to my third point—the issue that is perhaps of most interest and the focus of the role of this committee on funding and financing options, and I have three main points here. I do not have easy solutions, so do not be too disappointed in the points, but I think they help clarify and sharpen what the funding and financing issues are.

The first thing: everyone is talking about needing more money. We disinvested, and even Peter has said there are probably some economically justifiable needs for an increase. But there are only two real sources of public funding for anything, and it is taxes and fees. They could be general taxes, they could be income taxes, they could be property taxes, they could be tire taxes—but the government gets money from either taxing people or activities or services, and that is where the revenue comes from.

All of the other ideas on the table are financing mechanisms. They are not the real money. Those are tools. They are not unimportant, and they are not irrelevant. We all buy our houses, or most of us, with the income that we will earn in the future. So you need an institution to certify that we have a stream of income to allow us to buy that house, to basically borrow against our future income. So financing mechanisms work, but they are not new money.

So, where are you going to get the money? We have current taxes, and Peter, I am sure, can talk to you a lot about the dwindling value in purchasing power of the gas tax. There are a lot of other issues on the table, either medium-term or long-term.

The carbon tax is one I know this committee has looked at, and CBO has evaluated. That would generate a lot of money from transportation, which generates a lot of carbon. So, that is one source of potential revenue. Additionally, there could be taxes on freight that could be new sources of revenue to finance a national freight program.

So those are the first two points about money. The last one is very similar to Peter's point: how you raise the money affects how much you need. So the task is not just coming up with a certain amount of money, but recognizing that the methods that are used to fund transportation—and the closer they are to direct user fees—can reduce the total amount of money needed. Similarly, the more effectively you invest it, the more you will reduce the total amount needed. So these estimates that are very popular, these big numbers that we need \$100 billion more, those are not dynamic, they are not reflecting the need for smarter investment, as you, Mr. Chairman, talked about, and the impact of sending the right signals with how we raise the money.

My final point is on public/private partnerships—and this is a very complex issue. I guess we will get into it more in questions because I see I have exceeded my time. Public/private partnerships are, again, mostly a new financing tool. There is not really a lot of new money coming in.

People talk about how there is \$400 billion of pension funds just dying to be invested in infrastructure, and this amount is probably real, but the managers of these funds are dying to lend it to people at a price and at a future cost to road users and a cost to the taxpayers in terms of the depreciation that is a big part of the attraction to private companies. Nevertheless, I do not want to leave you with the sense that we do not see real opportunities and potential benefits in some areas and in some environments for public/private partnership.

Often in the U.S. we do not do a very good job of delivering, managing, and operating our systems. Having gone to Australia, Spain, other countries where the role of the private sector is central, there are a lot of efficiencies in the performance, the management, the operation that can be achieved with public/private partnerships. But there are costs and there are risks, and they have to be transparent. So that concludes my statement, and I look forward to your questions.

The CHAIRMAN. Thanks, Ms. Hecker. Thank you very much.

[The prepared statement of Ms. Hecker appears in the appendix.]

The CHAIRMAN. I would like to ask both of you maybe, beginning with you, Dr. Orszag: some have suggested a national infrastructure bank as a way to boost infrastructure development in our country as an alternative, or maybe a supplement, to the usual ways that we finance, say, our highway transportation system. Your thoughts about a national infrastructure bank. Is that more efficient? What is the appeal of that, and what is the down side?

Dr. ORSZAG. Well, I think that sort of speaks a bit to the question of not getting too confused by financing as opposed to what the actual investments are. So let us talk specifically about a national infrastructure bank. I think there are a couple of questions.

Why would a State and local government, thinking about financing a new infrastructure project, want to borrow from a national infrastructure bank rather than issuing debt? I think that is actually a very important question, because currently State and local debt has a tax exemption associated with it. It is not efficient, as I mentioned. It is not fully efficient, but it is a benefit. The result is often that State and local governments can borrow at lower rates than the Federal Treasury rate itself.

So, if the national infrastructure bank is borrowing at the Federal rate and then presumably lending at that Federal rate, it would need an annual subsidy, and that means that a State and local government can issue debt at a lower rate in normal market conditions—current market conditions are a little different, and we can talk about that—than it could borrow from the national infrastructure bank.

Now, many State and local governments have requirements that they not issue debt exceeding some limits, so maybe that is a rationale for why they would want to borrow from the national infrastructure bank instead of issuing debt. But I think an important question is, what are you accomplishing that the existing system does not? Unless you are putting in annual subsidies, it is not clear to me that many State and local governments will want to borrow from that bank as opposed to issuing debt.

The CHAIRMAN. I understand that market rates of interest might be a little higher.

Dr. ORSZAG. Yes. So, for example, Montana has an AA rating during normal market conditions. So, if you look back, say, in 2007, AA bonds at the State and local level were yielding something like 4.5 percent, and the U.S. Treasury rate was 5.3. So, if you can issue debt at 4.5 percent or borrow from an entity that, unless it is being subsidized on an annual basis would have to lend to you at about 5.3 percent, why choose the 5.3?

The CHAIRMAN. Would you also talk a little bit about—and Ms. Hecker, both of you—this public/private partnership idea and the role of depreciation. How efficient is that to U.S. taxpayers? For example, compared with the usual way of financing these highway projects, it begs the question, where do we get the revenue? There are gasoline taxes, user fees of some kind, and it goes back out to States.

Dr. ORSZAG. Sure. Let me go first.

The CHAIRMAN. Yes. Sure.

Dr. ORSZAG. Just very briefly, I think the key thing on public/private partnerships is the involvement of the private sector allowing a more efficient allocation or choice of the projects and more efficient maintenance and pricing of that infrastructure than would otherwise be the case.

On the pure financing side, it might look attractive because you have less up-front government money that needs to go in, but you have to remember, as was pointed out before, that is not free. The private company is going to demand a return on its money. So the users of the road or the facility are ultimately going to pay for that, and the private company will demand a return. Part of the return often does involve accelerated depreciation relative to the length of the lease or the length of the arrangement, but that is only part of the return to the private company.

The CHAIRMAN. Ms. Hecker?

Ms. HECKER. Yes. As I said, we did a review of all of the major deals in this country—highway long-term concessions—and spoke with all of the folks, the tax lawyers, and all the financial advisors. What the unequivocal story was, is that a critical factor in the length of these deals, 99 years, 75 years, was the tax code. For the entities, the concessionaire, to show effective ownership of the property, to be eligible for the accelerated depreciation, usually on a 15-year timeframe, the term had to be beyond the useful life of the asset.

In some cases, such as the bridge in Chicago, it was determined that the useful life could be over 60 or 70 years because of the steel structure. The advisors, even though the city said, “The terms of the concession seem a little long, why don’t we go shorter,” said you are not going to get much money from the bidders if they do not get this tax deduction.

So at the end of the day, what is not transparent and what is very important about this is that the assets that a State is monetizing are basically an opaque transfer from the Federal Government to the State. You do not see it, it is not quantified, but those States—or the city of Chicago, in that case—monetizing that asset basically got a Federal subsidy for that deal.

The CHAIRMAN. Thank you very much. My time has expired.
 Senator Grassley?

Senator GRASSLEY. In SAFETEA-LU—and this will be for both of you—I advocated a broad-based national study to look into the Vehicle Miles Traveled concept. While this study is still being conducted, Oregon has completed a study in their State which shows promise in this area. What are the merits and concerns that you could analyze with this type of system, and should we be moving forward with this concept in the next reauthorization?

Dr. ORSZAG. I am sorry, I want to just make sure, you mean a tax based, or a fee based on Vehicle Miles Traveled, not just—

Senator GRASSLEY. Yes.

Dr. ORSZAG. Yes.

Senator GRASSLEY. As opposed to the gas tax.

Dr. ORSZAG. Right. And Oregon and other entities are experimenting with GPS-based systems for imposing that kind of fee. We have moved technologically to make that much more feasible. There are certain efficiency benefits. It depends on what you are trying to accomplish, but there are certain efficiency benefits from basically imposing a fee on Vehicle Miles Traveled rather than gasoline consumption.

In fact, I would just note, there have been proposals to transform auto insurance from a fixed cost to basically a variable cost based on Vehicle Miles Traveled also. So I think it will depend on what you are trying to accomplish, and technology is evolving to make it more feasible.

Senator GRASSLEY. Do you have a view on that?

Ms. HECKER. Yes. Historically, the gas tax, when it was devised, was seen as the best way, given current technology, to have a user-based finance system. The gas tax has deteriorated as a good proxy. A lot of the research and the pilots have shown that different types of VMT—and they can vary quite a bit—would basically move us back in the direction of having users perceive more fully the costs that they are imposing, and the benefits that they are receiving from the infrastructure they use. There can be simple VMTs, there can be complex VMTs, but I think the next authorization is really an opportunity to build on the study that you promoted in the last authorization and to perhaps get more pilot activities—I think certain States would be interested—because it is a huge transformation.

One of the challenges in Oregon was getting gas stations to be willing to be part of the monitoring. That is where the reconciliation came, and it took the State a long time to get gas stations to move in the right direction. So it holds a lot of promise. It is not something that you can move to immediately on a national level, but you cannot do anything long-term until you start doing the building blocks. The promise of it merits much more further applied study.

Senator GRASSLEY. The GAO “Report on Surface Transportation,” March 2008, states: “Rigorous analysis is not a driving factor in most investment decisions by State and local governments.” The concept goes on to state that “political or public opinion holds more sway than costs and benefit of a project.” The same could be said of any Federal program. As part of the evaluation of the Federal

role in transportation, how should we evaluate the State and local role in how we provide Federal assistance?

Ms. HECKER. That is the \$100-billion question. That is the whole thing, really, how should we do it? I would go back to that structure. It is honing in on clearer, national interests and national roles. For example, we probably have an interest in the maintenance and continuing performance of the interstate system—that could be a performance goal of Federal assistance to States.

Then, the way States get the money would be related to the performance of the interstate system. As another example, there is a very strong argument that there is a Federal interest in freight movement, but we do not have that as part of our program. It is an after-thought, ironically, given the essence of interstate commerce.

You could have a program. You need new money because you certainly do not have enough money, but you could have a program that would focus on freight mobility. A drag on the economy is actually occurring because of the deteriorating performance of freight infrastructure and freight movement. So it is getting the goals right and then building in the accountability in the flow of the funds.

Senator GRASSLEY. Do you have a reaction?

Dr. ORSZAG. I would just add, again, that one could condition Federal support for infrastructure on more efficiency at the State and local level, so the projects that are subsidized by the Federal Government would have to pass a more rigorous cost/benefit test. Even if you wanted to encourage more congestion pricing, I would note that that does have a very big effect on the necessary investments here. You could condition Federal support on appropriate congestion pricing at the State and local level also.

Senator GRASSLEY. Thank you, Mr. Chairman.

The CHAIRMAN. Thank you.

Senator Bingaman?

Senator BINGAMAN. Let me just follow up on that. Could you be more specific, Peter, in describing what—you referred in your opening statement there to “widespread use of congestion pricing.” How is that being done? How can that be done in a practical way?

Dr. ORSZAG. Congestion pricing is now being used in isolated places. Not isolated, but in a few examples, the most prominent of which is in London, where, to enter the inner part of London, there is a system for pricing. It has significantly reduced congestion in the inner part of London. Congestion pricing is now being used—and we go through this in the testimony—in a few other places within the United States.

It has major potential to reduce and shift the way that people drive, basically. So where it has been used, including in the New York/New Jersey area, you shift people toward off-peak hours, which means you are getting more out of your infrastructure, and the people who absolutely need or want to get somewhere quickly are still able to do so and are willing to pay the price for doing so.

Basically, we can get a lot more out of our infrastructure if we make sure that the people who really want to use the infrastructure at particular points in time can use it more easily, and then

people who are more able to shift what they are doing have an incentive to do so.

Senator BINGAMAN. So the idea is that you would essentially be charging a higher fee to people who wanted to come into New York City during the height of the business day or during rush hour, or whatever, than if they decided to come in at 3 o'clock in the morning or at some other time. Is that it?

Dr. ORSZAG. That is correct. Now, one of the concerns, as is often the case with economic efficiency, is one of fairness or equity, and whether you are imposing a disproportionate burden on lower-income or moderate-income workers. There have been approaches trying to adjust for that, whether through a fixed payment—as technology evolves, you can imagine, and it sounds a little too Big Brother-ish, systems where the fee depends not only on what you are doing or where you are driving, but also on income or the type of car you are driving. We are rapidly evolving towards a technology system where that sort of adjustment would be possible. If you are concerned with getting the efficiency benefit, it could be regressive.

Senator BINGAMAN. All right.

Ms. Hecker, did you have a thought on the value of congestion pricing, or any other aspect of what we were talking about?

Ms. HECKER. Yes. Congestion pricing has enormous value in helping users understand the full costs that they are imposing on the system. In very few assets or areas of the economy do we build for peak demand. By not differentiating the cost of using infrastructure at peak times, that demand goes up and up and up. So getting the price clear—and we have it. For example, we have it in transit, we have it in telephones, we have it on a lot of bridges. So, it is a normal part of signaling that using something at a congested time costs more, but there are very different forms that are already taking place in transportation.

In London, there is a cordon, a whole area, where there is a congestion fee charged for any entry during congested times. It is a flat charge, either you are in the area or you are not. There are other forms of congestion pricing, such as the conversion of underutilized HOV lanes to HOT lanes, or high-occupancy toll lanes. What they do is, they take that capacity and they open it to single-occupancy drivers for a fee, and the fee is set at a level to keep the traffic free-flowing. So it is an absolute guarantee.

In California where they have this, and in a few other places, you have a choice of using the free lanes, which probably takes you, let us say, an hour to get from here to there, or you have a sign at the beginning saying, today it is \$7.50 to ride that high-occupancy toll lane. It is often completely booth-free, it is all electronic. You are notified. It's like you have an EasyPass, and the charge is just deducted from your account.

In addition, a lot of studies have been very focused on the equity issue. A lot of people accuse these of being "Lexus lanes," yet it is clearly documented that it is people who value the time who use these lanes; for example, if you have to get to the baby-sitter and you are going to pay a \$20 fee if you are not there at a certain time. People of all income classes are using the tolled lanes when they need the reliability. What is important about that is an op-

tion. We have studied this across the country, with different States assessing tolling. Providing tolled lanes gives the public an option, with the tolled lanes guaranteeing the free flow. And buses benefit, because what you do is you have bus rapid transit on that same lane, and that is part of the equity trade-off as well.

Dr. ORSZAG. Could I just add this very quickly on the business side? We often, in our heads, have congestion pricing for passenger vehicles, but trucking and business, where it may be more natural to think of charging trucks different prices depending on when they go, and maybe the businesses have more flexibility, you do get a significant response among trucking companies to congestion pricing.

I would also note on that point, we also do not impose fees on trucks, or taxes in a way that reflects the wear and tear that they impose on the highway system. Basically, the wear and tear that is imposed depends on the weight per axle, and that is not the way that we tax trucks.

The CHAIRMAN. Thank you very much.

Senator Kerry?

Senator KERRY. Thank you, Mr. Chairman.

Ms. Hecker, thank you for your years of service. We really appreciate it. I noted that you went to Boston University. I do not know if you come from that area or not.

Ms. HECKER. Brighton.

Senator KERRY. Brighton. See, I thought that accent was familiar. [Laughter.] I thought there was more than 4 years of college in that.

Anyway, we really appreciate your many years of contribution in a number of different areas.

Ms. HECKER. Thank you.

Senator KERRY. It is folks like you who really help make things work, and we want to say thank you.

That said, I am concerned that this hearing is sort of falling into a context of business as usual in a funny way. And I do not mean that in any negative sense about the hearing; I am very grateful to the chairman for having this hearing. But there are, what, four of us here now, and there were six of us total. As far as I am concerned, this is one of the most demanding, critical issues in front of our country.

The goals that you sort of talked about, I mean, the goals are huge and obvious. We are on our way to becoming a third world country in many parts of this Nation. We have an airline system where we cannot even get the next generation air traffic control system funded properly and in place.

We are fighting just to hold on to Amtrak, not to actually put in place a new rail system. We have colleagues here who tried to zero out Amtrak in the last 10 years. I mean, this is a fundamental confrontation with what kind of country we want to be and how you get there. If you go to Shanghai today, you can get on a mag-level high-speed rail and go 12 minutes from the airport to downtown Shanghai. We all know about the Bullet train and the TGV and other fast rails in other parts of the world.

In the last month, we have seen the Department of the Treasury reports that, because of the high price of gasoline, people are now

being forced into a different mode of thinking, and so ridership is up on heavy rail, light rail. We have had, I think, what is it, an 8-percent increase in Boston; Amtrak ridership in the Northeast corridor was up 11 percent. So, clearly there is going to be an increasing demand.

The Department of Texas Transportation Urban Mobility Report says that “traffic congestion is continuing to worsen in every single city in America.” That is not free. People need to understand that.

According to their report, it is a \$78-billion drain on the U.S. economy. Then there is 4.2 billion lost hours of productivity and 2.8 billion gallons of gasoline, of just wasted fuel. We are supposedly worried about our security, worried about sending money to dictatorships and so forth. In 2007, domestic flight delays cost the U.S. economy \$41 billion and consumed about 740 million additional gallons of fuel. I mean, this is crazy.

We have not had a serious proposal on the table in the last 8 years from an administration saying we ought to be building the infrastructure of this country. I am told that we have a \$1.6—depends on the figure—to \$2-trillion infrastructure deficit. We have 500 bridges in Massachusetts that are in need of repair, some of them unsafe. We have already had a bridge in Minnesota fall down.

We have a train that goes from Washington to New York that could go 150 miles an hour. It does for a few seconds in a few places. It cannot even go underneath the tunnel in Baltimore at a decent speed because the vibrations make the tunnel unsafe. I find this shocking that we are where we are.

Yesterday when Ted Kennedy was here, briefly talking in his wonderful visit, he talked about how he noticed, as he drives every day now back and forth to the hospital, how rough the road is, how unrepaired it is. I drove across the country a couple of summers ago after the campaign. I was stunned by how bad the roads were in so many parts of our country.

So it seems to me, and I just sort of say to you, do we not have to sort of lay these goals out in a bigger, more authoritative way and offer some leadership and push-back against this? I can see some of our colleagues saying, oh, we cannot raise taxes. Oh, my God, that would be terrible if we raise taxes. So we are living off the infrastructure that our grandparents and parents built, and we are unwilling, ourselves, to build for the future.

So I would like you to comment about sort of the larger mission here. This creates jobs, as far as I know. It is one of the best job creators, job return on investments that you can make. Here, we have an economy that is going slow. This is a way to put Americans back to work. But we are not. We are just sitting here, except for the chairman’s willingness to have this hearing and talk about how we are going to do this.

Incidentally, in global climate change, one-third of global climate gases, CO₂, comes from the transportation sector, 60 percent from automobiles. So, if you are going to do something about global climate change, that has to be factored in, I assume.

So give us a sense of the package here. How urgent, compelling? What is the overriding goal? How do you package that?

Dr. ORSZAG. Senator, first—

The CHAIRMAN. Somewhat briefly, please.

Dr. ORSZAG. Yes, I will be brief.

Let me just say, based on personal experience, that what one needs to go through to become a member of the Federal Witness Program is a lot more enjoyable than what one needs to go through to become part of a Frequent Flyer program on any major airline these days.

As I already mentioned, studies do suggest that there is significant additional infrastructure spending that would be economically justifiable, that would pass a cost/benefit test. It is very project-dependent, so you cannot just say, spend more. You have to be very careful about where it goes, according to the principles that have already been delineated. It also depends on how that infrastructure is priced and used. So I think it is clear that more infrastructure spending could be economically beneficial.

Senator KERRY. But do we not have to factor in a whole set of variants that we do not factor in in terms of savings, plus on productivity hours, plus on savings on biofuel, security, other things that we do not even touch today?

Dr. ORSZAG. The productivity in the sort of economic part of it is factored into those calculations. The security associated with energy dependence is typically not, or only indirectly.

Senator KERRY. Ms. Hecker?

Ms. HECKER. Our work has shared your sense of urgency. There is an urgency on infrastructure. As I said, it is functioning as a drag on the economy. But the impetus to think that the answer is largely to balloon the Federal contribution, as some of the proposals have been, really misses the fact that, for the past decade or more, Federal contributions, and even the State expenditures of their own money, have gone up and up and nearly doubled or more in some cases, and yet the performance is going down.

So putting a lot more money, because of the sense of urgency, on the existing system without reforms on how well we use the existing system, how well we get better, more cost effective investments and decisions at the project level, presents risks. We need reform of the system so that the leadership that you want to bring to address the problem really solves the problem.

The CHAIRMAN. Thank you.

Senator KERRY. Can I just ask one last part of that?

The CHAIRMAN. Very briefly, please.

Senator KERRY. Is that dependent on the private sector's oversight and accountability standards and best practices, or is that dependent on the regulatory oversight component?

Ms. HECKER. It is the structure of the programs. There is a role for the private sector, if well-managed and well-structured by public entities. But even in Australia, where all the roads are largely built by the private sector, it is a public responsibility to define what they want, where they want it, under what terms. For some of their projects, the competition is for the lowest toll level, not how much money can be cashed out up front. So, it is a different perspective.

Senator KERRY. Thank you.

The CHAIRMAN. Thank you.

Senator Salazar?

Senator SALAZAR. Thank you very much, Chairman Baucus. Thank you for putting the spotlight on this question, which I am sure we are going to be addressing in significant ways in the coming months and in the years ahead.

Let me start out with you, Ms. Hecker. That is, when you talked about performance goals and your conclusion is “the system is broken,” and you talk about the need for real goals and performance goals on congestion relief, on maintenance, on safety, on a whole host of other things that can be goals and that can be measured in terms of whether or not our system is in fact working, hasn’t the Department of Transportation, under Secretary Peters, been doing that, or is it just a failure of incompetence to be able to develop what is commonsensical in terms of managing a transportation program for the Nation?

Ms. HECKER. I think the Secretary has tried to focus on performance, but the structure of the highway program that we have—right in the statute it provides States “sovereign rights” to choose projects, to do whatever they want, where they want, how they want. We do not really have a Federal program. GAO has called it revenue sharing. The Federal Government has some ideas and we have some pots of authorized funds for different purposes, but States can move most of the money around. So it really is not possible, with the current structure of the program, to hold a State accountable for using scarce Federal funds to achieve specific performance ends. So it is a wholesale change that is needed.

Senator SALAZAR. Let me then ask you the corollary question, which is, what kinds of recommendations would you have for this committee in terms of making sure that we at the congressional level, as we work with the next administration in coming up with meeting the needs of our infrastructure system for America, including transportation, how would you come up with a system that is different than the one that we have today? I mean, from what you just said it seems that Secretary Peters is caught in a position where she has to implement a system which is a strait-jacketed Federal system, and so you are saying we have to do something different. What would that be?

Ms. HECKER. There are two different ways that the Federal Government gives money to States for transportation. One is by formula, or an apportionment, and there are defined factors that drive allocation. The other method is through competitive programs. The apportionment determination is a proxy for need but has nothing to do with performance. Yet that is where most of the political focus is, how much return is going to come to my State.

Senator SALAZAR. All right. But could we add performance measures then into that formula?

Ms. HECKER. Absolutely. Absolutely. What you do, though, is create political risk that you are not going to have a table before you pass the new program that is going to say, how much is going to go to Colorado, for example? It so happens I know that Colorado is trying to focus on performance in corridors and experimenting with new approaches, but basically you are not going to get a formula—if you have an apportionment that is going to be more performance-based. How much each State or region gets is going to depend on their performance. It could still be based on need, but it

would be linked to performance. There is another approach besides the apportionment.

Senator SALAZAR. Quickly.

Ms. HECKER. There is a competitive program. Basically, a competitive program like the New Starts program has a little bit more of a link to performance. You have to show that you are really going to move people, that it is going to solve problems, that it is going to improve mobility, maybe improve air quality. So that is a totally different way. There may be a lot more promise for more competitive programs if they are selected on the basis of merit rather than congressionally designated.

Senator SALAZAR. We are going to need all of your expertise and help to solve this huge problem for the Nation. I very much agree with Senator Kerry in his description of the challenge that we face.

Dr. Orszag, a question for you relative to the Highway Trust Fund and what is happening now in terms of the price of gas and people traveling less. Do you have any projections in terms of how the reduction in consumption will impact the amount of money coming into the Highway Trust Fund?

Dr. ORSZAG. It will reduce it.

Senator SALAZAR. I know that is the answer, but do you have a quantification of how much?

