



Surface Transportation Funding and Finance

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September 2, 2011

Congressional Research Service

7-5700

www.crs.gov

R41490

CRS Report for Congress

Prepared for Members and Committees of Congress

Summary

Federal surface transportation programs are currently funded primarily through federal fuel taxes on gasoline, diesel, and other fuels that are deposited in the highway trust fund. Although there has been some modification to the tax system, the basic fuel taxes have not been increased at the federal level since 1993. Prior to the recession that began in 2007, annual increases in driving, with a concomitant increase in fuel use, were sufficient to keep revenues rising steadily on an annual basis. This is no longer the case. Further, future changes in the nation's vehicle fleet as a result of federal fuel economy standards, including increased use of electric hybrid and fully electric vehicles, are expected to suppress future fuel use even if annual increases in vehicle mileage resume.

Congress has yet to address the surface transportation program's revenue issues, except by increasing transport spending from the U.S. Treasury general fund. Many Members of Congress have expressed an aversion to raising fuel taxes, and alternative methods of financing surface transportation have not received serious legislative consideration.

These financial issues have delayed reauthorization of federal surface transportation programs. In the past Congress has reached agreement on reauthorization only when it could count on sufficient revenues to meet many of the competing demands for funding. With efforts to reauthorize the existing, but already expired, surface transportation program at a standstill, the programs authorized by the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU or SAFETEA) (P.L. 109-59) continue to operate as a result of extension legislation and cash infusions to the trust fund from the U.S. Treasury general fund.

This report focuses on possible revenue sources for surface transportation infrastructure. It begins with a brief discussion of the problems associated with the trust fund financing system and then explores possible immediate and longer-term solutions to the financing problem. Some of the major issues discussed in this report are:

- Raising motor fuel taxes offers a simple short-term solution to the revenue issue, but is not a long-term solution due to likely future declines in fuel consumption.
- Proposals such as replacing current motor fuel taxes with a fuel sales tax or a fee based on vehicle miles traveled (VMT) pose their own problems, and in any event will require overcoming numerous administrative and political barriers.
- The trust fund system itself may be a barrier to increased or more effective federal transportation spending, and its continuation in its current form could be reconsidered.
- The general aversion to taxation in the current economic climate has drawn attention to private and nontraditional funding sources, such as tolls, leveraging private capital through public-private partnerships (PPPs), existing federal loan guarantees, and creation of a national infrastructure bank. These nontraditional funding mechanisms could potentially make an important but somewhat limited contribution to overall national infrastructure needs.

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Introduction

Almost every conversation about surface transportation finance begins with a two-part question: what are the “needs” of the national transportation system and how do we pay for them? This report is aimed almost entirely at discussing the “how do we pay for them” question. The report accepts the premise that some level of additional financial resources will be needed to build and maintain transportation infrastructure. The report does not speculate as to what this level of additional finance would be, nor does it suggest that meeting these needs should be an exclusively federal undertaking.¹

Congress remains deadlocked on the entire issue of surface transportation reauthorization. The last major reauthorization, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU or SAFETEA) (P.L. 109-59) occurred in 2005 and expired at the end of FY2009. All programs authorized by SAFETEA continue to operate only as a result of extension legislation.

Over the last few decades Congress has been able to agree on long-term reauthorization of federal surface transportation programs only if significant funding increases could be included in the legislation. Program growth was accommodated by the increasing revenues flowing into the highway trust fund (HTF) as a result of steadily increasing motor fuel use and of occasional increases in federal fuel taxes. As will be discussed subsequently in this report, the steady growth in trust fund revenues came to an end in 2008.

The reauthorization debate provides an opportunity for Congress to revise federal transportation policy. The authors of the last authorization had planned for this debate, setting up two commissions to advise Congress on changes to the surface transportation program and its funding mechanisms. At this juncture, however, the unpromising outlook for highway trust fund revenues complicates efforts to expand federal support for surface transportation and to secure approval for new transport programs through the reauthorization process. In addition, the recent growing consensus of the need to reduce the federal budget deficit will likely influence this debate.

In the short term, the prospect of legislation that increases HTF revenues via new taxes or an increase in existing taxes is limited. However, because the current array of taxes supporting the HTF will probably be insufficient to sustain it as the vehicle fleet becomes more efficient, revenue will remain an issue for the long term.