Dr. ORSZAG. We will have updated specific numbers when we release our update later in the summer, so I do not have specific numbers for you now. But as you have already noted, both Vehicle Miles Traveled and gasoline consumption are down by a few percentage points relative to last year and they are lower than we projected in our March baseline. So, revenue will be lower than we projected.

Senator SALAZAR. All right. If you take a long-term look at—some of the things that is going to come out of this gas crisis that we are in is a major push for greater efficiency in terms of our fuel mileage. Certainly this committee, and Senator Baucus and others, have been leading in that direction.

How do you foresee us dealing with that reality in terms of having hopefully, at some point in time, hybrid plug-in vehicles that will make 100 miles to the gallon? How do you then foresee us having to deal with the fiscal challenge that that creates in terms of how we fund our highways?

Dr. ORSZAG. It is often the case that lots of things that you use as a tax base, and that you have some other policy objective that you are sort of hoping will reduce, that that actually happens. So in climate change, if you tax carbon emissions, part of the goal is to reduce the tax base. It may well be the case that eventually gasoline consumption declines as we move towards higher energy efficiency.

But I would say we are probably far away from a setting in which the tax base evaporates. That is a separate question from whether, as was raised earlier, it would be more efficient or desirable to move towards, for example, a Vehicle Miles Traveled tax or some other form of taxation.

Senator SALAZAR. All right. Thank you very much.

The CHAIRMAN. Thank you, Senator, very much.

Senator Snowe?

Senator SNOWE. Thank you, Mr. Chairman. Thank you for your testimony extending our vision and explaining the dimensions and the breadth of the problem that we face.

I know we have a vote under way, but I wanted to ask very quickly, how do we project the future with respect to the Highway Trust Fund reauthorization that is scheduled in 2009? Obviously we face significant shortfalls now in the trust fund, projected shortfalls for the future, not to mention the gaps that exist in the disrepair and deterioration of our infrastructure that was underscored by the National Transportation Commission that said we have about a \$140-billion under-investment in upgrading our infrastructure across the country in terms of what we are doing today.

How should we approach the Highway Trust Fund reauthorization? Should we just scrap it altogether and start over? Should we set the goals? Should we have a national planning strategy developed before we weigh in on the reauthorization and preparation for it? How would you suggest we go about it?

Finally, should we eliminate the 6-year reauthorization, given the scope of problems that we are facing in terms of financing it for the future?

Dr. ORSZAG. I guess I am not really allowed to use the word "should" any more, but let me just say that it would not seem desirable simply to reauthorize the system and just fill a gap without addressing some of these efficiency questions. You have before you an opportunity to address some of the shortcomings that have been discussed today in terms of how projects are selected, how the whole system works. Presumably one would want to address that as part of a reauthorization.

Senator SNOWE. Ms. Hecker?

Ms. HECKER. The scope of what we have talked about is undoubtedly beyond a single reauthorization, so it is breaking into pieces and building blocks what can be tackled and reach some consensus. It seems to me we do have a consensus about a national interest in the Interstates. Some focus on that could perhaps be more performance-based.

The challenge is, with the dwindling resources of the trust fund, as a Nation we know we need to start addressing freight problems and freight mobility and bottlenecks, but we do not have any funds. This is a committee that looks at resources. Freight benefits from free flows and freight mobility, and economic growth suffers as that performance deteriorates.

Some serious consideration could be given to identifying some kind of fee on the movement of freight that better incorporates the real costs of freight and then setting up some kind of new program. We have a skeleton of such a program in the "Projects of National and Regional Significance," but I am sure you know that that is 100-percent designated, so it is not clear if it is targeting national freight mobility problems.

Senator SNOWE. Well, it seems to me we are going to have to do some pre-planning before we weigh in on the entirety of the reauthorization and how we approach it in the final analysis. It may be well that the Congress and the administration work on developing those priorities and how we are going to go about approach-

ing the whole reauthorization before we begin that process legislatively.

Ms. HECKER. There is a marvelous parallel in England where they took a former minister and basically said, we know our system is broken, where is the vision? How do we really move forward? So he knew all of the existing programs, and he was a thoughtful person, Sir Rod Eddington. He put together what is well-known around the world as the Eddington Report, and it provided a transformative vision. The country is working on it in building-block ways. It will take many decades, but it was a deeply insightful, strategic analysis by a very informed and respected former member of the Parliament to basically do that kind of charter and strategic thinking.

Dr. ORSZAG. And since Ms. Hecker is retiring, perhaps she could be appointed. [Laughter.]

Senator SNOWE. All right.

The CHAIRMAN. That was exactly my thought. Great minds think alike. I was thinking exactly the same point.

Senator SNOWE. Thank you very much.

The CHAIRMAN. Are you through?

Senator SNOWE. Yes. Thank you.

The CHAIRMAN. All right. Thank you very much.

We have a vote going on. In fact, we have to leave right now. This has been a very, very good hearing, very provocative, lots of great ideas. Ms. Hecker, for your last appearance, you should get an Academy Award for your performance. [Laughter.] It was very good.

And, Dr. Orszag, you gave your usual stellar performance as well. But thank you both very much. I just turned to my staff, and I said, boy, we have to talk to Ms. Hecker more about how we put together this reauthorization.

Ms. HECKER. It would be my honor.

The CHAIRMAN. Next year I have this surface transportation subcommittee. But man, we have a daunting challenge ahead of us. You have made some very, very good suggestions, and I just thank you very, very much, and for your service to GAO and to the country. Thank you very much.

Ms. HECKER. Thank you.

The CHAIRMAN. The hearing is adjourned.

[Whereupon, at 11:09 a.m., the hearing was concluded.]

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

**Senator Maria Cantwell
Statement for the Record
Senate Finance Committee
Hearing on “Transportation Infrastructure: Issues and Options”
July 10, 2008**

Thank you, Mr. Chairman, for holding this important hearing. Our nation's transportation infrastructure is in dire need of attention. We all realize that if we don't take action soon and allow these vital systems to continue to deteriorate, our high standard of living and economic future will be at risk.

Our transportation system connects us to our families, jobs, and communities. Transportation is key to economic development, connecting businesses with customers and suppliers. In Washington state we live and work in the most trade-dependent state in the nation. It is our transportation system that links us to the global economy.

As a Senator from a coastal state, I am especially sensitive to the interconnected nature of our transportation system. While our roads, bridges and highways are first to come to mind there is much more to consider regarding transportation infrastructure. The consumer appetite for global goods and services continues to grow at a rapid rate. If we are going to efficiently meet that growing demand, we have to look at improving all our modes of transportation—road, rail, air, and marine.

I want to focus for a moment on one aspect of marine transportation—container ships and ports—because I think this piece too often gets lost in the broader conversation about transportation and infrastructure.

More than \$5.5 billion worth of goods move in and out of U.S. ports every day. Nearly all international trade commerce is handled by our nation's ports and waterways. In order to keep up with the projected growth in international trade flows, the nation must not lose sight of the urgent need to invest in port infrastructure.

Washington state has two of the largest international container ports in the United States—the Port of Seattle and the Port of Tacoma. The issue of port infrastructure is very important not only to my constituents who are directly affected, but also to the nation as a whole because we are a gateway for much of the freight that enters and leaves the country.

Washington state connects Asian trade flows to the U.S. economy, Alaska to the Lower 48, and Canada to the U.S. West Coast. In 2003, 70 percent of the international goods that entered Washington state ports were shipped to Midwest and East Coast consumers, mostly by rail but also by truck.

Globalization, in particular the growing importance of China and Asia as suppliers of consumer goods to the United States, will triple the volume of international container freight moving just through the Ports of Seattle and Tacoma by 2025.

And going from east to west, ports such as the Port of Vancouver, Washington, ship trainload after trainload of Midwestern grain to Asia and other places, and provide a critical link in the chain of U.S exports.

Right now, we simply don't have the capacity to handle this growth.

The difficulties posed by increased cargo volume are compounded by environmental challenges, a limited supply of land to expand, heightened security requirements since 9/11, and congested road and rail linkages.

Some ports see a growing backlog of dredging projects that must be completed in order to maintain or improve channel and harbor depths. Without these improvements, some vessels cannot travel fully loaded and new, larger oceangoing vessels have limited access to our ports. Several ocean ports in my state that are located on the mouths of rivers require this type of infrastructure improvement.

The situation is different at deep water ports such as the Port of Seattle and the Port of Tacoma. Shippers must pay a Harbor Maintenance Tax on incoming containers. The Harbor Maintenance Tax collected by all ports is pooled into a fund operated by the Army Corp of Engineers. But because these funds can only be used for dredging, and the ports of Seattle and Tacoma don't require dredging, not only do these ports receive no benefit but the ports become less attractive for discretionary shipping when compared to their Canadian competitors.

The committee may want to consider allowing these deep water "donor ports" to be able to use at least some fraction of the Harbor Maintenance Tax it collects to fund worthy infrastructure improvement projects, but also to help make the ports themselves more competitive and ensure cargo is not diverted to foreign ports.

This diversion of cargo would mean economic losses felt by the ports themselves and by the workers and communities that support these marine operations. Assuming that the cargo still will be destined for U.S. consumers, having it come in through Canada or Mexico also could increase the congestion on our already overburdened highways and railways.

According to the U.S. Maritime Administration, congestion is "a systemic national problem that will get far worse with devastating repercussions on the economy and U.S. global leadership."

I raise these issues to underscore that our transportation system is really an integrated network, not just within the United States, but around the world. We need to be creative about how best to both collect funds and allocate them.

It is time we have an honest conversation about what our goals are and what tradeoffs we will have to balance as we resolve the conflict about who pays and who benefits.

It is also time we make an honest assessment of what it will cost us if we fail to adequately invest in our infrastructure.

This needs to be a collaborative effort. Congress needs to work with our state and local governments and with the private sector to decide how our limited resources can be most effectively and efficiently allocated. I applaud you, Chairman Baucus, for starting the dialogue now and I look forward to continuing this work in the next Congress.

Thank you.

United States Government Accountability Office

GAO

Testimony
Before the Committee on Finance,
U.S. Senate

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SURFACE TRANSPORTATION

Principles Can Guide Efforts to Restructure and Fund Federal Programs

Statement of Jayetta Z. Hecker, Director
Physical Infrastructure Issues



July 10, 2008

SURFACE TRANSPORTATION

Principles Can Guide Efforts to Restructure and Fund Federal Programs

Highlights of GAO-08-744T, a testimony before the Committee on Finance, U.S. States Senate

Why GAO Did This Study

The nation has reached a critical juncture with its current surface transportation policies and programs. Demand has outpaced the capacity of the system, resulting in increased congestion. In addition, without significant changes in funding levels or planned spending, the Highway Trust Fund—the major source of federal highway and transit funding—is projected to incur significant deficits in the years ahead. Exacerbating concerns about the solvency of the Highway Trust Fund is the federal government's bleak fiscal condition and outlook. As a result, other federal revenue sources may not be available to help solve the nation's current transportation challenges.

This statement is based on a body of work that GAO has completed over the past several years for Congress. This testimony discusses (1) GAO's recent findings on the structure and performance of the current surface transportation program (GAO-08-400), (2) a framework to assess proposals for restructuring of the surface transportation program, (3) potential options to fund investments in the surface transportation system, and (4) our recent findings on the benefits, costs, and trade-offs of using public-private partnerships to help fund transportation investments (GAO-08-44).

What GAO Recommends

GAO has previously suggested that Congress consider refocusing surface transportation programs to address the issues discussed in this testimony.

To view the full product, including the scope and methodology, click on GAO-08-744T. For more information, contact JayEtta Z. Hecker at (202) 512-2834 or heckerj@gao.gov.

What GAO Found

Since federal funding for the interstate system was established in 1956, the federal role in surface transportation has expanded to include broader goals, more programs, and a variety of program structures. Consequently, the goals of current programs are numerous and sometimes conflicting, and the federal role in these programs is unclear. For example, federal programs do not effectively address key transportation challenges, such as increasing congestion and freight demand. Many surface transportation programs are also not linked to performance of the transportation system or of the grantees, and programs often do not employ the best tools and approaches. Finally, the fiscal sustainability of the numerous highway, transit, and safety programs funded by the Highway Trust Fund is in doubt, because spending from the fund has increased without commensurate increases in revenues.

A number of principles can help guide the assessment of proposals to restructure and fund federal surface transportation programs. These principles include (1) ensuring goals are well defined and focused on the national interest, (2) ensuring the federal role in achieving each goal is clearly defined, (3) ensuring accountability for results by entities receiving federal funds, (4) employing the best tools and approaches to improve results and emphasize return on targeted federal investment, and (5) ensuring fiscal sustainability.

A range of options could be used to fund the growing demand for additional investment in the surface transportation system. There are two revenue sources for these additional investments: taxes and fees. Financing mechanisms, such as bonding and revolving funds, could also be used to fund transportation infrastructure projects when tax and user fee approaches are not sufficient to meet demands. However, these financing mechanisms are all forms of debt that ultimately must be repaid with interest by the general population through tax increases or reductions in government services. Each of these options has different merits and challenges, and the selection of any of them will likely involve trade-offs among different policy goals.

Highway public-private partnerships show promise as a viable alternative, where appropriate, to help meet growing and costly transportation demands. The highway public-private partnerships created to date have resulted in advantages from the perspective of state and local governments, such as the construction of new infrastructure without using public funding. However, highway public-private partnerships also entail potential costs and risks including the reality that funds from public-private partnerships are largely a new source of borrowed funds—a form of privately issued debt that must be repaid to private investors. Ultimately the extent to which public-private partnerships can be used to help meet the nation's transportation funding challenges will depend on the ability of states to weigh potential benefits against potential costs and trade-offs to determine whether public-private partnerships are appropriate in specific circumstances—and if so—how best to implement them and protect the public interest.

July 10, 2008

Mr. Chairman and Members of the Committee:

We appreciate the opportunity to testify on surface transportation financing issues. As you know, the nation has reached a critical juncture with current surface transportation programs. The current federal approach to addressing the nation's surface transportation problems is not working well. Despite large increases in expenditures in real terms for transportation, the investment has not commensurately improved the performance of the nation's surface transportation system, as congestion continues to grow and looming problems from the anticipated growth in travel demand are not being adequately addressed. The economic and environmental implications are significant, ranging from wasted fuel and lost time as cars idle in traffic to increased costs for businesses as the transportation system grows more unreliable.

Since federal funding for the interstate system was established in 1956, the federal role in surface transportation has expanded to include broader goals, more programs, and a variety of program structures. However, many of these programs do not effectively address key transportation challenges, such as increasing congestion and freight demand, because the federal goals and roles of the programs are unclear, the programs are generally not need or performance-based, and the programs often do not employ the best tools or approaches. In addition, the continued relevance of some of these programs in the 21st century is unclear. For example, the Highway Trust Fund was created in 1956 to distribute funds for the construction of the interstate highway system. That system is now complete. However, the federal highway program's funding and delivery mechanisms have not substantially changed. Furthermore, there is a growing differential between expected Highway Trust Fund revenue and planned levels of spending on surface transportation programs. As a result, without significant changes in funding levels or planned spending, the Highway Trust Fund is projected to incur significant deficits in the

years ahead. As a result, in 2007, we added financing the nation's transportation system to GAO's High Risk List.¹

Addressing these challenges is complicated by the breadth of the nation's surface transportation network—encompassing highway, transit, and rail systems and ports that are owned, funded, and operated by both the public and the private sectors. Moreover, surface transportation policy decisions are inextricably linked with aviation, economic, environmental, and energy policy concerns. In addition, exacerbating this challenge is that the federal government's financial condition and fiscal outlook are worse than many may understand.² Specifically, the federal budget is on an unsustainable path—heightening concern about the solvency of the Highway Trust Fund because other federal revenue sources may not be available to help solve the nation's current transportation challenges. Addressing these challenges requires strategic and intermodal approaches, effective tools and programs, and coordinated solutions involving all levels of government and the private sector. Yet in many cases, the government is still trying to do business in ways that are based on conditions, priorities, and approaches that were established decades ago and are not well suited to addressing 21st century challenges. Consequently, we have called for a fundamental reexamination of the nation's transportation policies and programs.³

Prudent use of taxpayer dollars is always important. The economic and social importance of the nation's transportation system and the current fiscal environment, make it even more important that federal, state, and

¹GAO's audits and evaluations identify federal programs and operations that, in some cases, are high risk because of their greater vulnerabilities to fraud, waste, abuse, and mismanagement. In recent years, we also have identified high-risk areas to focus on the need for broad-based transformations to address major economy, efficiency, or effectiveness challenges. Since 1990, we have periodically reported on government operations that we have designated as high risk. In 2007, we added financing the nation's transportation system to the High Risk List. See, GAO, *High-Risk Series: An Update*, GAO-07-310 (Washington, D.C.: January 2007).

²GAO, *Long-Term Fiscal Outlook: Action Is Needed to Avoid the Possibility of a Serious Economic Disruption in the Future*, GAO-08-411T (Washington, D.C.: Jan. 29, 2008) and *Fiscal Stewardship: A Critical Challenge Facing Our Nation*, GAO-07-362SP (Washington, D.C.: January 2007).

³See GAO, *Performance and Accountability: Transportation Challenges Facing Congress and the Department of Transportation*, GAO-07-545T (Washington, D.C.: Mar. 6, 2007) and *21st Century Challenges: Reexamining the Base of the Federal Government*, GAO-05-325SP (Washington, D.C.: February 2005).

local governments make prudent decisions on how to invest limited available resources. In making these decisions, governments will face an array of challenges that include repairing and maintaining aging infrastructure, making more efficient use of existing infrastructure, accounting for population growth, and incorporating new technologies in funding for infrastructure. In this environment, the infrastructure improvements that all levels of government want may not reflect what they need or what the nation can afford. Accordingly, decisions about the appropriate level of spending and distribution on infrastructure are both difficult and enormously important.

My remarks today focus on (1) our recent findings on the structure and performance of current surface transportation programs, (2) a framework to assess proposals for restructuring surface transportation programs, (3) potential options to fund investments in the surface transportation system, and (4) our recent findings on the benefits, costs, and trade-offs of using public-private partnerships to help fund transportation investments. My comments are based on a body of work that we have completed over the past several years for Congress.⁴ We conducted our work in June 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 provides a reasonable basis for our findings and conclusions based on our audit objectives.

Summary

Current surface transportation programs do not effectively address the transportation challenges the nation faces. Collectively, post-interstate-era programs addressing highway, transit, and safety are an agglomeration that has been established over half a century without a well-defined vision of the national interest and federal role. For example, federal programs do not effectively address key transportation challenges, such as increasing highway congestion and freight demand. Many surface transportation programs are not linked to the performance of the transportation system or of the grantees, and the programs often do not use the best tools or best approaches. Moreover, the fiscal sustainability of the numerous highway,

⁴See "Related GAO Products" at the end of this testimony statement. These previous performance audits were conducted in accordance with generally accepted government auditing standards.

transit, and safety programs funded by the Highway Trust Fund is in doubt.

Through our prior analysis of surface transportation programs, we have identified a framework of principles that can help inform Congress in assessing various proposals for restructuring and funding federal surface transportation programs. These principles are

- creating well-defined goals based on identified areas of national interest, which involves examining the relevance and relative priority of existing programs in light of 21st century challenges and identifying emerging areas of national importance;
- establishing and clearly defining the federal role in achieving each goal in relation to the roles of state and local governments, regional entities, and the private sector;
- incorporating performance and accountability into funding decisions to ensure resources are targeted to programs that best achieve intended outcomes and national priorities;
- employing the best tools, such as benefit-cost analysis, and approaches to emphasize return on investment at a time of constrained federal resources; and
- ensuring fiscal sustainability through targeted investments of federal, state, local, and private resources.

A range of options could be used to fund the demand for additional investment in the surface transportation system. Although some of the demand for additional investment in transportation could be reduced by, for example, using the existing infrastructure more efficiently, there is a growing consensus that some level of additional investment in transportation could be warranted. There are two revenue sources for these additional investments: taxes and fees. A variety of taxes have been and could be used to fund the nation's infrastructure, including excise, sales, property, and income taxes. Additionally, user fees such as fees based on vehicle miles traveled, freight container fees, customs duties, or congestion pricing of roads could be used. Financing mechanisms could also be used to fund transportation infrastructure projects when tax and user fee approaches are not sufficient to meet demands. However, these financing approaches, including bonding strategies, loans, loan guarantees, and revolving funds, are all forms of debt that ultimately must be repaid

with interest by the general population through tax increases or reductions in government services.

Highway public-private partnerships also show promise as a viable alternative, where appropriate, to help meet growing and costly transportation demands. The highway public-private partnerships created to date have resulted in advantages from the perspective of state and local governments, such as the construction of new infrastructure without using public funding, and obtaining funds by extracting value from existing facilities for reinvestment in transportation and other public programs. However, highway public-private partnerships also entail potential costs and risks. Most importantly, there is no “free” money in public-private partnerships. While highway public-private partnerships can be used to obtain financing for highways, these funds are largely a new source of borrowed funds—a form of privately issued debt that must be repaid to private investors seeking a return on their investment by road users over what potentially could be a period of several generations. Ultimately the extent to which public-private partnerships can be used to help meet the nation’s transportation funding challenges will depend on the ability of states to weigh potential benefits against potential costs and trade-offs to determine whether public-private partnerships are appropriate in specific circumstances—and if so—how best to implement them and protect the public interest. As we recently reported, consideration of public-private partnerships in the United States could benefit from more consistent, rigorous, systematic, up-front analysis and fresh thinking about the appropriate federal approach.⁵ Reexamining the federal role in transportation provides an opportunity to identify the emerging national public interests in highway public-private partnerships and to determine how highway public-private partnerships fit in with national programs.

⁵GAO, *Highway Public-Private Partnerships: More Rigorous Up-front Analysis Could Better Secure Potential Benefits and Protect the Public Interest*, GAO-08-44 (Washington, D.C.: Feb. 8, 2008).

**Current Surface
Transportation
Programs Do Not
Effectively Address
Identified
Transportation
Challenges**

Current surface transportation programs do not effectively address the transportation challenges the nation faces. Collectively, post-interstate-era programs addressing highway, transit, and safety are an agglomeration that has been established over half a century without a well-defined vision of the national interest and federal role. Many surface transportation programs are not linked to performance of the transportation system or grantees, as most highway, transit, and safety funds are distributed through formulas that only indirectly relate to needs and may have no relationship to performance. In addition, the programs often do not use the best tools or best approaches, such as using more rigorous economic analysis to select projects. Finally, the fiscal sustainability of the numerous highway, transit, and safety programs funded by the Highway Trust Fund is in doubt, as a result of increased spending from the fund without commensurate increases in revenues.

**Federal Goals and
Approaches Have
Expanded as State and
Local Discretion Has
Increased**

Since the Federal-Aid Highway Act of 1956 funded the modern federal highway program, the federal role in surface transportation has expanded to include broader goals, more programs, and a variety of program structures. Although most surface transportation funds remain dedicated to highway infrastructure, federal surface transportation programs have grown in number and complexity, incorporating additional transportation, environmental, and societal goals. While some of these goals have led to new grant programs in areas such as transit, highway safety, and motor carrier safety, others have led to additional procedural requirements for receiving federal aid, such as environmental review and transportation planning requirements.

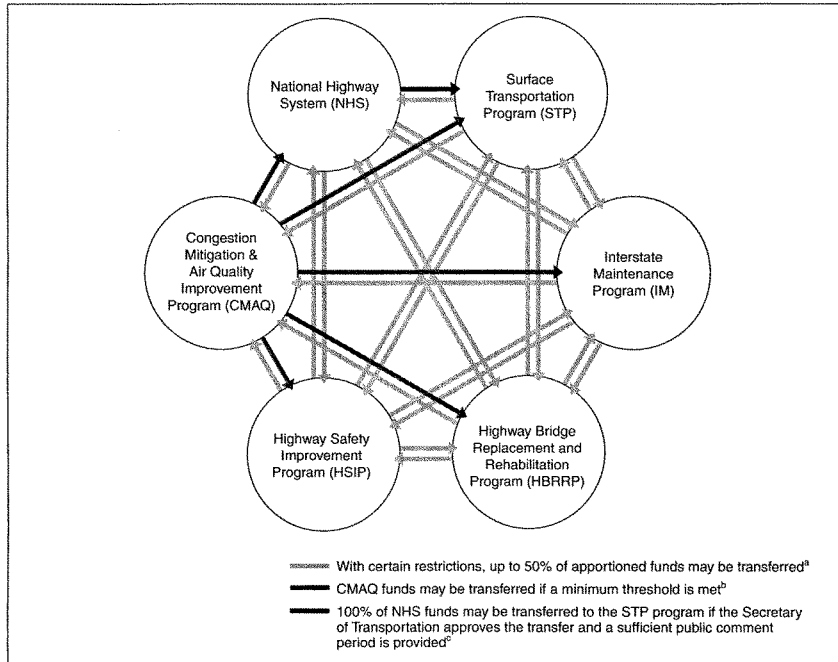
This expansion has also created a variety of grant structures and federal approaches for establishing priorities and distributing federal funds. Most highway infrastructure funds continue to be distributed to states in accordance with individual grant program formulas and eligibility requirements. However, broad program goals, eligibility requirements, and authority to transfer funds between highway programs give state and local governments broad discretion to allocate highway infrastructure funds according to their priorities. Although some transit formula grant programs also give grantees considerable discretion to allocate funds, a portion of transit assistance requires grantees to compete for funding based on specific criteria and goals. Similarly, basic safety formula grant programs are augmented by smaller programs that directly target federal funds to specific goals and actions using financial incentives and penalty provisions.

The Goals and Role of the Federal Government Are Not Clear, and Many Programs Are Not Linked to Performance

We have found that many federal surface transportation programs are not effective at addressing key transportation challenges, such as increasing congestion and growing freight demand, because federal goals and roles are unclear, and many programs lack links to needs or performance. The goals of federal surface transportation programs are numerous and sometimes conflicting, which contributes to a corresponding lack of clarity in the federal role. For example, despite statutes and regulations that call for an intermodal approach (one that creates connections across modes), only one federal program is specifically directed at intermodal infrastructure.

Most highway, transit, and safety grant funds are distributed through formulas that have only an indirect relationship to needs and many have no relationship to performance or outcomes. The largest safety grants are more likely than highway grants to be focused on goals rather than specific transportation systems such as the interstate system, and several highway safety and motor carrier safety grants allocate incentive funds on the basis of performance or state efforts to carry out specific safety-related activities. However, since the majority of surface transportation funds are distributed without regard to performance, it is difficult to assess the impact of recent record levels of federal highway expenditures. For example, while the condition of highways showed some improvement between 1997 and 2004, traffic congestion increased in the same period. Mechanisms to link programs to goals also appear insufficient because, particularly within the Federal-aid Highway program, federal rules for transferring funds between different highway infrastructure programs are flexible, weakening the distinctions between individual programs (see fig. 1).

Figure 1: Broad Flexible Fund Transfer Provisions within Highway Programs



Source: GAO.

Surface Transportation Programs Often Do Not Use Best Tools and Approaches

Surface transportation programs often do not employ the best tools and approaches to ensure effective investment decisions. Rigorous economic analysis does not generally drive the investment decisions of state and local governments—in a 2004 survey of state departments of transportation, 34 of 43 state departments of transportation cited political

support and public opinion as very important factors, whereas 8 said the same of the ratio of benefits to costs.⁶ The federal government also does not possess adequate data to assess outcomes or implement performance measures. For example, the Department of Transportation (DOT) does not have a central source of data on congestion, even though it has identified congestion as a top priority. While some funds can be transferred between highway and transit programs, modally stovepiped funding nevertheless impedes efficient planning and project selection. Additionally, tools to make better use of existing infrastructure, such as intelligent transportation systems and congestion pricing, have not been deployed to their full potential.

The Fiscal Sustainability of Surface Transportation Programs Is Threatened

The solvency of the federal surface transportation program is at risk because expenditures now exceed revenues for the Highway Trust Fund, and projections indicate that the balance of the Highway Trust Fund will soon be exhausted. According to the Congressional Budget Office (CBO), the Highway Account will face a shortfall in 2009, the Transit Account in 2012.⁷ The rate of expenditures has affected its fiscal sustainability. As a result of the Transportation Equity Act for the 21st Century (TEA-21), Highway Trust Fund spending rose 40 percent from 1999 to 2003 and averaged \$36.3 billion in contract authority per year. The upward trend in expenditures continued under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which provided an average of \$57.2 billion in contract authority per year. While expenditures from the trust fund have grown, revenues into the fund have not kept pace. The current fuel tax of 18.4 cents per gallon has been in place since 1993, and the buying power of the fixed cents-per-gallon amount has since been eroded by inflation. The reallocation to the Highway Trust Fund of 4.3 cents of federal fuel tax previously dedicated to deficit reduction provided an influx of funds beginning in 1997. However, this influx has been insufficient to sustain current spending levels.

Furthermore, while federal funding for transportation has increased, the total funding for transportation may not increase to the same extent because federal funds may be substituted for state and local funds. Thus,

⁶GAO, *Highway and Transit Investments: Options for Improving Information on Projects' Benefits and Costs and Increasing Accountability for Results*, GAO-05-172 (Washington, D.C.: Jan. 24, 2005).

⁷CBO, *Status of the Highway Trust Fund: 2007* (Washington, D.C.: Mar. 27, 2007).

added federal funds may not lead to a commensurate increase in the total investment in highways because state and local governments can shift nonfederal funds away from highways to other purposes. Increases in federal funding do appear to reduce state spending for the same purpose, reducing the return on the federal investment. Research estimates that about 50 percent of each additional federal grant dollar for the highway program displaces funds that states would otherwise have spent on highways.

As we have previously reported, this situation argues for a fundamental reexamination of the federal approach to surface transportation problems and a restructuring of federal programs to create more focused, performance-based, and sustainable programs.⁹ In cases for which there is a significant national interest, maintaining strong federal financial support and a more direct federal involvement in the program may be needed. In other cases, functions may best be carried out by other levels of government or not at all. There may also be cases for which federal financial support is desirable but a more results-oriented approach is appropriate. In addition, depending on the transportation issue and the desired goals, different options and approaches may be appropriate for different problems. Restructuring the current approach to transportation problems will take time, but a vision and strategy are needed to begin the process of transforming to a set of policies and programs to effectively address the nation's transportation needs and priorities.

Framework to Assess Proposals for Restructuring and Funding Surface Transportation Programs

Through our prior analyses of existing programs, we identified a framework of principles that could help drive an assessment of proposals for restructuring and funding federal surface transportation programs. These principles include (1) creating well-defined goals based on identified areas of national interest, (2) establishing and clearly defining the federal role in achieving each goal, (3) incorporating performance and accountability into funding decisions, (4) employing the best tools and approaches to improve results and emphasize return on investment, and (5) ensuring fiscal sustainability. We have also developed a series of illustrative questions that can be used to determine the extent to which restructuring and funding proposals are aligned with each principle. We

⁹GAO, *Surface Transportation: Restructured Federal Approach Needed for More Focused, Performance-Based, and Sustainable Programs*, GAO-08-400 (Washington, D.C.: Mar. 6, 2008).

developed these principles and illustrative questions based on prior analyses of existing surface transportation programs as well as a body of work that we have developed for Congress, including GAO's High-Risk, Performance and Accountability, and 21st Century Challenges reports. The principles do not prescribe a specific approach to restructuring or funding, but they do provide key attributes that will help ensure that restructured surface transportation programs address current challenges.

Create Well-defined Goals Based on Identified Areas of National Interest

Our previous work has shown that identifying areas of national interest is an important first step in any proposal to restructure and fund surface transportation programs. In identifying areas of national interest, proposals should consider existing 21st century challenges and how future trends could affect emerging areas of national importance—as well as how the national interest and federal role may vary by area. For example, experts have suggested that federal transportation policy should recognize emerging national and global imperatives, such as reducing the nation's dependence on oil and minimizing the impact of the transportation system on global climate change. Once the various national interests in surface transportation have been identified, proposals should also clarify specific goals for federal involvement in surface transportation programs. Goals should be specific and outcome-based to ensure that resources are targeted to projects that further the national interest.

The following illustrative questions can be used to determine the extent to which proposals to restructure and fund surface transportation programs create well-defined goals based on identified areas of national interest.

- To what extent are areas of national interest clearly defined?
- To what extent are areas of national interest reflective of future trends?
- To what extent are goals defined in relation to identified areas of national interest?

Establish and Clearly Define the Federal Role in Achieving Each Goal

After the various national interests and specific goals for federal involvement in surface transportation have been identified, the federal role in working toward each goal should be established. The federal role should be defined in relation to the roles of state and local governments, regional entities, and the private sector. Where the national interest is greatest, the federal government may play a more direct role in setting priorities and allocating resources as well as fund a higher share of

program costs. Conversely, where the national interest is less evident, state and local governments and others could assume more responsibility. For example, efforts to reduce transportation's impact on greenhouse gas emissions may warrant a greater federal role than other initiatives, such as reducing urban congestion, since the impacts of greenhouse gas emissions are widely dispersed, whereas the impacts of urban congestion may be more localized.

The following illustrative questions can be used to determine the extent to which proposals to restructure and fund the surface transportation programs establish and clearly define the federal role in achieving each goal.

- To what extent is the federal role directly linked to defined areas of national interest and goals?
- To what extent is the federal role defined in relation to the roles of state and local governments, regional entities, and the private sector?
- To what extent does the proposal consider how the transportation system is linked to other sectors and national policies, such as environmental, security, and energy policies?

Incorporate Performance and Accountability into Funding Decisions

Our previous work has shown that an increased focus on performance and accountability for results could help the federal government target resources to programs that best achieve intended outcomes and national transportation priorities. Tracking specific outcomes that are clearly linked to program goals could provide a strong foundation for holding grant recipients responsible for achieving federal objectives and measuring overall program performance. In particular, substituting specific performance measures for the current federal procedural requirements could help make the program more outcome-oriented. For example, if reducing congestion were an established federal goal, outcome measures for congestion, such as reduced travel time, could be incorporated into the programs to hold state and local governments responsible for meeting specific performance targets. Furthermore, directly linking the allocation of resources to the program outcomes would increase the focus on performance and accountability for results. Incorporating incentives or penalty provisions into grants can further hold grantees and recipients accountable for achieving results.

The following illustrative questions can be used to determine the extent to which proposals to restructure and fund surface transportation programs incorporate performance and accountability into funding decisions.

- Are national performance goals identified and discussed in relation to state, regional, and local performance goals?
- To what extent are performance measures outcome-based?
- To what extent is funding linked to performance?
- To what extent does the proposal include provisions for holding stakeholders accountable for achieving results?

Employ the Best Tools and Approaches to Improve Results and Emphasize Return on Investment

We have previously reported that the effectiveness of any overall federal program design can be increased by promoting and facilitating the use of the best tools and approaches to improve results and emphasize return on investment. Importantly, given the projected growth in federal deficits, constrained state and local budgets, and looming Social Security and Medicare spending commitments, the resources available for discretionary programs will be more limited—making it imperative to maximize the national public benefits of any federal investment through a rigorous examination of the use of such funds.⁹ A number of specific tools and approaches can be used to improve results and return on investment including using economic analysis, such as benefit-cost analysis, in project selection; requiring grantees to conduct post-project evaluations; creating incentives to better utilize existing infrastructure; providing states and localities with greater flexibility to use certain tools, such as tolling and congestion pricing; and requiring maintenance-of-effort provisions in grants. Using these tools and approaches could help surface transportation programs more directly address national transportation priorities.

The following illustrative questions can be used to determine the extent to which proposals to restructure and fund surface transportation programs employ the best tools and approaches to improve results and emphasize return on investment.

⁹GAO, *Freight Transportation: National Policy and Strategies Can Help Improve Freight Mobility*. GAO-08-287 (Washington, D.C.: Jan. 7, 2008).

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- To what extent do the proposals consider how costs and revenues will be shared among federal, state, local, and private stakeholders?
 - To what extent do the proposals address the need better to align fees and taxes with use and benefits?
 - To what extent are trade-offs between efficiency and equity considered?
 - Do the tools and approaches align with the level of federal involvement in a given policy area?
 - To what extent do the proposals provide flexibility and incentives for state and local governments to choose the most appropriate tool in the toolbox?

Ensure Fiscal Sustainability

Our previous work has shown that transportation funding, and the Highway Trust Fund in particular, faces an imbalance of revenues and expenditures and other threats to its long term sustainability. Furthermore, the sustainability of transportation funding should also be seen in the context of the broader, governmentwide problem of fiscal imbalance. The federal role in transportation funding must be reexamined to ensure that it is sustainable in this new fiscal reality. A sustainable surface transportation program will require targeted investment, with adequate return on investment, from not only the federal government but also state and local governments and the private sector.

The following illustrative questions can be used to determine the extent to which proposals to restructure and fund surface transportation programs ensure fiscal sustainability.

- To what extent do the proposals reexamine current and future spending on surface transportation programs?
- Are the recommendations affordable and financially stable over the long-term? To what extent are the recommendations placed in the context of federal deficits, constrained budgets, and other spending commitments, and to what extent do they meet a rigorous examination of the use of federal funds?
- To what extent are recommendations considered in the context of trends that could affect the transportation system in the future, such as population growth, increased fuel efficiency, and increased freight traffic?

Current concerns about the sustainability and performance of existing programs suggest that this is an opportune time for Congress to more clearly define the federal role in transportation and improve progress toward specific, nationally defined outcomes. Given the scope of the needed transformation, it may be necessary to shift policies and programs incrementally or on a pilot basis to gain practical lessons for a coherent, sustainable, and effective national program and funding structure to best serve the nation for the 21st century.

Various Options Are Available or Have Been Proposed to Fund Investments in the Nation's Infrastructure

Absent changes in planned spending, a variety of funding and financing options will likely be needed to address projected transportation funding shortfalls. Although some of the demand for additional investment in transportation could be reduced, there is a growing consensus that some level of additional investment in transportation is warranted. A range of options—from altering existing or introducing new funding approaches to employing various financing mechanisms—could be used to help meet the demand for additional investments. Each of these options has different merits and challenges, and the selection of any of them will likely involve trade-offs among different policy goals. Furthermore, the suitability of any of these options depends on the level of federal involvement or control that policymakers desire for a given area of policy. However, as we have reported, when infrastructure investment decisions are made based on sound evaluations, these options can lead to an appropriate blend of public and private funds to match public and private costs and benefits.¹⁰

Existing Strategies Can Help Reduce the Demand for Additional Investment

Estimates from multiple sources indicate that additional investment in the transportation system could be warranted. For example, in its January 2008 report, the National Surface Transportation Policy and Revenue Study Commission (Policy Commission) recommended an annual investment of about \$225 billion from all levels of government in the surface transportation system—an increase of about \$140 billion from

¹⁰GAO, *Freight Transportation: Strategies Needed to Address Planning and Financing Limitations*, GAO-04-165 (Washington D.C.: Dec. 19, 2003).

current spending levels.¹¹ Similarly, the Congressional Budget Office recently estimated that an annual investment of about \$165 billion in surface transportation could be economically justifiable.¹² In addition, in its February 2008 interim report, the National Surface Transportation Infrastructure Financing Commission (Financing Commission) noted that one of its base assumptions is that there is a gap between current funding levels and investment needs.¹³

However, some of the demand for additional investment in transportation infrastructure could be reduced. We have previously reported that the ways in which revenue is generated and distributed can influence the decisions made by users as well as decision-making and programs at the state and local levels.¹⁴ In particular, our previous work has shown that current funding and decision-making processes provide a built-in preference for projects that build or maintain transportation infrastructure rather than try to use existing infrastructure more efficiently—which would reduce the overall demand for additional investments. CBO also recently reported that some of the demand for additional spending on infrastructure could be met by providing incentives to use existing infrastructure more efficiently. In its February 2008 interim report, the Financing Commission noted the need to use new approaches and technologies to maximize the use of current capacity.

We have also previously reported that increased federal highway grants influence states and localities to substitute federal funds for funds they otherwise would have spent on highways for other purposes.

¹¹Congress established the Policy Commission in SAFETEA-LU. The mission of the Policy Commission was, among other things, to examine the condition and future needs of the nation's surface transportation system and short and long-term alternatives to replace or supplement the fuel tax as the principal revenue source to support the Highway Trust Fund. In January 2008, the Policy Commission released its final report with numerous recommendations to reform the current structure of the nation's surface transportation programs.

¹²CBO, *Current and Future Investment in Infrastructure*, (Washington, D.C.: May 8, 2008). CBO defines economic justifiable investments as investments whose private and social benefits would be at least equal to their economic costs.

¹³Congress created the Financing Commission in SAFETEA-LU and charged it with analyzing future highway and transit needs and the finances of the Highway Trust Fund and recommending alternative approaches to financing transportation infrastructure.

¹⁴GAO, *Surface Transportation: Strategies Are Available for Making Existing Road Infrastructure Perform Better*, GAO-07-920 (Washington, D.C.: July 26, 2007).

Consequently, additional federal investments in transportation do not necessarily translate into commensurate levels of spending by the states and localities on transportation. Addressing this “leakage” with such tools as maintenance-of-effort requirements could maximize the effectiveness of federal investments.

The principles we have identified for restructuring the surface transportation programs can also be used as a framework for considering levels of investment and the funding and financing options described below. For example, in defining the federal role in funding transportation, we have previously reported that where the national interest is greatest, having the federal government fund a higher share of program costs could be appropriate. Conversely, where the national interest is less evident, state and local governments, and others could assume more responsibility. In addition, incorporating incentives or penalty provisions into different funding and financing approaches can help ensure performance and accountability.

Funding Approaches Can Be Altered or Developed to Help Fund Infrastructure Investments

Various existing funding approaches could be altered or new funding approaches could be developed, to help fund investments in the nation’s infrastructure. These various approaches can be grouped into two categories: taxes and user fees.

A variety of taxes have been and could be used to fund the nation’s infrastructure, including excise, sales, property, and income taxes. For example, federal excise taxes on motor fuels are the primary source of funding for the federal surface transportation program. Fuel taxes are attractive because they have provided a relatively stable stream of revenues and the collection and enforcement costs are relatively low. However, fuel taxes do not currently convey to drivers the full costs of their use of the road—such as the costs of wear and tear, congestion, and pollution. Moreover, federal motor fuel taxes have not been increased since 1993—and thus the purchasing power of fuel tax revenues has eroded with inflation. As CBO has previously reported, the existing fuel taxes could be altered in a variety of ways to address this erosion, including increasing the per-gallon tax rate and indexing the rates to inflation.¹⁶ Some transportation stakeholders have suggested exploring the potential of using a carbon tax, or other carbon pricing strategies, to help

¹⁶CBO, *Status of the Highway Trust Fund: 2007* (Washington, D.C.: Mar. 27, 2007).

fund infrastructure investments.¹⁶ In a system of carbon taxes, fossil fuel emissions would be taxed, with the tax proportional to the amount of carbon dioxide released in its combustion. Because a carbon tax could have a broad effect on consumer decisions, we have previously reported that it could be used to complement Corporate Average Fuel Economy standards, which require manufacturers meet fuel economy standards for passenger cars and light trucks to reduce oil consumption.¹⁷ A carbon tax would create incentives that could affect a broader range of consumer choices as well as provide revenue for infrastructure.

Another funding source for infrastructure is user fees. The concept underlying user fees—that is, users pay directly for the infrastructure they use—is a long-standing aspect of many infrastructure programs. Examples of user fees that could be altered or introduced include fees based on vehicle miles traveled (VMT) on roadways; freight fees, such as a per-container charge; congestion pricing of roads; and tolling.

- **VMT fees.** To more directly reflect the amount a vehicle uses the road, users could be charged a fee based on the number of vehicle miles traveled. In 2006, the Oregon Department of Transportation conducted a pilot program designed to test the technological and administrative feasibility of a VMT fee. The pilot program demonstrated that a VMT fee could be implemented to replace the fuel tax as the principal source of transportation revenue by utilizing a Global Positioning System (GPS) to track miles driven and collecting the VMT fee (\$0.012 per mile traveled) at fuel pumps that can read information from the GPS.¹⁸ As we have previously reported, using a GPS could also track mileage in high congestion zones, and the fee could be adjusted upward for miles driven in these areas or during more congested times of day such as rush hour—a strategy that might reduce congestion and save fuel.¹⁹ In addition, the

¹⁶Another carbon pricing strategy is a cap-and-trade program, which combines a regulatory limit or cap on the amount of carbon that can be emitted into the atmosphere with market elements such as the opportunity to buy additional allowances to emit additional carbon. Auctioning the allowances of a cap-and-trade program would generate revenue for the government, which could be used for a variety of purposes, including infrastructure investments.

¹⁷GAO, *Vehicle Fuel Economy: Reforming Fuel Economy Standards Could Help Reduce Oil Consumption by Cars and Light Trucks, and Other Options Could Complement These Standards*, GAO-07-921 (Washington, D.C.: Aug. 2, 2007).

¹⁸Oregon's Mileage Fee Concept and Road User Fee Pilot Program: Final Report.

¹⁹GAO-07-921.

system could be designed to apply different fees to vehicles, depending on their fuel economy. On the federal level, a VMT fee could be based on odometer readings, which would likely be a simpler and less costly way to implement such a program. A VMT fee—unless it is adjusted based on the fuel economy of the vehicle—does not provide incentives for customers to buy vehicles with higher fuel economy ratings because the fee depends only on mileage. Also, because the fee would likely be collected from individual drivers, a VMT fee could be expensive for the government to implement, potentially making it a less cost-effective approach than a motor fuel or carbon tax. The Oregon study also identified other challenges including concerns about privacy and technical difficulties in retrofitting vehicles with the necessary technology.

- **Freight fees.** Given the importance of freight movement to the economy, the Policy Commission recently recommended a new federal freight fee to support the development of a national program aimed at strategically expanding capacity for freight transportation.²⁰ While the volume of domestic and international freight moving through the country has increased dramatically and is expected to continue growing, the capacity of the nation's freight transportation infrastructure has not increased at the same rate as demand.²¹ To support the development of a national program for freight transportation, the Policy Commission recommended the introduction of a federal freight fee. The Policy Commission notes that a freight fee, such as a per-container charge, could help fund projects that remedy chokepoints and increase throughput. The Policy Commission also recommended that a portion of the customs duties, which are assessed on imported goods, be used to fund capacity improvements for freight transportation. The majority of customs duties currently collected, however, are deposited in the U.S. Treasury's general fund for the general support of federal activities.²² Therefore, designating a portion of customs duties for surface transportation funding would not create a new source of revenue, but rather transfer funds from the general fund.
- **Congestion pricing.** As we have previously reported, congestion pricing, or road pricing, attempts to influence driver behavior by charging fees

²⁰*Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission*, January 2008.

²¹GAO, *Freight Transportation: National Policy and Strategies Can Help Improve Freight Mobility*, GAO-08-287 (Washington, D.C.: Jan. 7, 2008).

²²GAO, *Marine Transportation: Federal Financing and a Framework for Infrastructure Investments*, GAO-02-1033 (Washington, D.C.: Sept. 9, 2002).

during peak hours to encourage users to shift to off-peak periods, use less congested routes, or use alternative modes. Congestion pricing can also help guide capital investment decisions for new transportation infrastructure. In particular, as congestion increases, toll rates also increase, and such increases (sometimes referred to as "congestion surcharges") signal increased demand for physical capacity, indicating where capital investments to increase capacity would be most valuable. Furthermore, these congestion surcharges can potentially enhance mobility by reducing congestion and the demand for roads when the surcharges vary according to congestion to maintain a predetermined level of service. The most common form of congestion pricing in the United States is high-occupancy toll lanes, which are priced lanes that offer drivers of vehicles that do not meet the occupancy requirements the option of paying a toll to use lanes that are otherwise restricted for high-occupancy vehicles.

Various Financing Mechanisms Can Also Help Fund Infrastructure Projects

Financing mechanisms can provide flexibility for all levels of government when funding additional infrastructure projects, particularly when traditional pay-as-you-go funding approaches, such as taxes or fees, are not set at high enough levels to meet demands. The federal government currently offers several programs to provide state and local governments with incentives such as bonds, loans, and credit assistance to help finance infrastructure. Financing mechanisms can create potential savings by accelerating projects to offset rapidly increasing construction costs and offer incentives for investment from state and local governments and from the private sector. However, each financing strategy is, in the final analysis, a form of debt that ultimately must be repaid with interest. Furthermore, since the federal government's cost of capital is lower than that of the private sector, financing mechanisms, such as bonding, may be more expensive than timely, full, and up-front appropriations. Finally, if the federal government chooses to finance infrastructure projects, policy makers must decide how borrowed dollars will be repaid, either by users or by the general population either now or in the future through increases in taxes or reductions in other government services.

A number of available mechanisms can be used to help finance infrastructure projects. Examples of these financing mechanisms follow.

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- **Bonding.** A number of bonding strategies—including tax-exempt bonds,²³ private activity bonds, Grant Anticipation Revenue Vehicles (GARVEE) bonds, and Grant Anticipation Notes (GAN)—offer flexibility to bridge funding gaps when traditional revenue sources are scarce. For example, state-issued GARVEE or GAN bonds provide capital in advance of expected federal funds, allowing states to accelerate highway and transit project construction and thus potentially reduce construction costs. Through April 2008, 20 states and two territories issued approximately \$8.2 billion of GARVEE-type debt financing and 20 other states are actively considering bonding or seeking legislative authority to issue GARVEEs. Furthermore, SAFETEA-LU authorized the Secretary of Transportation to allocate \$15 billion in tax-exempt bonds for qualified highway and surface freight transfer facilities. To date, \$5.3 billion has been allocated for six projects. Several bills have been introduced in this Congress that would increase investment in the nation's infrastructure through bonding. For example, the Build America Bonds Act would provide \$50 billion in new infrastructure funding through bonding. Although bonds can provide up-front capital for infrastructure projects, they can be more expensive for the federal government than traditional federal grants. This higher expense results, in part, because the government must compensate the investors for the risks they assume through an adequate return on their investment.
 - **Loans, loan guarantees, and credit assistance.** The federal government currently has two programs designed to offer credit assistance for surface transportation projects. The Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) authorized the Federal Highway Administration to provide credit assistance, in the form of direct loans, loan guarantees, and standby lines of credit for projects of national significance. A similar program, Railroad Rehabilitation and Improvement Financing (RRIF), offers loans to acquire, improve, develop, or rehabilitate intermodal or rail equipment and develop new intermodal railroad facilities. To date, 15 TIFIA projects have been approved totaling over \$4.8 billion in credit assistance and the RRIF program has approved 21 loan agreements worth more than \$747 million. These programs are designed to leverage federal funds by attracting substantial nonfederal

²³Tax-exempt bonds are government bonds that are used for purposes such as infrastructure, schools, libraries, general municipal expenditures, or refunding of old debt. Tax-exempt means that the interest paid to bondholders is generally not included in their gross income for federal income tax purposes. Examples of tax-exempt bonds include municipal bonds and private activity bonds that allow tax-exempt debt to be used by private entities to help finance qualified facilities.

investments in infrastructure projects. However, the federal government assumes a level of risk when it makes or guarantees loans for projects financed with private investment.²⁴

- **Revolving funds.** Revolving funds can be used to dedicate capital to be loaned for qualified infrastructure projects. In general, loaned dollars are repaid, recycled back into the revolving fund, and subsequently reinvested in the infrastructure through additional loans. Such funds exist at both the federal and the state levels and are used to finance various infrastructure projects ranging from highways to water mains. For example, two federal funds support water infrastructure financing, the Clean Water State Revolving Fund for wastewater facilities, and the Drinking Water State Revolving Fund for drinking water facilities. Under each of these programs, the federal government provides seed money to states, which they supplement with their own funds. These funds are then loaned to local governments and other entities for water infrastructure construction and upgrades and various water quality projects. In addition, State Infrastructure Banks (SIBs)—capitalized with federal and state matching funds—are state-run revolving funds that make loans and provide credit enhancements and other forms of nongrant assistance to infrastructure projects. Through June 2007, 33 SIBs have made approximately 596 loan agreements worth about \$6.2 billion to leverage other available funds for transportation projects across the nation.²⁵ Furthermore, other funds—such as a dedicated national infrastructure bank—have been proposed to increase investment in infrastructure with a national or regional significance. A challenge for revolving funds in general is maintaining their capitalized value. Defaults on loans and inflation can reduce the capitalized value of the fund—necessitating an infusion of capital needed to continue the fund's operations.

²⁴According to DOT, federal requirements necessitate that a credit risk premium be provided to insure the federal government against the risk of loans defaulting. As a result, these loans are closely examined for risk of loss and, to date, none of the TIFIA or RRF loans have defaulted.

²⁵Eight states—Arizona, Florida, Minnesota, Missouri, Ohio, South Carolina, Texas, and Wyoming—account for 95 percent of the total loan agreements reached through fiscal year 2006.

Highway Public-Private Partnerships Hold Promise, But Also Raise A Number of Issues to Consider

Another important and emerging vehicle for funding investments in transportation is public-private partnerships. In February 2008 we reported on highway public-private partnerships. These arrangements show promise as a viable alternative, where appropriate, to help meet growing and costly transportation demands and have the potential to provide numerous benefits to the public sector.²⁶ The highway public-private partnerships created to date have resulted in advantages from the perspective of state and local governments, such as the construction of new infrastructure without using public funding, and obtaining funds by extracting value from existing facilities for reinvestment in transportation and other public programs. For example, the state of Indiana received \$3.8 billion from leasing the Indiana Toll Road and used those proceeds to fund a 10-year statewide transportation plan. Highway public-private partnerships potentially provide other benefits, including the transfer or sharing of project risks to the private sector. Such risks include those associated with construction costs and schedules and having sufficient levels of traffic and revenues to be financially viable. In addition, the public sector can potentially benefit from increased efficiencies in operations and life-cycle management, such as increased use of innovative technologies. Finally, through the use of tolling, highway public-private partnerships offer the potential to price highways to better reflect the true costs of operating and maintaining them and to increase mobility by adjusting tolls to manage demand, as well as the potential for more cost effective investment decisions by private investors.

Highway public-private partnerships also entail potential costs and risks. Most importantly, there is no “free” money in public-private partnerships. While highway public-private partnerships can be used to obtain financing for highways, these funds are largely a new source of borrowed funds—a form of privately issued debt that must be repaid to private investors seeking a return on their investment by road users over what potentially could be a period of several generations. Though concession agreements can limit the extent to which a concessionaire can raise tolls, it is likely

²⁶See GAO-08-44. We focused our review on highway public-private partnerships in which the public sector enters into a lease or concession agreement with the private sector to provide transportation services for an extended period of time, and where the private sector receives some or all toll revenues over the life of the agreement. We recognize that the term public-private partnerships can be applied to other types of highway projects and other types of transportation projects (such as mass transit and freight rail projects), as well as projects outside the transportation sector (such as hospitals and prisons). We did not include any of these in the scope of our review and my testimony today cannot necessarily be extrapolated to these or other types of public-private partnerships.

that tolls will increase on a privately operated highway to a greater extent than they would on a publicly operated toll road. To the extent that a private concessionaire gains market power by control of a road where there are not other viable travel alternatives, the potential also exists that the public could pay tolls that are higher than tolls based on the cost of the facilities, including a reasonable rate of return. Additionally, because large up-front concession payments have, in part, been used to fund immediate needs, it remains to be seen whether these agreements will provide long-term benefits to future generations who will potentially be paying progressively higher toll rates throughout the length of a concession agreement. Highway public-private partnerships are also potentially more costly than traditional public procurement—for example, there are costs associated with the need to hire financial and legal advisors.

In short, while highway public-private partnerships have promise, they are not a panacea for meeting all transportation system demands. Ultimately the extent to which public-private partnerships can be used as a tool to help meet the nation's transportation financing challenges will depend on the ability of states to effectively manage and implement them. For example, states must have appropriate enabling legislation in place and the institutional ability to manage complex contractual mechanisms—either in the form of in-house expertise or through contractors. Most importantly, the extent to which public-private partnerships can be used as a tool to help meet the nation's transportation funding challenges will depend on how well states are able to weigh public interest considerations. The benefits of public-private partnerships are potential benefits—that is, they are not assured and can only be achieved by weighing them against potential costs and trade-offs through careful, comprehensive analysis to determine whether public-private partnerships are appropriate in specific circumstances and, if so, how best to implement them, and how best to protect the public interest.

In considering the numerous issues surrounding the protection of the public interest, we reached the following conclusions in our February 2008 report on highway public-private partnerships:

- First, consideration of highway public-private partnerships could benefit from more consistent, rigorous, systematic, and up-front analysis. While highway public-private partnerships are fairly new in the United States, and although they are meant to serve the public interest, it is difficult to be confident that these interests are being protected when formal identification and consideration of public and national interests has been lacking, and where limited up-front analysis of public interest issues using

established criteria has been conducted. Partnerships to date have identified and protected the public interest largely through terms contained in concession contracts, including maintenance and expansion requirements, protections for the workforce, and oversight and monitoring mechanisms to ensure that private partners fulfilled their obligations. While these protections are important, governments in other countries, including Australia and the United Kingdom, have developed systematic approaches to identifying and evaluating public interest before agreements are entered into, including the use of public interest criteria, as well as assessment tools, and require their use when considering private investments in public infrastructure. For example, a state government in Australia uses a public interest test to determine how the public interest would be affected in eight specific areas, including whether the views and rights of affected communities have been heard and protected and whether the process is sufficiently transparent. While similar tools have been used to some extent in the United States, their use has been more limited. Using up-front public interest analysis tools can also assist public agencies in determining the expected benefits and costs of a project and an appropriate means to deliver the project. Not using such tools may lead to certain aspects of protecting public interest being overlooked.

- Second, fresh thinking is needed on the appropriate federal approach. DOT has done much to promote the benefits, but comparatively little to either assist states and localities in weighing potential costs and trade-offs, nor to assess how potentially important national interests might be protected in highway public-private partnerships. This is in many respects a function of the design of the federal program as few mechanisms exist to identify potential national interests in cases where federal funds have not or will not be used. For example, although the Indiana Toll Road is part of the Interstate Highway System and most traffic on the road is interstate in nature, federal officials had little involvement in reviewing the terms of this concession agreement because minimal federal funds were used to construct it, and those funds were repaid to the federal government. The historic test of the presence of federal funding may have been relevant at a time when the federal government played a larger role in financing highways but may no longer be relevant when there are new players and multiple sources of financing, including potentially significant private money. Reexamining the federal role in transportation provides an opportunity to identify the emerging national public interests in highway public-private partnerships and determine how highway public-private partnerships fit in with national programs.

On the basis of these conclusions, we recommended that Congress direct the Secretary of Transportation to develop and submit objective criteria

for identifying national public interests in highway public-private partnerships, including any additional legal authority, guidance, or assessment tools that would be appropriately required.²⁷ We are pleased to note that in a recent testimony before the House, the Secretary indicated a willingness to begin developing such criteria. This is no easy task, however. The recent Policy Commission report illustrates the challenges of identifying national public interests as the Policy Commission's recommendations for future restrictions—including limiting allowable toll increases and requiring concessionaires to share revenues with the public sector—stood in sharp contrast to the dissenting views of three commissioners. We believe any potential federal restrictions on highway public-private partnerships must be carefully crafted to avoid undermining the potential benefits that can be achieved. Reexamining the federal role in transportation provides an opportunity for DOT we believe, to play a targeted role in ensuring that national interests are considered, as appropriate.

Concluding Observations

The nation's surface transportation programs are no longer producing the desired results. The reliability of the nation's surface transportation system is declining as congestion continues to grow. Although infusing surface transportation programs with additional funding, especially in light of the projected shortfalls in the Highway Trust Fund, could be viewed as a quick and direct solution, past experience shows that increased funding for the program does not necessarily translate into improved performance. Furthermore, the nation's current fiscal outlook may make such solutions fiscally imprudent. In addition, before additional federal funds are committed to the nation's surface transportation programs, we believe a fundamental reexamination of the program is warranted. Such a reexamination would require reviewing the results of surface transportation programs and testing their continued relevance and relative priority. Appropriate funding sources and financing mechanisms can then be tailored for programs that continue to be relevant in today's environment and address a national interest, such as freight movement.

²⁷To ensure that future highway public-private partnerships meet federal requirements concerning the use of excess revenues for federally eligible transportation purposes, we also recommended that the Secretary of Transportation direct the Federal Highway Administrator to clarify federal-aid highway regulations on the methodology for determining excess toll revenue, including the reasonable rate of return to private investors in highway public-private partnerships that involve federal investment.

Over the coming months, various options to restructure and fund surface transportation programs will likely be put forward by a range of transportation stakeholders. Ultimately, Congress and other federal policymakers will have to determine which option—or which combination of options—best meets the nation's needs. There is no silver bullet that can solve the nation's transportation challenges, and many of the options, such as allowing greater private-sector investment in the nation's infrastructure, could be politically difficult to implement both nationally and locally. The principles that we identified provide a framework for evaluating these various options. Although the principles do not prescribe a specific approach to restructuring and funding the programs, they do provide key attributes that will help ensure that a restructured surface transportation program addresses current challenges. We will continue to assist the Congress as it works to evaluate the various options and develop a national transportation policy for the 21st century that improves the design of transportation programs, the delivery of services, and accountability for results.

Mr. Chairman, this concludes my prepared statement. I would be pleased to respond to any questions that you or other Members of the Committee might have.

**GAO Contact and
Staff
Acknowledgement**

For further information on this statement, please contact JayEtta Z. Hecker at (202) 512-2834 or heckerj@gao.gov. Individuals making key contributions to this testimony were Robert Ciszewski, Nikki Clowers, Steve Cohen, Barbara Lancaster, Matthew LaTour, and Nancy Lueke.

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Congressional Budget Office

Testimony

**Statement of
Peter R. Orszag
Director**

Investing in Infrastructure

**before the
Committee on Finance
United States Senate**

July 10, 2008

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CONGRESSIONAL BUDGET OFFICE
SECOND AND D STREETS, S.W.
WASHINGTON, D.C. 20515

Chairman Baucus, Senator Grassley, and Members of the Committee, thank you for inviting me to testify today on the challenges the nation faces in maintaining and upgrading its infrastructure. Burgeoning congestion on the nation's transportation networks, high-profile events such as the tragic collapse of the I-35 bridge in Minneapolis last year, and concerns that the nation is underinvesting in its physical infrastructure have focused attention on the federal government's role in sustaining that infrastructure.

"Infrastructure" is notoriously difficult to define because it can encompass such a wide array of physical assets. Today's testimony adopts a relatively broad definition; in this testimony, infrastructure includes transportation, utilities, and some other public facilities. The nation currently invests more than \$400 billion per year in infrastructure defined this way, and about \$60 billion of that amount is funded by the federal government each year, primarily for highways and other transportation networks.

The Congress would face several challenges if it sought to enhance the quality of the nation's infrastructure—among them determining what kinds of projects the nation requires; how those projects should be funded and by whom; and how to provide an environment that fosters private development, where that is an appropriate approach.

My testimony draws on past work done by the Congressional Budget Office (CBO) and others, and it sets the stage for more detailed analysis to identify specific economically justifiable infrastructure spending and appropriate funding mechanisms. The testimony makes the following key points:

- Estimates from the Federal Highway Administration (FHWA) and other sources indicate that additional spending of up to tens of billions of dollars each year on transportation infrastructure projects could be justified. Some of that spending would simply maintain the current performance of existing infrastructure; other projects would improve performance to the extent that the economic benefits exceeded the costs (although some projects would have net benefits that were smaller than those that could be obtained from spending on items besides infrastructure).
- In general, additional federal spending for nontransportation infrastructure appears more difficult to justify. In some instances, the interaction of private producers and consumers in the marketplace determines an appropriate level of spending on infrastructure. In other instances, the case for a federal role might be strong, but the case for specific additional spending either is not well documented or is difficult to justify from an economic perspective.
- Although the rationale for some additional spending is probably strong, the economic returns on specific projects vary widely. Accordingly, even if the Congress were to increase spending, it would be important to identify which projects provided the largest potential benefit from limited budgetary resources.

- Some of the demand for additional spending on infrastructure could be met by providing incentives to use existing infrastructure more efficiently and by devoting current budgetary resources to their highest valued uses. For example, the Department of Transportation has reported that the demand for new spending on highways could be reduced by as much as \$20 billion annually if congestion pricing were implemented to encourage efficient use of existing infrastructure.
- The question of whether projects are economically justifiable is distinct from determining who should pay for them. There is a strong economic rationale for charging beneficiaries for the costs of infrastructure. For example, it can be more efficient to impose taxes and fees on identifiable groups of users, such as drivers, than to rely on general revenues to fund an infrastructure project. Similarly, for projects whose benefits are mostly local or regional, state or local funding can be more efficient than federal funding.
- A special-purpose entity, such as a federally chartered infrastructure bank, could provide funding for infrastructure outside of the annual appropriation process but would not be a source of “free money”: Any reduction in the federal shares of project costs (obtained by reducing grant sizes or by shifting from grants to loans or loan guarantees with smaller subsidy costs) would require greater shares to be borne by project users, state or local taxpayers, or both.

Current Spending on Infrastructure

Under any definition, “infrastructure investment” encompasses spending on a variety of projects. Transportation networks and various utilities promote other economic activities: An adequate road, for example, facilitates the transport of goods from one place to another and thereby promotes economic activity; utilities that provide such services as electricity, telecommunications, and waste disposal are also essential to modern economies. (Appendix A describes spending on research and development and on education. Those categories form the basis for supporting intellectual and human capital, respectively, and can provide benefits that are similar to those generated by infrastructure spending.)

The most recent comprehensive data, for 2004, indicate that total capital spending from all sources on transportation, utilities, and selected other public facilities—specifically, prisons, schools, and facilities related to water and other natural resources, such as dams—was more than \$400 billion that year (see Table 1).¹ The federal government financed about \$60 billion (including federal grants to state and local

1. The data in Table 1 include capital spending on infrastructure but exclude spending to maintain that infrastructure. The distinction can be somewhat arbitrary—some forms of maintenance extend the useful life of an asset and thus can have long-term benefits in much the same way new infrastructure can—and can vary from category to category. That variation affects the comparability of the rows in the table.

governments), or roughly 15 percent of the total.² State and local governments funded (net of the federal grants) 42 percent of the investment, and the private sector provided the balance. Those funding shares have changed over time and vary greatly from one infrastructure category to another.

Federal spending on infrastructure is dominated by transportation, which accounted for nearly three-quarters of the roughly \$60 billion total federal investment in infrastructure in 2004. Highways alone accounted for nearly half of the total.³ Capital spending by state and local governments that year was primarily for schools, highways, and water systems. Together, those categories accounted for about \$135 billion in state and local government spending, which is about 80 percent of the \$170 billion spent on infrastructure by state and local governments.

In contrast, private-sector investment in infrastructure is dominated by spending on energy and telecommunications, which in 2004 represented nearly 80 percent of the sector's total infrastructure spending of about \$175 billion. Private entities provide most of the nation's electricity and telecommunications services (typically, under federal or state regulation) and account for nearly all capital spending on those utilities.

To examine trends in infrastructure spending, CBO has compiled data on public spending on transportation, water resources, and drinking water and wastewater systems, which together account for the majority of the federal investment in infrastructure. From 1956 to 2004, public spending on infrastructure capital grew by 1.7 percent annually (after adjustment for inflation; see Figure 1, top panel). Since 1987, real annual spending has grown more rapidly, rising by 2.1 percent a year. As a share of gross domestic product (GDP), however, public spending on capital infrastructure has been relatively constant since the early 1980s (see Figure 1, bottom panel).

Highways have been the largest category of federal capital spending for decades (see Figure 2). In 2007, the federal government spent approximately \$32 billion (in 2006 dollars) on highways, \$8.5 billion on mass transit, \$5.8 billion on aviation, and \$3.5 billion on water resources. Over time, the relative shares have fluctuated. The growth in highway spending in the late 1950s was associated with the development of the Interstate Highway System. Spending on water systems increased sharply in the 1970s, after passage of the Clean Water Act; more recently, the combined share of aviation, mass transit, and rail has increased significantly.

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2. The federal government also funds investments in infrastructure through "tax expenditures," which represent the cost of tax receipts that are forgone because of the exclusion of interest on tax-exempt municipal bonds from gross personal and corporate income and certain other tax preferences. In 2006, tax expenditures for transportation, water resources, and water supply and wastewater treatment systems totaled about \$8 billion.
 3. In the context of federal spending, the term "highway" is shorthand for the set of roads eligible for assistance under the Federal-Aid Highway program. That set includes the 160,000-mile network of the National Highway System (of which the Interstate Highway System is a subset), and 1 million additional miles of urban and rural roads. More generally, a highway can be any type of road funded by any level of government or private entity.

Table 1.
Capital Spending on Infrastructure in 2004, by Category

(Billions of 2004 dollars)

	Public		Total		Total
	Federal	State and Local	Public	Private	
Transportation Infrastructure					
Highways	30.2 ^a	36.5 ^a	66.7	n.a.	66.7
Mass Transit ^b	7.6 ^a	8.0 ^a	15.5	0 ^c	15.5
Freight Railroads	0 ^a	0 ^a	0	6.4 ^c	6.4
Passenger Railroads	0.7 ^d	0 ^a	0.7	0 ^c	0.7
Aviation	5.6 ^a	6.8 ^a	12.4	2.0 ^c	14.4
Water Transportation ^e	0.7 ^a	1.7 ^a	2.4	0.1 ^c	2.5
Total Transportation	44.7	53.0	97.7	8.5 ^c	106.2
Other Infrastructure					
Drinking Water and Wastewater	2.6 ^a	25.4 ^a	28.0	n.a.	28.0
Energy ^f	1.7 ^g	7.7 ^h	9.4	69.0 ^{ij}	78.4
Telecommunications ^k	3.9 ^l	n.a. ^h	3.9	68.6 ⁱ	72.5
Pollution Control and Waste Disposal ^m	0.8 ⁱ	1.8 ^j	2.6	3.6 ^k	6.2
Postal Facilities	0.9 ^g	0 ^l	0.9	0	0.9
Prisons	0.3 ^g	2.6 ^j	2.9	n.a.	2.9
Schools ⁿ	0.4 ^g	75.5 ^j	75.9	23.8 ^k	99.7
Water and Other Natural Resources ^o	7.1 ^a	4.3 ^j	11.3	n.a.	11.3
Total Utilities and Other	17.6	117.2	134.9	165.0	299.9
Total	62.4	170.2	232.6	173.5	406.1

Continued

Potential for Additional Investment in Infrastructure

Growing delays in air travel and surface transportation, bottlenecks in transmitting electricity, and inadequate school facilities all suggest that some targeted additional infrastructure spending could be economically justifiable. CBO's review of the evidence suggests that tens of billions of dollars of additional infrastructure spending each year could be justified on an economic basis. The need for such spending, however, could be substantially reduced by user fees that encourage more efficient use of infrastructure.

Estimates of requirements for additional infrastructure are available from a variety of sources that often define "need" differently. Some analyses seek to quantify the spending required to maintain the current performance of an asset or to provide improvement that is considered desirable according to certain engineering or public health standards (such as standards for the smoothness of pavement or allowable concentrations of a contaminant in drinking water). Other analyses attempt, through evaluation of private and social benefits and opportunity costs, to estimate the maximum

Table 1. Continued
Capital Spending on Infrastructure in 2004, by Category

Source: Congressional Budget Office.

Note: n.a. = not available.

- a. See Congressional Budget Office, *Trends in Public Spending on Transportation and Water Infrastructure, 1956 to 2004* (August 2007), Supplemental Tables.
- b. Includes subways, bus transportation, and commuter rail.
- c. Department of Commerce, Bureau of Economic Analysis, National Economic Accounts, Fixed Asset Tables, Table 3.7ES, Historical-Cost Investment in Private Fixed Assets by Industry, www.bea.gov/national/FA2004/TableView.asp?SelectedTable=53&FirstYear=2001&LastYear=2006&Freq=Year. Private spending for transportation equipment is primarily for vehicles, which can be used anywhere in the system and therefore is not considered part of infrastructure spending.
- d. See *Amtrak Strategic Plan, FY 2004–2008* (April 25, 2003), p. 7, www.amtrak.com/pdf/strategic.pdf. Data represent infrastructure and fleet/facilities.
- e. Includes inland waterways, harbors, and port facilities.
- f. Includes electricity generation, transmission, and distribution; natural gas transmission and distribution; and oil pipelines.
- g. CBO analysis of data reported in *Budget of the United States Government, Fiscal Year 2006: Analytical Perspectives, 2006*, Table 6.2.
- h. Census Bureau, *Annual Survey of State and Local Government Finances and Census of Governments, 2006, 2007*, www.census.gov/govs/www/estimate.html.
- i. Department of Commerce, Bureau of Economic Analysis, National Economic Account, Fixed Asset Tables, Table 3.7ES (includes equipment).
- j. Includes a small amount of private spending on drinking water and wastewater treatment systems.
- k. Includes wired and wireless telecommunications, Internet service providers, fiber-optic networks, and broadcasting.
- l. CBO analysis of data provided by Universal Service Administrative Company.
- m. Includes disposal of hazardous waste and solid waste.
- n. Includes primary, secondary, higher, vocational, and special education.
- o. Includes conservation, dams, and flood control.

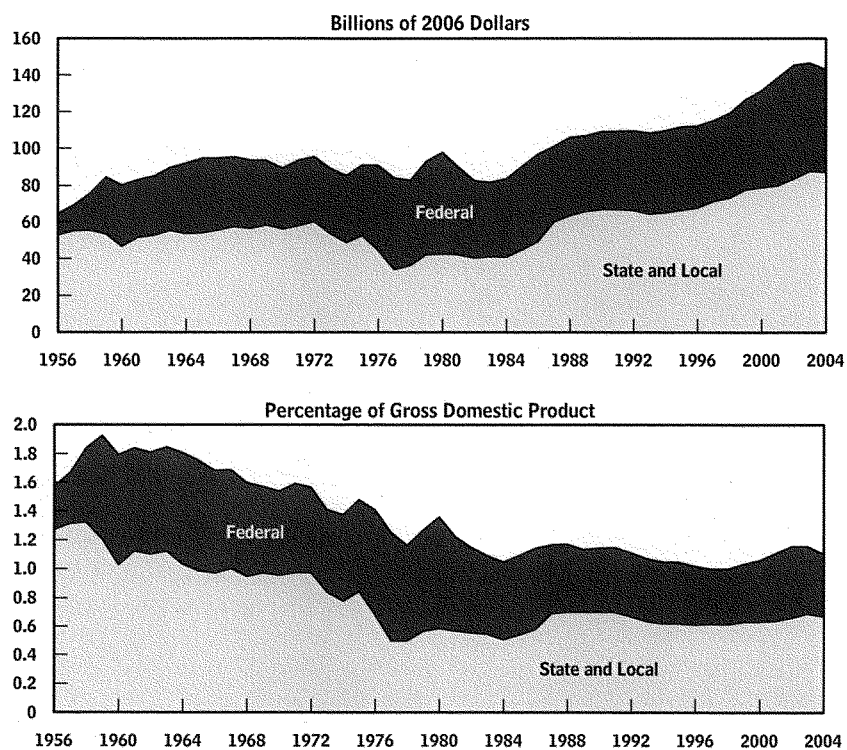
investment that could be justified on economic grounds. The discussion below provides more detail for transportation than for other types of infrastructure because federal investment is concentrated in transportation and because more information is available on those estimates. The general issues raised about transportation estimates also apply to utilities and other types of infrastructure.

Transportation

Although capital spending on transportation infrastructure already exceeds \$100 billion annually, studies from the FHWA, the Federal Aviation Administration

Figure 1.

Public Capital Spending on Transportation and Water Infrastructure, 1956 to 2004



Source: Congressional Budget Office.

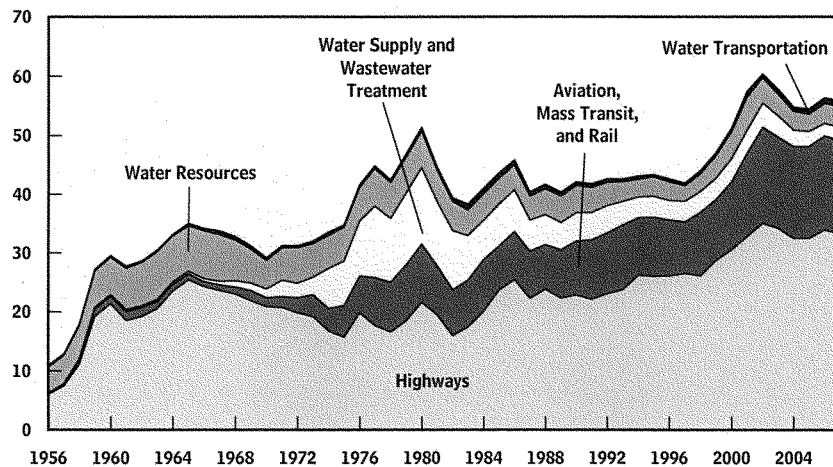
Note: Includes spending on highways, mass transit, rail, aviation, water transportation, water resources, and water supply and wastewater treatment systems.

(FAA), and elsewhere suggest that it would cost roughly \$20 billion more per year to keep transportation services at current levels. Those studies also suggest that substantially more than \$20 billion in additional capital spending on transportation would be justified on economic grounds if well targeted (because such spending would generate benefits whose value exceeded its cost).

Table 2 provides data on current public and private spending (reproducing the totals from Table 1) and estimates from various sources of the annual spending that would maintain each category of infrastructure at its current service level, given expected growth in demand (see the column "Spending to Maintain Current Levels of Service"). The table also provides estimates of the maximum annual investment that

Figure 2.**Federal Capital Spending on Transportation and Water Infrastructure, 1956 to 2007**

(Billions of 2006 dollars)



Source: Congressional Budget Office.

might be justified on economic grounds—investments whose private and social benefits would be at least equal to their economic costs (see the column “Economically Justifiable Investment”).⁴

Highways constitute by far the largest category of current spending on transportation infrastructure, and they dominate the estimates of investment required to maintain current performance. FHWA estimates that, without a significant change in the way highways are paid for, it would cost \$79 billion per year to maintain performance—\$12 billion more than total current spending. The next largest category is aviation, which has seen burgeoning demand for air travel and a commensurate growth in congestion. According to estimates from the FAA and other sources, annual investment of \$18 billion, about \$4 billion above current annual spending for airports and air traffic control, would be necessary to maintain performance under current pricing policies. Freight railroads also would require annual investment of about \$4 billion more than

4. The estimates in Table 2 come from several sources that used different methodologies and periods, so it is difficult to compare modes. Table 2 has no estimates of economically justifiable investments for passenger rail or water transportation. Concerns about the quality of the analyses available in those categories prevent CBO from placing confidence in the estimates. See the notes to Table 2; Congressional Budget Office, *The Past and Future of U.S. Passenger Rail Service* (September 2003); and General Accounting Office, *U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary*, GAO-01-835 (July 2001), p. 36.

Table 2.**Annual Spending on U.S. Transportation Infrastructure**

(Billions of 2004 dollars)

	Current Spending (Total Column, Table 1)	Spending to Maintain Current Levels of Service ^a	Economically Justifiable Investment ^b	Other
Highways ^c	66.7	78.8 ^d	131.7 ^d	*
Mass Transit ^{c,e}	15.5	15.8 ^d	21.8 ^d	*
Freight Railroads ^c	6.4 ^f	10.7 ^g	12.3 ^g	*
Passenger Railroads ^c	0.7	0.5 ^h	n.a.	2.1 ⁱ
Aviation ^c	14.4	17.9 ^j	18.9 ^j	*
Water Transportation ^{c,k}	2.5	2.7 ⁱ	n.a.	7.9 ^m
Total Transportation	106.2	126.5	184.8	

Source: Congressional Budget Office.

Notes: n.a. = not available; * = not applicable.

- a. Given expected growth in demand.
- b. Based on estimates from other sources of investments for which private and social benefits at least equal economic costs.
- c. Excludes private investment in transportation equipment (primarily vehicles).
- d. Department of Transportation, Federal Highway Administration (FHWA), *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (updated March 15, 2007), Chapter 7, www.fhwa.dot.gov/policy/2006cpr/. The study contains specific estimates of the "cost to maintain" and "cost to improve" based on models of highway and mass transit infrastructure. FHWA derived the "cost to improve" estimates through analyses that compared total costs of various types of projects with their discounted future public and private benefits. Other recent studies (such as that by the National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow* [December 2007], www.transportationfor-tomorrow.org/final_report/) contain larger estimates for investments. However, those estimates assume substantial service improvements or include investments that may not pass a benefit-cost test.
- e. Includes subways, bus transportation, and commuter rail.
- f. A substantial amount of current capital spending is being used to increase railroad capacity. See "New Era Dawns for Rail Building," *Wall Street Journal*, February 13, 2008, p. A1.
- g. *Transportation for Tomorrow*, Exhibit 4-16, provides estimates of additional freight rail investment required to accommodate expected traffic growth and to improve service. The estimate of "investment to maintain" reflects widespread improvements in infrastructure performance that are thought to be needed to maintain rail's share of the freight market.

Continued

Table 2.

Continued

Annual Spending on U.S. Transportation Infrastructure

- h. Statement of Mark R. Dayton, Senior Economist, Department of Transportation, Office of Inspector General, before the Subcommittee on Transportation, Treasury, the Judiciary, Housing and Urban Development, and Related Agencies, Committee on Appropriations, U.S. Senate, *Intercity Passenger Rail and Amtrak* (March 16, 2006), p. 2. The *Amtrak Strategic Plan, FY 2004–2008* (April 25, 2003), p. 7, www.amtrak.com/pdf/strategic.pdf, presents a slightly higher average of \$669 million (in 2007 dollars) per year over five years for infrastructure and fleet/facilities.
- i. Estimate by David Gunn, then-president of Amtrak, quoted in "Gunn: Amtrak Needs Up to \$2 Billion Yearly to Repair Tracks and Bridges," *AASHTO Journal*, vol. 103, no. 4 (January 23, 2003), p. 5. Gunn was speaking of capital requirements for all Amtrak service at that time. Other sources, such as *Transportation for Tomorrow*, Exhibit 4-17, report a much higher estimate, \$7.4 billion (in 2007 dollars), for a substantial expansion of intercity passenger service. Concerns about the long-term economic viability of Amtrak service outside the Northeast corridor, and the economic viability of a substantial expansion of intercity passenger service, prevent CBO from concluding that such investments would be economically justifiable. See Congressional Budget Office, *The Past and Future of U.S. Passenger Rail Service* (September 2003).
- j. Federal capital spending on airports: Federal Aviation Administration, *National Plan of Integrated Airport Systems (NPIAS), 2007–2011* (2006), p. v, www.faa.gov/airports_airtraffic/airports/planning_capacity/npias/reports/media/2007/npias_2007_narrative.pdf. State and local capital spending on airports, net of Airport Improvement Program grants: CBO analysis of data from the Census Bureau, *Annual Survey of State and Local Government Finances and Census of Governments, 2006, 2007*, www.census.gov/govs/www/estimate.html. Air traffic control: Federal Aviation Administration, *Capital Investment Plan for Fiscal Years 2009–2013* (2008), Appendix C, p. 4, www.faa.gov/about/office_org/headquarters_offices/ato/service_units/operations/sysengsaf/cip/. "Air traffic control" includes \$4.082 billion for the Next Generation Air Traffic System (NGATS) over five years.
- Other estimates of NGATS are \$1 billion or more per year higher. See statement of David A. Dobbs, Assistant Inspector General for Aviation and Special Program Audits, Department of Transportation, *Perspectives on the Progress and Actions Needed to Address the Next Generation Air Transportation System*, before the Subcommittee on Aviation, Committee on Commerce, Science and Transportation, U.S. Senate (July 25, 2006), p. 11. Private investment to implement NGATS is estimated to be roughly equal to public investment. See Federal Aviation Administration, Joint Planning and Development Office, *Business Case for the Next Generation Air Transportation System* (August 24, 2007), p. 15, www.jpdo.gov/library.asp.
- k. Includes inland waterways, harbors, and port facilities.
- l. Inland waterways and harbors: Department of the Army, Office of the Assistant Secretary of the Army (Civil Works), *Civil Works Budget for the U.S. Army Corps of Engineers, Fiscal Year 2009* (February 2008), pp. 3 and 4. Port facilities: Department of Transportation, U.S. Maritime Administration, *U.S. Public Port Development Expenditure Report* (July 2007), Table 7, www.marad.dot.gov/Publications/ports.htm.
- m. Inland waterways and harbors: Department of the Army, Army Corps of Engineers, "Database of Internal Analysis of Approved and Ongoing Construction for Inland Waterways and Harbors." Port facilities: *U.S. Public Port Development Expenditure Report*, Table 7. Concerns about the quality of the Corps' benefit–cost analyses prevent CBO from accepting its estimate as economically justifiable. (See General Accounting Office, *U.S. Infrastructure: Agencies' Approaches to Developing Investment Estimates Vary*, GAO-01-835 [July 2001], p. 36.)

is currently spent. (Some current spending on freight rail is for projects that will expand service by boosting capacity on major routes.⁵)

For mass transit and water transportation, the best estimate of investment to maintain current services is only slightly above the current amount; and for passenger rail, it is below current spending. The latter fact could be the result of differences among sources in the definitions of capital spending and maintenance, or it could indicate that some efforts to maintain performance are simply inefficient—that is, they cost more than is necessary. The figures for freight and passenger rail illustrate an important general point: Not all current investment is effective in maintaining, or even is intended to maintain, the performance of the existing infrastructure. Likewise, future increases in investment might or might not be targeted to that purpose.

Similar distinctions apply to the estimates of spending that might be justified on economic grounds. In most instances, those estimates are for amounts well above current spending or the estimate of investment required to maintain current services. The estimates, however, are approximations based on analyses of broad samples of generic projects rather than detailed analyses of individual projects. Moreover, the estimates are sensitive to assumptions about the discount rate (which represents the cost of elapsed time between an investment and the subsequent benefits received from it) and make no allowance for the opportunity cost of a dollar of tax revenues.⁶ In any case, the estimates do not justify increases of those amounts in infrastructure spending unless such spending is carefully targeted to economically efficient projects. Otherwise, the spending would not generate the same benefits as the estimates suggest—and indeed it could produce costs that exceed the benefits.

A related point is that, even within a group of economically justifiable projects, the benefits from some would greatly exceed their costs while the benefits from others would just barely do so (and might not exceed the benefits available from other types of federal or private spending). Carefully ranking and funding projects to implement those with the highest net benefits would yield a disproportionate share of the total possible benefits at a fraction of the total spending that is potentially economically justifiable. For example, according to a detailed analysis that the FHWA provided to CBO, over the next five years, investments required to maintain current levels of highway service would represent 58 percent of the total spending for all economically justifiable investments for highways, but they would provide 83 percent of the net benefits.

5. See Daniel Machalaba, “New Era Dawns for Rail Building,” *Wall Street Journal*, February 13, 2008, p. A1.

6. The act of raising government revenues through taxes can impose costs because tax rates tend to distort relative prices and hence reduce the efficiency of economic activity. (To a lesser extent, taxes also impose costs because of the administrative burden of compliance.) Thus, each dollar invested may effectively cost the economy more than one dollar. Some research indicates, however, that the magnitude of the distortion can vary significantly, depending on how the revenue is collected and spent.

Table 2 on page 8 provides information about the potential for additional spending, but it provides no information about who should pay. The “benefits principle” suggests that federal taxpayers are often the least efficient source of financial support for an infrastructure investment—after the direct beneficiaries of the investment and local or state taxpayers. From the standpoint of economic efficiency, the ideal is to charge users of infrastructure according to the marginal costs of their use. For example, people who use water can be charged for the costs of acquiring, storing, treating, and distributing the water they consume.

One characteristic of many infrastructure services, however, is that some costs are not associated with anyone’s marginal use. For example, to the extent that water pipes deteriorate with time, independent of the volume of water flowing through them, investments in pipes cannot be financed solely through marginal-cost pricing. Telecommunications networks provide a similar example: Until a network begins to experience congestion effects, the marginal cost of another phone call is essentially zero. In such cases, the most efficient solution might be a two-part tariff, which includes an access charge (for example, a monthly fee) as well as use charges. Two-part tariffs are not ideal in that they could discourage some uses that would deliver marginal benefits that are greater than their marginal costs, if the access charges deter some consumers. However, they demonstrate the willingness of users to pay for the services that are made possible by an infrastructure investment, and thus they provide an indication of that investment’s efficiency. (Indeed, the term “infrastructure demand” should arguably be reserved for desires that are supported by beneficiaries’ willingness to pay.)

Although it is generally desirable from an economic efficiency perspective, charging the beneficiaries of infrastructure investments is not always feasible, even when the benefits of such investments would exceed their costs. In some cases, the key problems are technical, such as the limitations of 20th-century methods for collecting highway tolls. In other cases, the difficulty arises because the benefits are widely distributed and preventing nonpayers from receiving the benefits is difficult or impossible, as in the case of a dam that provides flood control services. In those instances, taxpayer funding can be the most efficient solution, if the projects to be funded are chosen on the basis of benefit–cost analyses.

Even with taxpayer funding, a version of the benefits principle still applies: The more closely the group being taxed matches the set of beneficiaries, the more efficient the investment decisions are likely to be. In particular, if the benefits of a project are concentrated locally or regionally, state or local governments spending their own money are likely to be in a better position to make efficient choices, weighing benefits against costs, than the federal government would be. For example, partial taxpayer support for a mass transit system could be economically efficient, to the extent that the system benefits nonriders by reducing congestion on area roads. However, decisions about the amount to invest might be less efficient if the taxes being collected come from areas that extend beyond the region served by the system.

Conversely, the case for support from federal taxpayers is strongest for investments with benefits that accrue to broad geographic areas or to the nation as a whole and are not restricted to a class of users that can be charged more directly. Infrastructure with such widespread benefits arguably includes the Interstate Highway System and wastewater treatment plants for communities whose water eventually flows into a major resource such as the Chesapeake Bay or the Gulf of Mexico. Even when federal support for a given type of infrastructure is justified in principle, implementation problems might make it undesirable in practice. If the federal government decides to channel additional infrastructure funds through state governments, some of those funds ultimately might not finance additional infrastructure; instead, federal funding might merely substitute for state and local government funding, with little or no effect on the total. The Government Accountability Office (GAO) has confirmed earlier analyses showing that federal grants to state and local governments do not always serve their intended purposes. In its analysis of increases in federal highway grants between 1982 and 2002, GAO reported that states offset roughly half of the increases by reducing their own funding, and that “the rate of substitution increased during the 1990s.”⁷

A final and crucial point regarding Table 2 on page 8: The estimates generally assume that the economic and policy environment remains unchanged. In particular, the estimate for highways assumes no expansion in the use of congestion pricing—that is, tolls that are higher during peak times and lower during off-peak times.⁸ However, FHWA estimates that widespread implementation of congestion pricing would reduce the investment needed to maintain the highway system by more than one-fourth, or about \$20 billion annually. Thus, the estimate of the investment to maintain current services would decline from nearly \$80 billion to slightly less than \$60 billion per year, which is less than the current spending of \$66.7 billion.⁹ Similarly, congestion pricing would reduce the amount of highway investment that was economically justifiable by almost 16 percent, to roughly \$110 billion per year.

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7. See Government Accountability Office, *Federal-Aid Highways: Trends, Effects on State Spending, and Options for Future Program Design*, GAO-04-802 (August 2004), summary page. Another factor that undermines the efficiency case for federal funding is the formulaic approach commonly used to divide federal resources among the states, which can be an obstacle to funding for the projects with the best benefit–cost ratios.
 8. Other policy changes, such as the implementation of a carbon tax or a cap-and-trade system for carbon dioxide emissions, also could affect the amount of spending that could be justified on economic grounds.
 9. See Federal Highway Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance* (updated March 15, 2007), p. 10-6.

Utilities and Other Types of Infrastructure

Most energy and telecommunications systems are privately owned and operated, and their funding comes from sales to consumers. Current capital spending on energy-related infrastructure exceeds \$75 billion annually—about 90 percent of it in private investment. Estimates prepared for the Edison Electric Institute indicate that electric utilities would need to invest an annual average of \$28 billion for generation, \$12 billion for transmission, and \$34 billion for distribution of electricity to maintain current levels of service, given expected growth in demand.¹⁰ To justify such investment to shareholders and regulatory authorities, businesses typically conduct thorough financial analyses before undertaking large investments. Comparable figures for electricity generation, oil pipelines, and natural gas distribution are not readily available. The Department of Energy's Energy Information Administration arrived at an estimate of \$2.6 billion per year for economically justifiable investment in the natural gas transmission network.¹¹

Systems for wastewater and drinking water are dominated by the public sector. The nation spends about \$26 billion per year on those systems, and CBO has previously estimated that investment from 2000 to 2019 would need to average between \$29.7 billion and \$47.2 billion annually (converted to 2004 dollars) to maintain current service standards and allow some modest improvements to meet current or future regulations imposed by the Environmental Protection Agency (a somewhat different standard than that presented in Table 2 on page 8).¹²

The available estimates for investment in other categories of infrastructure included in Table 1 on page 4—pollution control and waste disposal facilities, postal facilities, prisons, schools, and water and other natural resources—are limited. Two estimates are available for schools: Survey data from the National Center for Education Statistics indicate that a one-time investment of \$142 billion beyond current amounts would be necessary to bring school facilities into a good state of repair; the National Education Association has estimated that a one-time investment of \$360 billion beyond current spending would be necessary to “modernize” schools (both figures are in 2004 dollars).¹³ However, neither estimate makes any allowance for the opportu-

10. See Brattle Group, “Transforming America’s Power Industry: The Investment Challenge—Preliminary Findings” (presented at the Edison Foundation Conference, “Keeping the Lights On—Our National Challenge,” New York, April 21, 2008).

11. See Department of Energy, Energy Information Administration, *Natural Gas 1998: Issues and Trends*, p. 126. (The estimate given here was converted to 2004 dollars by CBO to be consistent with Table 2.) A more recent but less well documented estimate appears in J. Alex Tarquinio, “There’s a Light at the End of the Energy Pipelines,” *New York Times*, February 26, 2006.

12. See Congressional Budget Office, *Future Investment in Drinking Water and Wastewater Infrastructure* (November 2002).

13. See Department of Education, National Center for Education Statistics, *Condition of America’s Public School Facilities: 1999*, NCES 2000-32 (June 2000), p. iv; and National Education Association, *Modernizing Our Schools: What Will It Cost?* (April 2000), p. 1.

nity cost of the capital invested or specifies the period over which the investment would be made.

The Association of State Dam Safety Officials has estimated that maintaining non-federal dams in their current condition would cost \$0.8 billion per year and that \$3.2 billion (in 2004) in annual spending is economically justifiable.¹⁴ CBO has no information on the methods by which those estimates were produced. Other available estimates for public facilities include the Environmental Protection Agency's \$8.3 billion per year for cleaning up waste sites and the Postal Service's \$2.9 billion for capital spending from 2007 to 2016.¹⁵

Conversely, for one category of public facility not covered in Table 1 on page 4—federal buildings—the government could reduce total investment and operating costs by changing the way it acquires, manages, and disposes of property. Agencies could construct more federal facilities rather than enter into more costly long-term leases of private facilities; better manage unused, underused, and inefficient buildings; and maximize proceeds from the disposal of federal property (see Box 1).

Economic Returns on Public Spending for Infrastructure

Another approach that sheds light on the appropriateness of additional spending on infrastructure reaches broadly similar conclusions. In particular, spending on infrastructure benefits the economy by reducing the cost of private business transactions; over the past 20 years, economists have attempted to measure those benefits and have obtained a wide range of estimates. The literature supports two conclusions: First, public spending on infrastructure often produces positive economic returns, and second, there is significant variation—both in the average returns and in the range of returns among projects—that depends on several factors. Second, the research suggests that the returns on the initial phase of a system of public investments, such as the creation of the Interstate Highway System, can be large but that the economic payoff declines as the system grows.

Federal spending on infrastructure increases the stock of publicly owned capital and, in that sense, represents an investment in the future productivity of the private sector. The economic payoff from public spending on infrastructure depends on the usefulness of the investments themselves and the extent to which the spending “crowds out”—or reduces the funding available for—investment in private capital. The early research on infrastructure spending identified substantial returns on that investment.

14. See Association of State Dam Safety Officials, *The Cost of Rehabilitating Our Nation's Dams, 2002*, as cited in American Society of Civil Engineers, *Report Card for America's Infrastructure, 2005*, www.asce.org/reportcard/2005/index2005.cfm.

15. For the former, see Environmental Protection Agency, Office of Solid Waste and Emergency Response, *Cleaning Up the Nation's Waste Sites: Markets and Technology Trends, 2004 Edition*, EPA 542-R-04-015 (September 2004), pp. viii; the latter is based on data the Postal Service provided to CBO.

One prominent study from the late 1980s concluded that, from 1949 to 1985, a 1 percent increase in the stock of “core infrastructure” (transportation, water supply and wastewater treatment, and electrical and natural gas facilities) was associated with a 0.24 percent increase in the level of national output.¹⁶ Because annual national output was roughly four times the estimated value of the stock of core infrastructure, that result suggested that public capital enhanced the economy’s ability to produce goods and services to the extent that \$1 spent on infrastructure could generate close to \$1 of output within roughly a year. An implication of such findings was that a substantial part of the productivity slump of the 1970s and 1980s was the result of a shortfall of investment in infrastructure.

Estimates of such large returns, however, have been persuasively challenged by subsequent researchers. For example, some of those estimates have been found to be overly sensitive to minor changes in the data from which they were derived (as occurs if the time period or the sectors of the economy covered by the analysis are changed only slightly). Follow-up research has identified other weaknesses in methodology and, after attempting to correct for them, has in some cases resulted in a different conclusion about the economic returns on public spending for infrastructure. For example, the size of the stock of public capital and the level of economic output can vary together over time for reasons unrelated to a causal link between them. One study that attempted to control for that spurious correlation identified no positive association of public capital with economic performance.¹⁷ Even the direction of causality is open to question: For example, it could be that states that are more productive and more prosperous choose to spend more on infrastructure and not that spending more on infrastructure makes states more productive or prosperous. One study concludes

16. Most of the issues considered in the 1990s were raised by David Alan Aschauer, “Is Public Expenditure Productive?” *Journal of Monetary Economics*, vol. 23, no. 2 (March 1989), pp. 177–200, and discussed in a large number of papers reviewed by Alicia H. Munnell, “Policy Watch: Infrastructure Investment and Economic Growth,” *Journal of Economic Perspectives*, vol. 6, no. 4 (Autumn 1992), pp. 189–198, and Edward M. Gramlich, “Infrastructure Investment: A Review Essay,” *Journal of Economic Literature*, vol. 32, no. 3 (September 1994), pp. 1176–1196. See also Congressional Budget Office, *The Economic Effects of Federal Spending on Infrastructure and Other Investments* (June 1998); and Jeffrey P. Cohen and Catherine J. Morrison Paul, “Public Infrastructure Investment, Interstate Spatial Spillovers, and Manufacturing Costs,” *Review of Economics and Statistics*, vol. 86, no. 2 (May 2004), pp. 551–559. There is variation in the definitions of public capital and the periods covered by those papers.

17. See Charles R. Hulten and Robert M. Schwab, “Public Capital Formation and the Growth Process in Developing Countries,” *National Tax Journal*, vol. 44, no. 1, part 1 (December 1991), pp. 121–134. A criticism of efforts that focus on year-to-year changes is that they can mask long-term relationships between accumulated stocks of public capital and subsequent economic performance when additions to the stock of public capital could influence economic activity for years after they occur.

Box 1.**Management of Federal Buildings and Facilities**

The General Services Administration (GSA) reports that the federal government owns about 1.2 million structures, which together have an estimated replacement value of more than \$1.5 trillion. The list includes standard office buildings, hospitals, courthouses, dams, and utility systems. GSA's list also includes specialized research and industrial facilities—60 percent of which are controlled by the Department of Defense.

GSA reports that about 10 percent of all government facilities are either underused or empty and that there is no information on the market value of those facilities. GSA notes that each year federal agencies destroy thousands of unused and surplus structures because they have little or no market value and demolition can reduce operating costs. Some of the structures do not meet current building and safety codes and might also pose environmental hazards.

Federal agencies that seek to dispose of unneeded facilities must follow legislatively prescribed procedures for property disposition. In particular, before they can be sold at auction, facilities must first be screened for use by other federal, state, or local agencies or evaluated for use by organizations that serve the homeless. Transfers of federal property to nonfederal entities are called public benefit conveyances and typically are executed for \$1. Many federal civilian agencies that control real property are authorized to spend any proceeds from the disposal of surplus property; in some cases they also have the option of leasing unneeded assets and either spending the rental income or, more commonly, receiving services such as building improvements or construction of new facilities. In most years, net receipts to the Treasury from the sale of surplus civilian properties are relatively small, generally less than \$50 million. The Base Realignment and Closure (BRAC) process—by which

Continued

that, once such state-specific characteristics are recognized, public capital plays no role in the differences among states' economic performance.¹⁸

However, recent surveys that involve the United States and other nations show positive returns from investment in public capital. One study from 2007 concludes that the recent literature reflects more consensus about the "growth-enhancing effect of public

18. See Douglas Holtz-Eakin, "Public-Sector Capital and the Productivity Puzzle," *Review of Economics and Statistics*, vol. 76, no. 1 (February 1994), pp. 12–21.

Box 1.

Continued

Management of Federal Buildings and Facilities

the Department of Defense identifies opportunities to relocate military organizations, consolidate facilities, and eliminate excess infrastructure to reduce annual costs for operating, sustaining, repairing, and modernizing defense facilities—has generated about \$1 billion in receipts since 1990, but the process has not been designed to maximize receipts.¹

To improve the management of federal facilities and maximize proceeds from the sale of surplus properties, the Congress could consider creating incentives for the quick identification and disposal of unneeded facilities. Resources also would be necessary to pay for identifying and marketing those facilities that have a value in the private sector, and laws related to public conveyances would need to be amended.

Reforms to the process that agencies follow when making property acquisition decisions also could yield long-term budgetary savings. According to the Government Accountability Office, in many cases it is less expensive for the government to build new facilities for its own long-term use than it is to lease property from private landlords.²

1. According to estimates from the Department of Defense, the up-front costs of the first four rounds of BRAC were recouped in one-time savings from canceled construction and restoration projects, and annual net savings of about \$6.5 billion in operations costs are now being realized. CBO has not verified those estimates. The fifth round of BRAC, which began in 2005, is years away from producing net savings.
2. See Government Accountability Office, *Federal Real Property: Strategy Needed to Address Agencies' Long-standing Reliance on Costly Leasing*, GAO-08-197 (January 2008).

capital” than existed before. Similarly, a study sponsored by the Organisation for Economic Co-operation and Development reports a “positive effect of infrastructure.”¹⁹

19. For a comprehensive overview of the relevant economic literature with brief descriptions of individual papers and their results, see Ward Romp and Jakob de Haan, “Public Capital and Economic Growth: A Critical Survey,” *Perspektiven der Wirtschaftspolitik*, vol. 8, special issue no. 1 (April 2007), pp. 6–52. See also Vincent Ribeyrol, “Impact of Infrastructure on the Economy: Review of the Literature” (paper presented at the Organisation for Economic Co-operation and Development’s conference on Global Infrastructure Needs: Prospects and Implications for Public and Private Actors, Paris, June 3, 2005).

The implications of those findings for public spending on infrastructure in the United States, though, are unclear because much of the newer research supporting those favorable assessments analyzed circumstances that might not be relevant in this country. The studies range from analyses of national and regional spending on infrastructure within various countries in Europe, South America, and Asia to investigations of economic returns on infrastructure spending in a large sample of countries at different stages of development. Moreover, some important results cited by those surveys rely on a broader concept that includes public investment in basic telecommunications, for example, and in other areas that in the United States are privately owned and funded.²⁰

All together, recent research indicates that the returns on investment in public capital in the United States are positive but below earlier estimates. One 2006 study concludes that a dollar of capital or maintenance spending for highways in 1996 reduced annual congestion costs to drivers by \$0.11 that year.²¹ Total benefits over time would be greater; whether they would be large enough to justify the costs would depend on the opportunity cost of the spending and the rate at which the highway construction or improvements deteriorate.

Consistent with such findings, other economic research points out that the payoff from investments in public infrastructure, such as highways, falls off significantly after the initial impact on economic activity. For example, according to data spanning 1953 to 1989, construction of the Interstate Highway System in the United States made vehicle-intensive industries in particular more productive; however, the capital spending that took place after completion of that system in 1973 appears not to have had an effect on differences in those industries' productivity.²² The evidence thus suggests that the positive returns on investments in infrastructure depend on the type of infrastructure and the amount of infrastructure already in place.

Options for Meeting Demand for Infrastructure Services

Broadly speaking, the federal government can take four basic approaches—separately or together—to contribute to meeting the growing demand for services associated with the nation's infrastructure: It can increase spending, improve the cost-

20. See Lars-Hendrik Röller and Leonard Waverman, "Telecommunications Infrastructure and Economic Development: A Simultaneous Approach," *American Economic Review*, vol. 91, no. 4 (September 2001), pp. 909–923; and António Afonso and Miguel St. Aubyn, "Macroeconomic Rates of Return of Public and Private Investment: Crowding-In and Crowding-Out Effects," European Central Bank Working Paper 864 (Frankfurt, February 2008).

21. Congestion costs reflect both the amount of gasoline consumed and the value of the time that motorists lose to traffic delays. See Clifford M. Winston and Ashley Langer, "The Effect of Government Highway Spending on Road Users' Congestion Costs," *Journal of Urban Economics*, vol. 60, no. 3 (November 2006), pp. 463–483.

22. See John Fernald, "Roads to Prosperity? Assessing the Link Between Public Capital and Prosperity," *American Economic Review*, vol. 89, no. 3 (June 1999), pp. 619–638.

effectiveness of tax expenditures, reduce the cost of providing infrastructure, and promote reductions in demand for services to an economically efficient level.

Increase Federal Spending

If the Congress were to decide that there is justification for building additional infrastructure, it could choose to increase federal spending (although such increases might not translate dollar for dollar into increased total spending if state governments or other funders responded by redirecting some of their own spending away from infrastructure). Increases in federal support for infrastructure could come from any combination of increased receipts, reduced spending elsewhere, and higher deficits. However, most such funding currently comes either from dedicated receipts or through tax expenditures.

Most of the federal government's programs for surface transportation are financed through the Highway Trust Fund (see Appendix B). About 90 percent of total revenues credited to the trust fund come from two taxes on motor fuels. The tax of 18.4 cents per gallon on gasoline and gasoline-ethanol blends currently accounts for about two-thirds of the trust fund's total revenues.²³ The levy of 24.3 cents per gallon on diesel fuel accounts for about one-quarter more. Both tax rates have been unchanged since 1993. In 2007, receipts to the Highway Trust Fund from those taxes totaled about \$38.8 billion.

The trust fund's taxes are scheduled to expire in 2011. If they are reauthorized at current levels, CBO projects that, over the coming decade, revenues credited to the trust fund will rise at an average annual rate of about 2 percent. However, they will decline as a share of GDP (which CBO expects to rise at an average annual rate of 4.4 percent during the same period), from 0.28 percent of GDP in 2007 to 0.20 percent of GDP in 2018. The main reason for that relative decline is that fuel tax collections depend on the quantity of fuel consumed rather than on the price of gasoline. Moreover, the purchasing power of fuel taxes has eroded since 1993. On the basis of a price index produced by the Bureau of Economic Analysis to analyze spending by state and local governments, CBO estimates that a current gasoline tax would need to be about 30 cents per gallon to match 1993 purchasing power.

CBO projects that, even before the current taxes expire, the trust fund's highway account will be depleted because revenues are not keeping pace with the outlays that have increased under the latest two authorization acts (see Appendix B). To avoid that result, spending must be reduced or the revenues going into the trust fund must be increased.

On the basis of information supplied by the Joint Committee on Taxation (JCT), CBO estimates that a 1 cent increase in gasoline and diesel taxes would raise about

23. The Omnibus Budget Reconciliation Act of 1993 increased the gasoline tax by 4.3 cents; the added receipts initially were not deposited into the trust fund but went into the general fund of the Treasury. One-tenth of a cent per gallon goes to the Leaking Underground Storage Tank Trust Fund.

\$1.8 billion per year for the trust fund over the next 10 years and that a 10 cent increase would raise about \$18 billion annually.²⁴ The National Surface Transportation Policy and Revenue Study Commission recommended that the Congress raise fuel taxes between 25 cents and 40 cents per gallon, by 2012, to help finance infrastructure investments. Using information from JCT, CBO estimates that an increase of 25 cents per gallon would generate \$44 billion per year for the trust fund; an increase of 40 cents would generate \$70 billion annually.

Current law requires states to provide matching funds—generally about 20 percent of a project’s costs—on most highway projects that they undertake using federal money. If that matching requirement was retained, an increase of roughly 6.5 cents per gallon in gasoline and diesel taxes would bring in enough revenue to meet FHWA’s estimate of the amount necessary to maintain service at current levels.²⁵ A 6.5 cent increase would boost revenue by about \$11.6 billion annually. Currently, 87 percent of that total, or about \$10.1 billion, would be deposited into the trust fund’s highway account. The remaining \$1.5 billion would go to the mass transit account. (The increase in mass transit revenue could allow spending to exceed FHWA’s estimate of the cost of maintaining performance, although not its estimate of economically justifiable investment.) Those figures assume that states would not substitute the increased federal funding for their own funds and that they would be willing and able to support the increase with the 20 percent match. Without the state match, the required increase in gasoline and diesel taxes would be about 8 cents per gallon.

Improve the Cost-Effectiveness of Tax Expenditures

The federal government also supports infrastructure by subsidizing the debt financing of state and local governments through the federal tax exemptions for income from municipal bonds. As with all tax expenditures, that subsidy is not subject to the scrutiny of the annual appropriation process. The federal government could substantially reduce the cost of the subsidy by replacing the exemptions with carefully designed tax-credit bonds.

According to JCT, tax-exempt bonds will cost the federal government an average of \$31.2 billion per year between 2007 and 2011. However, the savings that state and local entities receive will be considerably less, and the difference will accrue to investors in higher-income tax brackets who receive greater tax savings through those exemptions than would be necessary for them to purchase such bonds. For 2006 and 2007, the observed yield spreads between high-grade municipal bonds and corporate

24. Because excise taxes reduce the tax base of income and payroll taxes, higher excise taxes would lead to reductions in income and payroll tax revenues. The estimates cited here do not reflect those reductions. Those reductions would amount to an estimated 25 percent of the estimated increase in excise tax receipts.

25. Based on its analysis of the trust fund’s revenues and outlays, CBO estimates that closing the gap between them in 2008 through higher fuel taxes would require an increase of about 2 cents per gallon. That amount would grow over time.

bonds suggest that the marginal tax rates of the “market-clearing” municipal bond buyers—those who purchase the last units of the bond issues—averaged 21 percent.²⁶ That figure implies that all bonds issued in those years that are held by taxpayers whose marginal rates are above 21 percent cost the federal government more in foregone tax revenues than they save the issuers in reduced interest costs.

A relatively new debt instrument, the tax-credit bond, has gained some favor as a way to finance public expenditures. Tax-credit bonds allow bond purchasers to receive credits against federal income tax liability instead of all or some of the cash interest that is typically paid on the borrowing the bonds represent. Current-law tax-credit bonds are designed to provide investors with a credit that is the equal of 100 percent of the interest that would otherwise be paid on the bonds. With a 100 percent credit, the federal government bears virtually all of the cost of borrowing in the form of foregone revenues. That structure provides a subsidy to issuers of such bonds that is deeper than the subsidy provided to issuers of tax-exempt bonds (which is limited to the difference between tax-exempt and taxable interest rates). However, bonds with a partial tax credit could be designed to deliver a subsidy to state and local governments that is equivalent to the subsidy provided by current-law tax-exempt bonds, or any other desired level of subsidy. For a given subsidy, the federal cost is lower for tax-credit bonds than for tax-exempt bonds because the revenues forgone by the federal government through tax-credit bonds reduce state and local borrowing costs, dollar for dollar, rather than partially accruing to investors in high marginal tax brackets.

To illustrate, assume that the inefficiency associated with current tax-exempt financing is between 10 percent and 20 percent, so that 80 percent to 90 percent of the federal tax expenditures actually translates into lower borrowing costs for states and localities. Then, if the outstanding stock of tax-exempt debt during the 2007–2011 period instead took the form of tax-credit bonds designed to deliver the same amount of federal subsidy, the federal government would save between \$3 billion and \$6 billion per year. (The savings would not appear in the federal budget as a reduction in spending, but would be reflected in an increase in total revenues collected from income taxes.)

Reduce the Cost of Providing Infrastructure

In addition to using tax expenditures more efficiently, the federal government also could encourage efficiency by lowering the costs of supplying infrastructure services. One way to accomplish that is to encourage funding of high-value projects through more systematic use of rigorous analysis, and conversely, to minimize funding of potentially low-value projects—for example, by careful scrutiny of projects initiated

26. For more information on the tax treatment of municipal bonds and the benefit to bond issuers, see Joint Committee on Taxation, *Present Law and Background Relating to State and Local Government Bonds*, JCX-14-06 (March 14, 2006). Table 1 of that report (p. 6) shows interest rates on corporate and high-grade municipal bonds and the resulting implied tax rate of the market-clearing municipal bond buyers for 1986 through 2005. CBO used the same method and data sources to derive estimates for 2006 and 2007.

by the Congress, which represent significant portions of federal investments in infrastructure. The Department of Transportation estimated that \$5.7 billion, or about 15 percent of the \$36.6 billion appropriated for FHWA programs in fiscal year 2006, was earmarked, as was \$2.4 billion of the \$8.6 billion (28 percent) in funding for Federal Transit Administration programs.²⁷ In some cases, earmarks might be used to improve efficiency, compensating for the rigidity of the formula that allocates funds to the states or for problems with the process or criteria for project selection by state or local governments. In other cases, policymakers earmark projects on the basis of criteria for fairness or equity, or other noneconomic goals, although doing so raises the total cost of providing any given set of infrastructure services.

More generally, the federal government can encourage the use of “asset management” to maximize the benefit from existing and future infrastructure. Asset management relies on monitoring the condition of equipment and the performance of systems and analyzing the discounted costs of different investment and maintenance strategies. For existing infrastructure, the key issue is making efficient choices about maintenance and replacement. In constructing new infrastructure, asset management involves evaluating total life-cycle costs—both the initial capital costs and the subsequent costs for operation, maintenance, and disposal—to ensure not only that projects are prioritized appropriately, but also that they are built cost-effectively.²⁸

The principles of asset management apply to all types of infrastructure, although specific applications differ. In the case of highways, asset management can involve making a larger initial investment in thicker pavement, which could provide a more-than-proportional increase in pavement life. It also might involve shortening the period between pavement overlays, which could reduce the fuel and maintenance costs of highway users.

The potential for managing assets efficiently in the case of wastewater and drinking water systems has increased with the advent of sophisticated analytical tools that can optimize the design of pipe networks (in some cases, identifying links that can be abandoned rather than replaced) and that can be used to evaluate the trade-offs involved in maintaining or replacing equipment. Asset management has been shown to produce significant payoffs in extending the life of equipment, eliminating redun-

27. The estimates are based GAO’s definition of an earmark as a Congressional directive in legislation to a federal agency to spend a specific amount of its budget for a specific entity, project, or service. Other estimates of earmarks were \$408 million for FAA programs and \$56 million for all other transportation programs. See Government Accountability Office, Office of the General Counsel, *Principles of Federal Appropriations Law*, 3rd edition, vol. 2 (February 2006); and Department of Transportation, *Review of Congressional Earmarks Within Department of Transportation Programs*, AV-2007-066 (September 7, 2007).

28. Another approach the federal government could take to reduce the cost of meeting demands for infrastructure (in addition to promoting more use of asset management) would be to conduct or support research and development in cost-saving technology.

dant systems, reducing the cost of operations and maintenance by as much as 40 percent, and improving systems' reliability by roughly 70 percent.²⁹

Promote Reductions in Demand

Finally, the government could reduce the demand for additional infrastructure by implementing fees and charges that raise the cost to users of existing infrastructure. One factor that can contribute to the high cost of infrastructure services is that users often are not asked to pay the full marginal cost of the services they use.

A classic case is the excessive crowding of a highway for which users pay no congestion charge. In economic terms, society would be better served by reducing demand for travel on such a highway during the hours when traffic is heaviest instead of investing to increase the road's capacity to accommodate traffic. One way to reduce that inefficient demand is to impose congestion pricing—that is, to charge tolls that are higher during peak times of the day and lower during off-peak hours. Besides dampening demand for the highway during the most congested periods—some motorists would alter their travel plans and use the road when it is less crowded, find alternative routes, or switch to public transit—congestion pricing also helps to signal the places where additional investment in road capacity is warranted. FHWA has estimated that widespread use of congestion pricing would reduce by about \$20 billion per year both the investment required to maintain services in their current condition and the total economically justifiable investment.

Congestion pricing is in use in the New York City area, for example, where, since March 2001, the Port Authority of New York and New Jersey has charged more for vehicles to cross the Hudson River during peak hours than during off-peak hours. The crossing's six bridges and tunnels carry about 350,000 vehicles in each direction every day. Initially, drivers who paid with cash were charged a \$6 toll, regardless of the hour of the day; drivers who used the E-ZPass electronic toll collection system paid \$5 during peak hours and \$4 during off-peak hours—a 20 percent discount for off-peak E-ZPass users. After the program took effect, traffic in the morning peak period declined by 7 percent from May 2000 to May 2001, and evening peak traffic declined by 4 percent (overall traffic volume remained the same).³⁰ Six percent of trucking carriers shifted their operations to off-peak hours.³¹ Tolls from the Port Authority's facilities raised \$750 million in 2006, more than covering their operating and capital

29. See Congressional Budget Office, *Future Investment in Drinking Water and Wastewater Infrastructure* (November 2002).

30. See Mark F. Muriello and Danny Jiji, *The Value Pricing Toll Program at the Port Authority of New York & New Jersey: Revenue for Transportation Investment and Incentives for Traffic Management* (New York: Port Authority of New York and New Jersey, September 30, 2003), <http://knowledge.fhwa.dot.gov/cops/hcx.nsf/384aefcfc48229e85256a71004b24e0/f28934ff571ff3c685256db10063e81b?OpenDocument>.

31. See José Holguín-Veras, Kaan Ozbay, and Allison de Cerreño, *Evaluation Study of Port Authority of New York and New Jersey's Time of Day Pricing Initiative, Final Report* (March 2005), p. 7.

expenses.³² Those funds are used exclusively to build, operate, and maintain transportation facilities in the New York–New Jersey area.³³ Tolls on the crossings went up March 2, 2008. The cash charge is now \$8; E-ZPass rates are \$8 during peak hours and \$6 during off-peak hours.

Similar pricing systems have been adopted for more than half a dozen bridges, tunnels, and highways in the United States. In Orange County, California, express toll lanes built in a 10-mile section of the median strip of State Route 91 give motorists a choice between driving in toll-free lanes and driving in new lanes on which tolls are charged according to time of day. More than a dozen similar highway capacity expansions are either in operation, under construction, or in planning. On Interstate 15 in San Diego, drivers of single-occupant vehicles may pay a toll to use high-occupancy vehicle (HOV) lanes. At least a half a dozen existing HOV lanes have been converted or soon will be converted to “high-occupancy toll” (HOT) lanes.

The concept of marginal-cost pricing extends beyond congestion, however. To maximize efficiency, users would be charged for all of the incremental costs they impose on the system. For example, the incremental damage imposed by trucks on highways does not depend on a vehicle’s total weight but rather on its weight per axle.³⁴ Because that fact is not reflected in the current taxes on truck ownership and use, there are wide disparities in the degree to which different types of trucks pay the cost of the highway damage that is associated with their use. For example, researchers have estimated that the taxes paid for a five-axle tractor–semitrailer with a gross vehicle weight of 55,000 pounds on rural interstate highways are about 20 percent more than the marginal cost of use. In contrast, the taxes paid by a vehicle with the same configuration and a gross weight of 80,000 pounds represent only one-third of the marginal costs on rural interstate highways. Marginal costs on urban interstate highways, which are more expensive to repair, or on lighter-duty roads, which incur more damage, are even higher. Instituting charges that are tied to axle weight and to the number of miles traveled by a truck could reduce the need for spending on highways by inducing motor freight carriers to reconfigure their vehicles or shippers to switch from trucks to rail. If the charges also varied by the type of road, some carriers might adjust their routes to travel on more durable roads.³⁵

32. See Port Authority of New York and New Jersey, *Annual Report* (2006), p. 92.

33. See José Holguín-Veras, Kaan Ozbay, and Allison de Cerreño, *Evaluation Study of Port Authority of New York and New Jersey’s Time of Day Pricing Initiative*, p. 7.

34. See Congressional Budget Office, *Paying for Highways, Airways, and Waterways: How Can Users Be Charged?* (May 1992).

35. See Kenneth A. Small, Clifford Winston, and Carol A. Evans, *Road Work: A New Highway Pricing and Investment Policy* (Washington, D.C.: Brookings Institution, 1989), as cited in Congressional Budget Office, *Paying for Highways, Airways, and Waterways*, p. 19.

Financing Infrastructure Through a Special-Purpose Entity

Through the years, the Congress has considered proposals to charter banks, corporations, or other special-purpose entities to help finance investment in infrastructure outside of the annual appropriation process. Two issues in the makeup of such entities—which could be designed in a variety of ways—are particularly important: first, the entity’s relationship to the federal government and the extent to which it relies on federal funding rather than on income from its own operations; second, the types of financing tools that the entity is authorized to use to support infrastructure investment.

Although special-purpose entities can be designed to allow a given level of federal spending to support a greater volume of infrastructure projects, they are not sources of “free money.” To the extent that such an entity would reduce the federal share of projects’ costs, it would do so by increasing the shares borne by the projects’ users, state or local taxpayers, or both. Relying more heavily on user fees to fund infrastructure might improve economic efficiency if doing so encouraged better selection, operation, and maintenance of projects. However, an infrastructure entity that issued its own debt would incur higher interest and issuance costs than the Treasury does and could expose the federal government to the risk of default on such debt. Moreover, some entities might be designed primarily as special conduits for federal funds, removing the spending from the oversight of the regular appropriation process but not drawing on larger shares of funding from state and local taxpayers or infrastructure users.

If the Congress wishes to increase the extent to which federally supported infrastructure projects draw their funding from user fees, it need not create a special entity to do so. Under authority provided by the Transportation Infrastructure Finance and Innovation Act (TIFIA) of 1998 (Public Law 105-178, sections 1501–1504), the Department of Transportation provides assistance to public or private surface transportation projects that have dedicated revenues for repayment. As of February 2008, the department reported that it had provided \$4.3 billion in assistance under TIFIA, supporting \$17.2 billion in total project investments.³⁶ Other federal programs and mechanisms also support infrastructure investment that draws on user fees. They include the state revolving funds for water supply and wastewater treatment systems that are capitalized with grants made by the Environmental Protection Agency; the Airport Improvement Program, which provides grants for the development or improvement of airports that are significant to national air transportation; and tax expenditures on revenue bonds, which are issued by states and localities to finance construction of toll roads, utilities, and other user-supported infrastructure.

36. See Department of Transportation, *TIFIA Credit Program Overview* (updated February 2008), http://tifia.fhwa.dot.gov/tifia_bkgrnd_slides_080211.pdf.

Options in Designing a Special-Purpose Entity

A special-purpose entity could be designed as an independent federal agency or corporation, as a government-sponsored enterprise (GSE), as a fully independent corporation owned by the private sector or by state government, and perhaps in other ways as well. One trade-off to be considered in designing such an entity is between federal control and budgetary status: The more authority the Congress or the Administration has over project selection, fund-raising, and other management choices of an entity, the more likely the entity is to be considered part of the federal budget. Conversely, the activities of an entity that is essentially independent of federal control would not be recorded in the budget, but such an entity would be subject to little if any control over its operations. For example, the Tennessee Valley Authority (TVA) is supported by its sales of electricity, receives no federal appropriations, and can issue its own debt instruments. But ultimately, it is under federal control—all nine of TVA's directors are nominated by the President and confirmed by the Senate—and its activities are recorded in the budget. Other federal corporations or “independent” agencies could be designed not to be self-supporting but to serve primarily or exclusively as conduits for federal funds.

GSEs are privately owned—although they are more constrained than are most private businesses by their charters and by federal regulation and oversight—and have only a minority of federally appointed directors, if any. For example, 5 of 18 directors each on the boards of Fannie Mae and Freddie Mac are federal appointees (those positions currently are vacant).

GSEs and fully independent private entities are alike in that they typically sustain their operations from business income. GSEs are distinguished from other chartered private entities by investors' perception of an implicit federal guarantee of GSEs' debt obligations; that perception arises in part from various legal characteristics that they tend to share. For example, a GSE's corporate earnings may be exempt from state and local income taxes, and its securities, like Treasury debt, may be exempt from Securities and Exchange Commission registration or eligible to be held in unlimited amounts by federally regulated banks and thrifts.³⁷

The National Cooperative Bank is one example of a fully independent corporation. It was established as a federal agency in 1978 and then was converted to private, cooperative ownership in 1981. The legislation that privatized the bank provided start-up funding in a long-term subordinated loan at a below-market interest rate.³⁸

A corporation owned by state governments could be similar to an independent private corporation in several ways, such as its independence from federal control. However,

37. See Congressional Budget Office, *Controlling the Risks of Government-Sponsored Enterprises* (April 1991), pp. 6–8.

38. That approach to support investment in infrastructure is discussed in Congressional Budget Office, *An Analysis of the Report of the Commission to Promote Investment in America's Infrastructure* (February 1994).

it might differ from most private corporations in having more access to federal funds to support its operations.

In addition to the governance structure, another issue in the design of an infrastructure bank or corporation is the set of financing tools available to it, perhaps including direct subsidies, loans, loan guarantees, lines of credit, bond insurance and reinsurance, debt or equity purchases, issuance of bonds on behalf of a supported project, insurance for project development costs, or technical assistance on project development or financing. Because the degree of support the entity can provide to projects depends on its availability of funds, any direct subsidies are likely to be small unless the entity receives continuing federal appropriations or has some other source of external support.

Comparing Special-Purpose Entities and Other Methods for Financing Infrastructure

Infrastructure banks, corporations, or other special entities can be compared with other vehicles for federal support—annual appropriations, direct spending authority, and tax expenditures—in terms of the associated budgetary cost and economic efficiency.

The budgetary cost of federal support for infrastructure investment depends on two factors: the share of project costs drawn from nonfederal funds—such as user fees and state and local tax revenues—and the federal cost per dollar of effective project aid. Some proposals for infrastructure entities call for nonfederal shares that are much higher than is common under current appropriated programs (for example, the 20 percent typically required for projects supported through the Highway Trust Fund), and such entities would therefore stretch federal dollars further. However, because Treasury securities are highly liquid and free of default risk, any given federal share of project costs could be provided at lower budgetary cost through a program funded by appropriations or direct spending, such as TIFIA, rather than through a special entity. TVA's bonds, for example, typically pay 30 to 40 basis points more than comparable Treasury securities (a basis point is one one-hundredth of a percentage point). The interest rates on bonds and other debt instruments issued by GSEs are higher than are those of independent agencies, and those paid by fully private corporations are higher still. Because of their comparatively smaller offerings, special entities also would face higher costs than the Treasury does in issuing bonds.

Economic efficiency focuses on the use of real resources, and so the source of investment funds matters less than the way the funds are used.³⁹ In that light, the important questions to ask about any given funding vehicle involve whether it tends to

39. Funding mechanisms matter for efficiency primarily to the extent that some have lower “transaction costs” than others—that is, they use fewer resources to verify project quality, issue the bonds, and the like. Interest payments themselves are transfers, although they can affect real resources if they are funded through taxes that distort prices and affect economic activity (see footnote 5 on page 10).

select the most cost-beneficial projects for support and whether it promotes efficient operations, maintenance, and use. To the extent that an infrastructure bank or corporation funds projects that are supported by user fees, rather than by tax dollars, it is possible that inefficient demands would be reduced and that market discipline would improve project selection and management. (See the discussion of public–private partnerships below.) However, the federal government already supports projects that rely on user fees through various spending programs and through tax expenditures, and policymakers could choose to increase such support without establishing a special entity.

Current Proposals

Three proposals in the current Congress illustrate the options for structuring an infrastructure investment entity: the National Infrastructure Bank Act of 2007 (S. 1926 and H.R. 3401); the National Infrastructure Development Act of 2007 (H.R. 3896); and the Build America Bonds Act of 2007 (S. 2021). (The European Investment Bank, chartered by the European Union, invests in infrastructure and other projects to promote economic development; see Box 2.)

As proposed by bills in the House and the Senate, the National Infrastructure Bank (NIB) would be an independent federal entity with a five-member board of directors appointed by the President and confirmed by the Senate. The bank would evaluate and finance infrastructure projects “of substantial regional and national significance” with a potential federal investment of at least \$75 million. It would be authorized to issue \$60 billion in bonds, the proceeds of which could be used to finance direct subsidies, loans, and loan guarantees. However, the Treasury would pay the interest on the bonds, and although the bills specify that the NIB would be responsible for paying the bonds’ principal, the Treasury would have ultimate responsibility for that also, because the bank would be a federal entity and the bonds would carry the full faith and credit of the United States.⁴⁰

The National Infrastructure Development Act would create a National Infrastructure Development Corporation (NIDC) and a subsidiary National Infrastructure Investment Corporation (NIIC). Initially, both would be federal corporations, but the bill would give the NIDC five years to develop a plan to convert both entities to GSEs. The NIDC would be capitalized with up to \$9 billion in appropriations authorized over three years. Thereafter, it would be self-financed through business income, presumably through fees on users of infrastructure, and (once converted to a GSE) through the sale of public stock. The NIDC would be authorized to make senior and subordinated loans and to buy debt and equity securities issued by others to fund

40. Under federal credit reform rules, the NIB would finance the subsidy cost of any loan it made. Because the subsidy might be a small fraction of the loan amount, the bank could potentially lend far more than \$60 billion. Unlike traditional banks, however, the NIB could not “recycle” funds from previous loans over time. A separate NIB financing account would be used to disburse the loans and to receive the repayments from borrowers; those cash flows would not count toward the federal budget totals.

infrastructure projects; the NIIC would be authorized to insure and reinsure debt instruments and loans, insure leases, and issue letters of credit.

The Build America Bonds Act would grant consent and recognition to a transportation finance corporation established by two or more state infrastructure banks. The corporation would be under the control of the participating states, but it would be authorized to issue up to \$50 billion in bonds providing federal tax credits in lieu of interest. The rate of the credits would be set so as to equal the average yield of long-term corporate debt obligations at the time the bonds were issued.

Public–Private Partnerships

Some advocates of increased spending on infrastructure suggest that greater use of public–private partnerships (PPPs) would facilitate such increases. (A PPP is an institutional arrangement in which a private entity assumes some level of risk beyond that traditionally associated with supplying its services to a government agency.) In the infrastructure arena, such partnerships appear to be most common for projects that lend themselves to private operation: roads, rail, and water supply and wastewater treatment. A private entity could control access to and charge for the use of a toll road or a drinking water system, for example, but it would be harder to charge users to recoup costs given the more diffuse benefits from a dam or flood control project.

Public–private partnerships can take a variety of forms that differ in the amount of risk assumed by the private entity. For example, private entities bidding on long-term contracts to supply services, such as maintaining public roads or operating water supply facilities, would face relatively modest risks concerning their ability to deliver services at the agreed-upon price over the length of the contract.⁴¹ In other cases, however, the private entity could have almost complete responsibility for the project and accept a variety of risks, including uncertainties about construction, the cost of financing, and the demand for the infrastructure that it provided. In some public–private partnerships for road construction, for example, the private entity could raise most or all of the funds and also would be responsible for design, construction, operation, and maintenance. That entity would recoup its investment through user fees.⁴²

A recent report by the Government Accountability Office provides examples of PPPs for highway infrastructure in the United States, and it illustrates the use of both

41. An extensive treatment of public–private partnerships in transportation can be found in Department of Transportation, *Report to Congress on Public–Private Partnerships* (December 2004), www.fhwa.dot.gov/reports/pppdec2004/index.htm.

42. The risk to the private entity of not recouping its investment often is mitigated by advantageous financing available through government sponsorship of the project and through terms that grant the private entity exclusive rights to provide the services in question.

Box 2.**The European Investment Bank**

The European Investment Bank (EIB), a major lender for projects in the European Union (EU), was established under the terms of the 1957 Treaty of Rome (the founding contract for the European Economic Community, the forerunner of the EU). The EIB is the European Union's long-term lending institution, financing an array of projects that contribute to economic policy objectives in the energy, infrastructure, and industrial sectors. The nonprofit bank raises funds through bond issues and other debt instruments; it makes loans to public and private enterprises.

Each of the EU's 27 member states owns a proportional share of the bank and provides a proportional share of its total capital—currently 164 billion euros (equivalent to \$255 billion as this was written). A country's share is set by its relative gross domestic product within the EU at the time of its accession, and each member provides 5 percent of that share and agrees to make the rest available to the EIB as deemed necessary to cover the cost of loan defaults.

The EIB's board of governors consists of ministers (usually the finance ministers) from all of the EU member states; its board of directors has a representative from each member state. The governors supervise the bank's operations, defining lending policies, deciding on capital increases, and approving the balance sheet. The directors manage the bank's lending and borrowing operations.

Mainly, the EIB provides low-interest loans to finance the capital projects of public- and private-sector enterprises. Borrowers include large corporations and countries and small enterprises and municipalities. More than 85 percent of the 45.8 billion euros (roughly \$70 billion) lent in 2006 went to organizations located within the EU. Lending to borrowers outside the European Union supports the EU's development and cooperation policies. External projects have promoted the enlargement of the EU toward southern and eastern Europe, supported nearby countries in the Mediterranean and Eurasia, assisted development in Africa, and aided the EU's programs in Asia and Latin America.

Repayment periods for EIB loans range from four years to two decades, and borrowers may use the loans to finance up to 50 percent of the total cost of a project. To be eligible, projects must contribute to the EU's economic policy objectives. Included on the list are projects that support small and medium-sized enterprises; develop transportation, energy, and telecommunications infrastructure; protect, remediate, or ameliorate the rural or urban landscape; develop human capital through health care or academic projects; and

Continued

Box 2.

Continued

The European Investment Bank

support industry and manufacturing. Eligible projects must be economically, financially, technically, and environmentally sound. Projects that can demonstrate compliance with those criteria are subjected to detailed appraisals by EIB's project teams, which consist of economists, engineers, and loan contact officers. All approved projects are monitored by the EIB for the lifetime of the loan.

As a nonprofit, policy-driven bank, the EIB can provide loans to its clients at relatively low interest rates. The rates are determined by three factors: the bank's cost of funds (that is, the interest rate the EIB pays to borrow in capital markets), which is fully passed along to the borrower; a markup to cover administrative costs; and an additional risk-related charge for certain projects. Those rates are attractive to the EIB's borrowers because of the bank's AAA credit rating, which is a function of the quality of its investments; the high amount of capital available through the reserve fund provided by the member states; and its size.

The EIB also offers technical assistance and loan guarantees to its clients. Its specialist economists and engineers help assess and advise borrowers with their projects. The assistance often is provided during project formulation and preparation and focuses on regulatory issues, questions of feasibility, and challenges in project management. The aid helps streamline the loan application process.

For some clients of the EIB, loan guarantees are more cost-effective than loans. The EIB provides the largest loan guarantee program for the Trans-European Networks (TENs), the infrastructure networks for transportation, energy, and telecommunications that cover the entire EU. The EIB program provides a guarantee against revenue risk for a short period after the construction of a TENs project.

The EIB is part of the EIB Group, which was established in 2000 to coordinate the activities of the EIB with the European Investment Fund (EIF), which itself was chartered to promote development of small and medium-sized enterprises in Europe's rapidly expanding new-technologies sector. The EIF finances venture capital funds that invest in projects that contribute to the EU's economic policy objectives. The EIB is the EIF's majority shareholder with 61 percent of the fund's shares; the European Commission controls 30 percent, and the 26 European banks and financial institutions control the remaining 9 percent.

private management and private financing.⁴³ Two of the four partnerships reviewed involve long-term lease concessions of existing toll roads. Chicago has entered into a 99-year lease with a private entity. That business paid the city \$1.83 billion in return for the right to operate, maintain, and collect the tolls on the Chicago Skyway. Similarly, Indiana received \$3.85 billion for a 75-year lease on the Indiana Toll Road. The other two cases involve plans for new toll roads. The winning bid for the first segment of the Trans-Texas Corridor (a projected 4,000-mile network of roads, railways, and utility rights-of-way) included \$6 billion in capital investment for a new toll road between Dallas and San Antonio and \$1.2 billion in concession payments to the state for the right to operate the facility for 50 years.⁴⁴ And in Oregon, three projects have been studied under an agreement between the state and a private group to determine suitability for PPPs that would combine design services, financing, construction, and operation. Two of the three projects have been found to have insufficient toll revenue potential, but the third is moving forward to the environmental assessment phase.

PPPs have been used in many other cases to obtain private-sector financing of new toll roads, including the Dulles Greenway in Virginia and the State Route 91 and State Route 125 toll roads in California. PPPs also have been used to finance transit projects, such as the Hudson–Bergen Light Rail system in New Jersey, and freight railroad projects, including the Alameda Corridor in Los Angeles.

The potential advantages and disadvantages of PPPs include the possible reductions in investment requirements that would come with more efficient management (including cost-based pricing) and the potential increases in the costs of financing, respectively. Whether the use of private management in PPPs would help to reduce total spending on infrastructure depends on the extent to which savings from improved asset management exceed the costs of using the private services. To maximize profits, a private partner might reduce life-cycle costs through higher construction standards, more frequent maintenance, or investments in cost-saving technology. Efficiencies also could result if a private entity charged prices that were more closely aligned with costs, thereby reducing inefficient demands for services and thus perceived investment needs. However, if there is insufficient competition, public oversight could be needed to guard against the risk that the private entity might use monopoly power to raise prices excessively.

CBO's recent analysis of spending on transportation and water infrastructure reported that PPPs do not yet account for a significant share of nationwide spending in those categories. According to a frequently cited survey, the cumulative project costs of such partnerships in the United States that had been funded or completed by October

43. See Government Accountability Office, *Highway Public-Private Partnerships: More Rigorous Up-front Analysis Could Better Secure Potential Benefits and Protect the Public Interest*, GAO-08-44 (February 2008).

44. Public opposition to the Trans-Texas Corridor and other PPPs resulted in the Texas Legislature's enacting a two-year moratorium on future highway PPPs (other than regional projects in the Dallas area). The moratorium will expire on September 1, 2009.

2006 totaled a bit over \$48 billion (in nominal dollars).⁴⁵ In contrast, nominal capital spending on those types of infrastructure by the federal government and by states and localities totaled \$1.6 trillion between 1985 and 2004 (averaging \$80 billion annually). Other studies have come to a similar conclusion regarding highway and transit projects.⁴⁶

Capital Budgeting

Questions about the adequacy of current investment in infrastructure are sometimes accompanied by questions about whether capital spending should be treated differently in the federal budget. Capital budgeting would involve distinguishing certain investments from other expenditures in the budget. Under many proposals for capital budgeting, the full cost of those investments would not be counted at the time of purchase; rather, it would be apportioned over the expected life of the resulting assets. Spreading the cost into the future, however, would deviate from current budgetary treatment, which generally requires funding for the full cost of a project up front and records expenditures when cash is disbursed.

The federal budget is a statement of the government's expenditures and revenues for a given fiscal year. That statement is designed to serve many purposes: It provides a mechanism for making decisions to allocate resources to serve national objectives, provides constraints and direction for agencies' management of fiscal resources, gives the Treasury information needed for its management of cash resources and the public debt, and provides businesses and individuals with the information they need to assess the government's stewardship of the public's money and resources.

Proponents of capital budgeting often assert that the current budgetary treatment of capital investment creates a bias against capital spending and that additional spending would benefit the economy through future increases in productivity. Even if a change in budgetary treatment would facilitate an increase in federal capital spending, the degree to which such increased spending benefited the economy would depend on how well the additional funds were targeted and the extent to which they were offset by reduced spending by others.

Moving to a budget that is more reliant on accrual-based accounting could increase complexity, diminish transparency, and make the federal budget process more

45. That figure is based on data from the 2006 International Major Projects Survey, which accompanied *Public Works Financing*, vol. 209 (October 2006). The data have important limitations: For the purposes of this analysis in particular, they do not distinguish between the public- and private-sector components of such projects. More generally, the data were not collected to provide an exhaustive inventory of public-private partnerships and, as a result, they probably understate their extent.

46. See General Accounting Office, *Highways and Transit: Private Sector Sponsorship of and Investment in Major Projects Has Been Limited*, GAO-04-419 (March 2004).

sensitive to small changes in assumed parameters, such as depreciation rates.⁴⁷ (Indeed, other nations have considered adopting capital budgets, but generally decided against it for those same reasons.) Adopting an accrual approach to only one aspect of the budget could raise concerns about whether the budgeting system would provide a fair basis for allocating the government's resources among competing priorities. In addition, providing special treatment to certain areas of the budget, such as capital spending, could make the process more prone to manipulation. For example, arriving at a definition of "capital" for budgeting purposes could be a significant challenge.

More limited reform of the current process might still accomplish the goal of focusing on capital investment but be simpler to implement. One approach would be to create a category for capital spending as part of a restoration of the statutory budget enforcement procedures that expired in 2002. Such a category within overall discretionary spending limits could help highlight important policy goals. By carving out separate limits for certain programs, however, lawmakers would forgo flexibility to meet other needs. Another alternative might be to attribute a portion of the cost of assets each year to the programs that use them. Requiring users to pay the costs might improve incentives for agencies to sell assets that were no longer appropriate to their needs.

47. The longer a capital asset is assumed to last, the lower the depreciation cost that would be included in the budget in any given year. Besides the assumed lifetimes, the depreciation schedules for such assets would also reflect assumptions about how quickly or gradually the assets' performance declined over time. The extreme case would be what economists have sometimes called "one-hoss shay" performance. The phrase derives from Oliver Wendell Holmes's poem "The Deacon's Masterpiece or, the Wonderful 'One-hoss Shay,'" which depicts a vehicle that worked perfectly throughout its lifetime but then "went to pieces all at once, / All at once, and nothing first, / Just as bubbles do when they burst."

Appendix A:

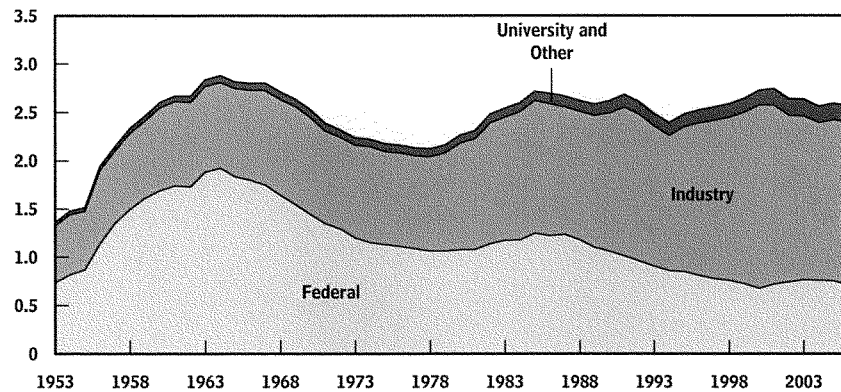
Spending for Research and Development and for Education

Total public and private spending on research and development (R&D) is currently about 2.6 percent of gross domestic product (GDP) (see Figure A-1).¹ In fiscal year 2007, the federal government's budget authority for the conduct of R&D totaled \$135 billion, slightly less than 1 percent of GDP. The government spent an additional \$3.6 billion for acquisition and construction of R&D facilities and equipment.

About \$78 billion of the \$135 billion went to the Department of Defense, and 92 percent of that spending was for developing programs and systems that support national defense. Conversely, 84 percent of the rest of the federal government's spending of \$57 billion went to basic and applied research. During the past 20 years, federal funding has typically represented between 40 percent and 50 percent of all research funding nationwide. Except in the case of the Department of Defense and other agencies where R&D is linked to an explicit mission, economists generally view federal funding of research more favorably than development; even though research might not be conducted with a specific commercial purpose in mind, the knowledge it produces has large potential for wider use, both by other researchers and in later commercial endeavors. Still, economic returns are difficult to measure because the resulting progress can be difficult to discern and the economic payoff might take years or even decades to become clear.

The life sciences account for more than half of federal spending on research. Although some observers have attributed high rates of return to research in the life sciences, others state that there are benefits to supporting a wide range of scientific fields because researchers reach across disciplines for new ideas and tools. In the past decade, as more than 40 percent of federal research funding has gone to university researchers, federal laboratories have seen their share fall to near 20 percent, and federally funded R&D centers have received about 15 percent. Industry and nonprofits account for the rest.

1. See Congressional Budget Office, *Federal Support for Research and Development* (June 2007).

Figure A-1.**U.S. R&D Spending as a Percentage of GDP, 1953 to 2006**

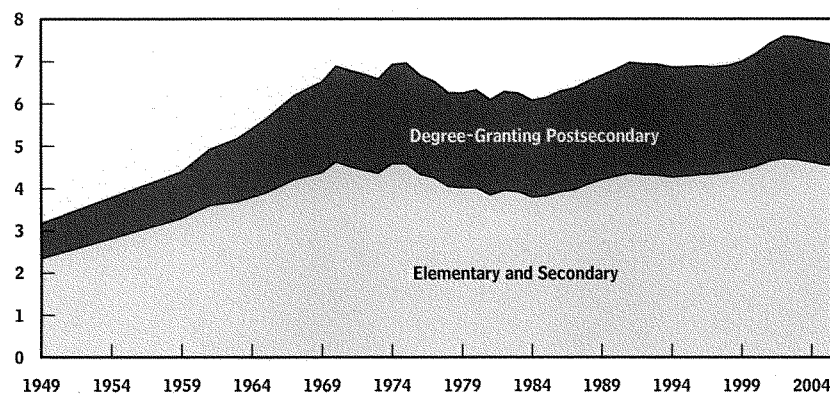
Sources: Congressional Budget Office and National Science Foundation.

Note: R&D = research and development; GDP = gross domestic product.

Besides supporting increases in knowledge, federal funding of academic research also contributes to the education of the next generation of researchers: In 2005, more than 55,000 science and engineering graduate students received financial support through federally funded research assistantships.

The United States spends more than 7 percent of its GDP on elementary, secondary, and postsecondary education (see Figure A-2). State and local governments provide about 75 percent of the funding, mostly for elementary and secondary education. The federal government pays about 12 percent, about two-thirds of which goes to elementary and secondary schools, primarily in the form of grants distributed by states. The rest is mostly for student financial aid for postsecondary education. The remaining 13 percent of the funds come from families and other private sources. Families often pay part of the cost of the higher education of their children, and some families pay tuition to private elementary and secondary schools.

On average, the private rate of return on investment in education is estimated to be about 10 percent. In addition, as with other forms of capital, investment in education can produce benefits for the larger economy and for society that exceed those to the individual student. Although the spillover benefits of education are most easily documented in developing countries, some economists believe that even in developed countries, increasing the educational attainment of the population fosters productivity growth—for example, by increasing the body of knowledge that makes up modern science, technology, and management. To the extent they exist, such effects could

Figure A-2.**Expenditures by Educational Institutions as a Percentage of GDP, 1949 to 2005**

Sources: Congressional Budget Office and Department of Education.

Note: GDP = gross domestic product.

provide an economic rationale for investments in education. Research has suggested significant social returns on investment in high-quality early-childhood education, in the form of fewer retentions in grade, higher achievement, less involvement in criminal activity, and lower rates of participation in welfare programs.²

2. See James J. Heckman and Dimitriy V. Masterov, *The Productivity Argument for Investing in Young Children*, Working Paper 13016 (Cambridge, Mass.: National Bureau of Economic Research, April 2007); and Art Rolnick and Rob Grunewald, *Early Childhood Development: Economic Development with a High Public Return*, Federal Reserve Bank of Minneapolis (December 2003).

Appendix B:

Overview of the Highway Trust Fund

The Highway Trust Fund is the source of funding for most of the federal government's surface transportation programs (certain transit programs receive appropriations from the Treasury's general fund), and the programs are administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration.¹

The Highway Trust Fund is an accounting mechanism in the federal budget that comprises two separate accounts, one for highways and one for mass transit. It records specific cash inflows (revenues from certain excise taxes on motor fuels and trucks) and cash outflows (spending on designated highway and mass transit programs). By far, the largest component of the trust fund is the Federal-Aid Highway program.

Spending from the trust fund is not automatically triggered by tax revenues credited to it. Authorization acts provide budget authority for highway programs, mostly in the form of contract authority (the authority to incur obligations in advance of appropriations). Annual spending is largely controlled by limits on the amount of contract authority that can be obligated in a particular year.

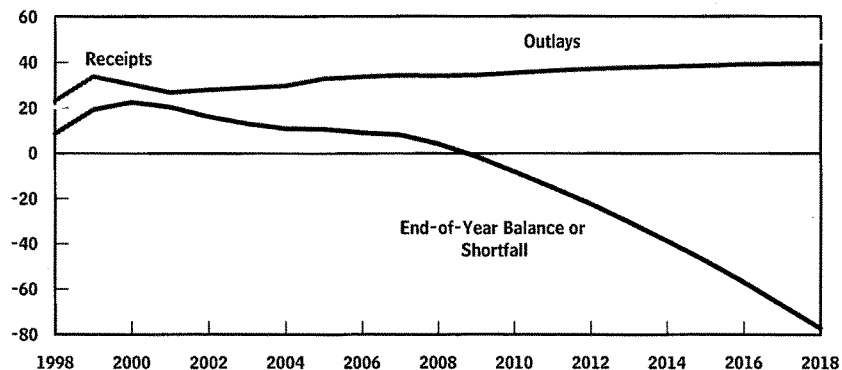
Such obligation limitations are customarily set in annual appropriation acts. The most recent authorization law governing spending from the trust fund, called SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, was enacted in 2005 and is due to expire at the end of 2009. The law provides specific amounts of contract authority for the period from 2005 to 2009, and it authorizes appropriations for certain programs that are not funded through contract authority. It also specifies annual obligation limitations, which may be superseded each year by limitations set in appropriation acts.

In 2007, the obligation limitation included in the appropriation act was \$47.7 billion, and the total in outlays from both accounts of the trust fund came to \$39.2 billion. In 2008, the Congress added \$1 billion to the obligation limitation for highways, specifically to repair bridges; the total obligation limitation is \$50.2 billion.

1. Other agencies within the Department of Transportation that also receive funding from the Highway Trust Fund include the Federal Motor Carriers Administration and the National Highway Transportation Safety Administration. In 2007, those two entities received a total of about 3 percent of the trust fund's budgetary resources.

Figure B-1.**Actual and Projected Highway Account Receipts, Outlays, and Balances or Shortfalls, 1998 to 2018**

(Billions of dollars)



Source: Congressional Budget Office.

Note: Actual data are in nominal dollars for 1998 through 2007. Projections for 2008 to 2018 assume that the Highway Trust Fund's taxes, which are scheduled to expire in 2011, will be reauthorized at current levels. Under current law, the Highway Trust Fund cannot incur negative balances. A negative level is a projected shortfall, reflecting the trust fund's inability to pay obligations out of estimated receipts. Projections are based on the authorization levels in SAFETEA-LU, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.

Spending from the trust fund started to increase rapidly in 1999 because of changes enacted in the Transportation Equity Act for the 21st Century (TEA-21), which provided budget authority and contract authority of \$218 billion over the 1998–2003 period (an average of \$36.3 billion per year). Consequently, annual outlays rose by 40 percent from 1999 to 2003. SAFETEA-LU, which provided contract authority of \$286 billion (an average of \$57.2 billion per year), represented a further significant increase in funding. From 2005 to 2007, outlays from the highway account grew from about \$33 billion to \$35 billion, an increase of about 3 percent per year.

Balances in the highway account were steady during the 1980s and in the first half of the 1990s—they stayed in the vicinity of \$10 billion. Receipts substantially exceeded outlays from 1996 to 2000, and the unexpended balance in the highway account (sometimes called the cash balance) grew from \$10 billion in 1995 to a peak of about \$23 billion in 2000 (see Figure B-1). Revenues fell sharply in 2001 but have increased steadily since then—at an average rate of about 3.4 percent per year through 2007. Spending generally has exceeded revenues since 2001, and by the end of 2007, unspent balances in the highway account had declined to about \$7.4 billion.

Table B-1.**Actual and Projected Highway Trust Fund Receipts, 1998 to 2018**

	Highway Account		Transit Account		Total Trust Fund	
	Receipts (Billions of dollars)	Share of GDP (Percent)	Receipts (Billions of dollars)	Share of GDP (Percent)	Receipts (Billions of dollars)	Share of GDP (Percent)
1998	23.1	0.26	3.5	0.04	26.6	0.30
1999	33.8	0.36	5.5	0.06	39.3	0.42
2000	30.3	0.31	4.6	0.05	35.0	0.36
2001	26.9	0.27	4.6	0.04	31.5	0.31
2002	28.0	0.27	4.6	0.04	32.6	0.31
2003	29.0	0.26	4.8	0.04	33.7	0.31
2004	29.8	0.25	4.9	0.04	34.7	0.30
2005	32.9	0.26	5.0	0.04	37.9	0.30
2006	33.7	0.26	4.9	0.04	38.5	0.29
2007	34.3	0.25	5.1	0.04	39.4	0.28
2008	34.1	0.24	5.0	0.03	39.1	0.27
2009	34.5	0.23	5.0	0.03	39.6	0.26
2010	35.4	0.22	5.2	0.03	40.6	0.26
2011	36.4	0.22	5.3	0.03	41.6	0.25
2012	37.1	0.21	5.3	0.03	42.4	0.24
2013	37.6	0.21	5.4	0.03	43.1	0.24
2014	38.2	0.20	5.5	0.03	43.6	0.23
2015	38.6	0.19	5.5	0.03	44.1	0.22
2016	39.0	0.19	5.5	0.03	44.6	0.21
2017	39.4	0.18	5.5	0.03	44.9	0.21
2018	39.7	0.18	5.6	0.02	45.3	0.20

Source: Congressional Budget Office.

Notes: After 2007, revenues are estimated; GDP = gross domestic product.

In general, balances in the mass transit account also have been falling since 2000, although more slowly than in the highway account. At the end of 2007, the balance in the mass transit account totaled about \$7.3 billion. If recent trends persist and spending from the trust fund continues to exceed its revenues, the balances in the highway account will be depleted during fiscal year 2009.²

The highway account receipts shown in the figure, incorporating projections from the Congressional Budget Office's (CBO's) March 2008 baseline, also are shown in the Table B-1, which expresses those receipts as a share of GDP and provides comparable figures for the mass transit account and for the trust fund as a whole. Because of decreased consumption of gasoline and diesel fuel, CBO projects, receipts will not

2. The Highway Trust Fund cannot incur negative balances. A negative number indicated in the figure represents a projected shortfall, reflecting the trust fund's inability to pay obligations out of estimated receipts.

keep pace with GDP over the next 10 years, and total receipts as a share of GDP will decline from 0.27 percent in 2008 to 0.20 percent in 2018. Because of the sharp increases in fuel prices since those estimates were prepared, people are now driving less than anticipated. As a result, the decline in trust fund receipts relative to GDP will probably be faster and the shortfall in the trust fund greater than the amounts shown in the table and in Figure B-1.

**OPENING STATEMENT
SENATOR KEN SALAZAR
FINANCE COMMITTEE HEARING: TRANSPORTATION INFRASTRUCTURE
THURSDAY, JULY 10, 2008**

Chairman Baucus and Ranking Member Grassley, thank you for bringing the Committee together to discuss the challenges we face with regard to transportation infrastructure in the United States.

I also want to welcome our distinguished witnesses, Dr. Orszag and Ms. Hecker. I appreciate your time and your expertise and look forward to your testimony.

Across the country, we are seeing the real-world implications of what amounts to a failed transportation policy on the part of the federal government. Congestion rates are skyrocketing – with serious environmental and economic costs – and, as we saw in Minneapolis last year, our bridges and roads are in poor condition, resulting in needless, tragic deaths.

Part of this is the result of a funding structure that allocates resources inefficiently and a system of taxes and fees that fail to adequately reflect who is responsible for burdening the system. These factors have conspired to jeopardize federal revenue streams that state and local governments depend on to modernize and rebuild their roads. For example, according to the Congressional Budget Office, the Highway Trust Fund will face a budget shortfall in 2009, as will the Transit Account in 2012. Without these funds, states will be forced to either shoulder more of the costs associated with highway, transit, and safety programs or forego them entirely.

While we've tried to address those funding issues in the short term, it has become clear that the current federal approach to our nation's transportation needs is inadequate and unsustainable. In short, Mr. Chairman, it is past time that we make transportation modernization a high priority and make smart and meaningful investments in our national infrastructure.

Specifically, I share the view of GAO that we must reform the manner in which the federal government does business. Currently, our transportation policy suffers from a lack of clarity with respect to federal transportation goals and the role played by the federal government in pursuing those goals. Furthermore, the formulas used for the distribution of transportation funds have little to no relationship with the needs of states. It is staggering to me that, given the importance of the transportation infrastructure to our economic health and to the daily lives of American families, the government lacks any semblance of an overarching transportation strategy.

Without such a strategy, the federal government's ability to identify transportation needs and plan for the long-term is greatly inhibited. Addressing these and other outstanding issues related to process is critical to restoring efficiency, accountability, and effectiveness in the allocation of federal transportation dollars.

Finally, while I recognize that putting more money into the problem does not ensure a solution, I do believe that greater federal investment in transportation infrastructure is warranted and urgently needed. Finding an effective and efficient way to do so will require collaboration between both parties in Congress, the Department of Transportation, and state and local governments to ensure the prudent use of taxpayer dollars. I am nevertheless optimistic that discussions such as the one we are having today will help identify what is wrong with our federal transportation policy, and move us closer to a consensus on how to go about fixing it.

I thank the chair.

COMMUNICATION

Testimony of

Stephen E. Sandherr
Chief Executive Officer

on behalf of
The Associated General Contractors of America

presented to the

Committee on Finance
United States Senate

on the topic of

Transportation Infrastructure: Issues and Options

July 10, 2008



The Associated General Contractors of America (AGC) is the largest and oldest national construction trade association in the United States. AGC represents more than 33,000 firms, including 7,500 of America's leading general contractors, and over 12,500 specialty-contracting firms. More than 13,000 service providers and suppliers are associated with AGC through a nationwide network of chapters. Visit the AGC Web site at www.agc.org.

THE ASSOCIATED GENERAL CONTRACTORS OF AMERICA
2300 Wilson Boulevard, Suite 400 • Arlington, VA 22201 • Phone: (703) 548-3118 • FAX: (703) 837-5407

The Associated General Contractors of America (AGC) is pleased to submit these comments for the record of the July 10, 2008 hearing entitled "Transportation Infrastructure: Issues and Options."

Introduction

The Associated General Contractors of America (AGC) is the largest and oldest national construction trade association in the United States. AGC represents more than 33,000 firms, including 7,500 of America's leading general contractors, and over 12,500 specialty-contracting firms. Over 13,000 service providers and suppliers are associated with AGC through a nationwide network of chapters. AGC contractors are engaged in the construction of the nation's commercial buildings, shopping centers, factories, warehouses, highways, bridges, tunnels, airports, waterworks facilities, waste treatment facilities, dams, water conservation projects, defense facilities, multi-family housing projects, site preparation/utilities installation for housing development, and more.

Surface transportation in the United States is at a crossroads. Since the enactment of the Safe, Accountable, Flexible, and Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU) in August 2005, the interstate highway system celebrated its 50th anniversary. It was a celebration of the world's biggest public works program responsible for providing unprecedented mobility and economic opportunities for Americans. This legacy is our duty to maintain, as it is also our duty to meet the mobility demands of the 21st century to compete in the global marketplace and provide the best quality of life possible for all citizens. Our charge is crowded and crumbling; our country is growing and demanding. The challenges are great: resources are scarcer; energy costs are climbing; construction costs are escalating; and the public's confidence in its policy makers to address these issues is diminishing. This is what we confront at this crossroads.

AGC believes the transportation challenges facing the United States are significant and must be addressed in a prompt and responsible manner. All levels of government, including the federal government, must renew their commitment to the nation's transportation system. To this end, increased investment is vital and all options should be considered.

The National Surface Transportation Policy and Revenue Study Commission created under SAFETEA-LU called for a national vision to "Create and sustain the pre-eminent transportation system in the world." The federal government must soon address the crisis facing the nation's transportation system as the expiration of SAFETEA-LU approaches in 2009. AGC and our members across the country firmly believe that a decision not to provide the vision and resources necessary to face our transportation crisis is choosing to accept a diminished role for the United States in international trade and a lower standard of living for all Americans. This is not the choice our national leaders want to make or what most Americans would choose.

Highway Trust Fund

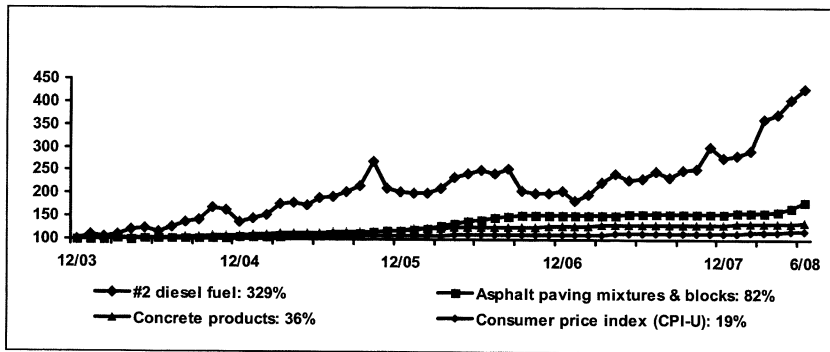
The Highway Trust Fund, through revenue provided by user fees, has historically provided approximately 45 percent of the annual investment in the U.S. road and bridge system. This mechanism was successful in providing the funds necessary to build the interstate highway system and to expand and maintain it in recent years. The Highway Trust Fund has also supported the construction and upkeep of other transportation projects, including mass transit. The level of investment provided by the Highway Trust Fund should be increased to address mounting needs.

The immediate problem facing the Highway Trust Fund is that for a variety of reasons the Highway Account is projected to be in deficit before the expiration of SAFETEA-LU in fiscal year 2009. The most recent government estimates predict a minimum shortfall of \$3.7 billion in the Highway Account in FY 2009. If the shortfall is not addressed, the federal-aid highway program would face cuts of approximately \$14 billion, or 34 percent less than SAFETEA-LU authorized for FY 2009. AGC commends the Committee for its leadership and for its efforts to enact a legislative fix to avoid such a substantial reduction in highway funding. AGC strongly supports Chairman Baucus and Ranking Member Grassley’s proposal to transfer from the General Fund of the U.S. Treasury the \$8 billion removed from the Highway Trust Fund under the Transportation Equity Act for the 21st Century (TEA-21) in 1998.

In addition, inflation has caused the buying power of the federal motor fuels tax to be reduced by nearly one-half since this user fee was last increased in 1993. Dramatic increases in the Producer Price Index for construction inputs over the past five years, at levels more than double the Consumer Price Index (41 percent vs. 19 percent), have added to the Highway Trust Fund woes.

The chart below illustrates the change in various Producer Price Indexes for selected highway construction inputs compared to the Consumer Price Index since December 2003.

Change in PPIs for selected highway inputs, 2003 – 2008 (December 2003 = 100)



The Highway Trust Fund has been a model for efficient public transportation investment that enjoys significant public support. Eventually the method for charging the user fee may need to be changed but for the foreseeable future the existing system should be maintained and enhanced. An increase in revenue is necessary just to keep up with inflation but also to address the ever growing transportation infrastructure needs.

The authoritative 2006 Transportation Research Board (TRB) study, “The Fuel Tax and Alternatives for Transportation Funding,” concluded that fuel taxes would continue to be a viable source of support for the Highway Trust Fund “for at least the next fifteen years.”

States should also be encouraged to create dedicated highway trust funds modeled after the federal version and to put in place similar safeguards that exist at the federal level to prevent resources collected and intended for transportation investment to be diverted towards non-transportation-related activities.

Motor Fuels Tax

The federal excise on gasoline is currently 18.4 cents per gallon. Reflecting the political difficulty of raising taxes, it has been raised only five times since it was first imposed in 1956.

Significant increases in the cost of fuel, more fuel efficient vehicles, and alternatively fueled vehicles are all impacting the level of revenue that can be expected to come from the motor fuels tax.

AGC recommends to Congress to shore up the existing funding method until a better system can realistically be put in place. In the long term, Congress should consider changing the user fee collection model to a Vehicle Miles (VMT) tax. A VMT tax would be charged to all vehicles using transportation infrastructure that is eligible for federal funds. Mileage could be electronically recorded and collected at the gas pump when vehicles are fueled or through a monthly invoice.

AGC also recommends consideration of the following:

- Retroactively raising the federal motor fuels tax directly to address past inflation since the fee was last increased and annually indexing the motor fuels tax to inflation, preferably to the Producer Price Index for construction inputs.
- Eliminating all motor fuels taxes and replacing them with a federal sales tax on fuel and vehicle sales. A percentage would be applied to the cost of each.
- Levying a sales tax on vehicles based on their weight, thereby more equitably charging vehicles for the wear and tear they impose on the system.
- Establishing a federal user rate commission to determine biennially the federal motor fuels tax rate to avoid the instability in the annual amount of revenue collected which may result from a move to either an indexed fuel tax system or a percentage sales tax. The Commission's decision would be final unless overturned by a "Super" majority of Congress.

Highway User Rate Commission

Highway user fees in the form of motor fuel taxes have been the primary source of funding for construction, maintenance, and rebuilding of our nation's road system at the state and federal level for the past 80 years. Motor fuel taxes are currently the largest source of transportation system financing producing nearly \$75 billion annually in transportation revenue.

Many factors have undermined the motor fuels tax ability to fully address current and future transportation needs. Due to inflation the fuel tax has lost as much as 50 percent of its buying power over the past 15 years. In addition, automobile engines have become more efficient allowing vehicles to travel more miles per gallon, thereby lowering the amount of user fee paid for each mile driven. Automobiles and trucks are starting to use alternative fuels that are not taxed. Road improvement projects have increased in cost beyond inflation because of increasing requirements for environmental elements, safety, and aesthetic enhancements, and, in parts of the country, to address earthquakes and weather related issues.

Fuel taxes are generally levied on a per gallon basis. In order to keep pace with growing transportation costs and reduced income, regular increases in the cents per gallon tax are necessary. While other user fee based systems such as one based on the number of miles driven each year make sense in the long run, the necessary infrastructure to implement such a system is not currently in place. In order to ensure that as a nation we do not fall further behind in addressing our highway transportation infrastructure needs, retaining the motor fuels tax and increasing it to address growing needs is vital to our economic future.

However, increasing the motor fuels tax is not always politically feasible. Increasing the fee requires public support for legislators, both at the state and federal level, to feel comfortable voting in support. To take this decision out of the political arena, AGC is proposing the creation of a Highway User Rate Commission.

A seven person commission should be established to biennially set the federal user fee on motor fuels. The Commission would be composed of seven Commissioners serving six- year terms: two appointed by the Senate Majority leader; two by the Speaker of the House; and three by the President, with the advice and consent of the Senate. Initial appointment periods would be staggered so that the entire Commission does not have to be replaced every six years. A Commissioner may continue to serve after the expiration of his or her term for up to one year or until a successor is confirmed. At any time only three Commissioners may be members of the same party. The Chairman is designated by the President and usually is a member of the President's party.

The biennial rate would be based on the amount of revenue necessary to address transportation funding shortfall as determined by the Federal Highway Administration using the biennial conditions and performance report. The biennial fee would be set using a formula that includes consideration of the annual Consumer Price Index and the Producer Price Index for construction materials. The rate determined by the Commission would go into effect 60 days after being determined unless a majority of 60 or more votes in the Senate or 261 or more votes in the House overturn the decision.

Tolling/ Public Private Partnerships (PPP)

Together, tolls and private capital contribute about 4.5 percent annually to the total revenue pool currently available for U.S. highway program investments. Much of this revenue is used for debt service. While there is potential to expand the application of tolling in the U.S. and to attract even more private capital to highway investments, objective research suggests these methods alone cannot realistically be anticipated to raise the amount of revenue necessary to close substantially the existing highway capital investment gap. As such, while they should be promoted and encouraged, they should not be overemphasized as solutions to meeting future funding needs.

States should be granted the option to use tolls on all existing and future interstate and National Highway System (NHS) routes. Should a state choose to toll existing or future routes built with federal revenue, its federal apportionment should be adjusted to reflect only non-tolled lane miles in the state.

In addition, states should be granted authority to partner with the private sector to improve and operate interstate and NHS routes. It is also imperative that revenues realized by public entities through the sale of concessions be reinvested only in transportation infrastructure programs.

Bonding

A new bonding vehicle should be created to allow the federal government to borrow funds for an immediate boost in federal infrastructure investment, such as the "Build America Bonds" proposal put forth by Senators Ron Wyden (D-OR) and John Thune (R-SD). Bonding, however, can only be a supplement to the motor fuels tax, excise taxes, and other existing pay-as-you-go funding sources. This infusion of additional funds from bonds will provide the revenue source to help states catch up with some of their huge backlog of needs that have resulted for past underinvestment. These funds will also be important in helping states build mega-projects that are vitally needed but can absorb all of a state's funding for many years and, therefore, undermine efforts to address other transportation needs.

However, there is a real concern that extensive borrowing of funds now is mortgaging our transportation future. It is important that bonding remain a limited portion of total transportation funding mix. It is also important to create a dedicated funding source to create the revenue stream to pay the interest on the bonds and ultimately repay the principle.

Customs Fees

A portion of U.S. Customs revenue should be dedicated to paying bond interest or to intermodal or trade corridor routes. Since freight movement is an important national objective, and since the needs here are so great, it is important that an additional funding source directly related to international commerce be created. There should be a direct link between imported products and freight movement. Use of custom fee revenue will create this linkage.

Conclusion

The United States has been under investing in our transportation systems for far too long and the impact is now being felt in every state and in most towns. With the interstate system expanded beyond capacity and design life, this underinvestment is costing U.S. businesses and individuals' time and money.

Providing continued support for traditional funding options and finding new financing options is necessary to address this dire situation. Again, AGC believes the traditional motor fuels tax is the most efficient financing mechanism for increasing revenue for surface transportation in the short-term and should be adjusted appropriately to account for inflation and investment needs. AGC believes a commission should be created to assist policymakers in setting appropriate user fee rates. In addition, AGC believes new financing methods such as bonding, Public Private Partnerships, and tolling, and new funding resources such as customs fees or other user fees are an appropriate supplement to current funding sources.

AGC encourages the Committee to consider all options as it looks to providing Congress with the background to make the tough choices that will be necessary.

Thank you for allowing AGC to comment.