¹ In 2006 the federal highway program provided \$34 billion in capital assistance for highway and road programs. By comparison, state and local governments spent \$40.6 billion on capital projects and another \$58.5 billion on operations and maintenance for highways and roads in 2004. Source: U.S. Congressional Budget Office, *Trends in Public Spending on Transportation and Water Infrastructure, 1956 to 2004*, Pub. No. 2880, Washington, DC, August 2007, pp. 9-14, <http://www.cbo.gov/ftpdocs/85xx/doc8517/08-08-Infrastructure.pdf>.

The Highway Trust Fund Paradox

There is considerable discussion associated with the current state of the highway trust fund. A recent article began with the following statement: “The federal transportation finance system is broken and will be short on cash for the foreseeable future.”²

Other commentators have described the trust fund as being in crisis, inadequate, or antiquated. Each of these descriptions would seem to suggest that the trust fund is no longer a viable funding mechanism for transportation. In reality, however, this is only partially the case. What is really at issue is that trust fund revenues are no longer growing on a reliable basis. These revenues, therefore, cannot meet the perceived additional needs of our nation’s surface transportation system.

For over 50 years the federal transportation programs and their linked user-fee financing systems were the envy of the federal assistance world. The highway trust fund, created in 1956, was a reliable source of funding for the vast majority of federal surface transportation programs. As motor fuel usage increased steadily, the trust fund provided annual increases in funding, even though the rate at which the federal government taxed motor fuel was increased only infrequently. But the history of significant annual growth in the fund appears to have come to an end. Since FY2008, the revenue flowing into the trust fund has been insufficient to pay for the surface transportation programs enacted by Congress, thus requiring that Congress provide additional resources from the U.S. Treasury general fund to keep the programs solvent.

The highway trust fund comprises two separate accounts—highways and mass transit. The primary revenue sources for these accounts are the 18.4-cent-per-gallon federal tax on gasoline and a 24.4-cent-per-gallon federal tax on diesel fuel. Although there are other sources of revenue for the trust fund, such as truck registration fees and a truck tire tax, fuel taxes provide about 90% of the income to the fund. The transit account receives 2.86 cents per gallon of fuel taxes. Separately, there is also a 0.1-cent-per-gallon fuel tax reserved for a fund to mitigate leaking underground fuel storage tanks, which is not part of the transportation program. Since the trust fund was created in 1956, motor fuels taxes have increased four times, in 1959, 1982, 1990, and 1993. The last two increases were initially partially reserved for deficit reduction purposes, with significant sums being deposited in the Treasury general fund account. By FY1998, following several years of congressional debate, all fuel tax collections were again being deposited in the trust fund.

Since the 1993 tax increase, additional changes to the taxation structure have modestly increased trust fund revenues. The American Jobs Creation Act of 2004 (P.L. 108-357), for example, provided the trust fund with increased future income by changing elements of federal gasohol taxation. In 2005, the finance title of SAFETEA included a number of tax and other revenue-raising changes designed to bolster the trust fund, mainly by addressing tax fraud. SAFETEA also provided for the transfer of some general fund revenues associated with transportation-related activities to the trust fund. It was believed at the time of SAFETEA’s passage that the tax changes, a \$12.5 billion unexpended balance in the trust fund, and, most importantly, expected economic growth would be sufficient to finance the program through its expiration at the end of FY2009. This prediction proved to be significantly off the mark.

² Mark Muro and Robert Puentes, “Helping Those Who Help Themselves,” *The New Republic*, May 27, 2010.

To make up for the shortfalls resulting from the overly optimistic forecasts associated with SAFETEA, the highway account has already required three large general fund contributions and could, if the current annual piecemeal funding system continues, require further annual general fund payments. In FY2008, \$8 billion was transferred from the general fund to the highway account to carry it through the end of the fiscal year (P.L. 110-318, September 15, 2008). In FY2009, the transfer required was \$7 billion (P.L. 111-46, August 7, 2009). Most recently, as a result of the Hiring Incentives to Restore Employment (HIRE) Act (P.L. 111-147), \$14.7 billion in general fund monies was transferred to the highway account and, for the first time, a general fund transfer of \$4.8 billion was deposited in the transit account.

SAFETEA created a framework in which spending on highways and transit has exceeded both highway and transit account revenues on a regular basis. The Congressional Budget Office (CBO), in its August 30, 2011 HTF baseline projection, showed that the highway account is expected to have an unexpended balance of \$4.2 billion at the end of FY2012 and a negative \$8.4 billion by the end of FY2013.³ CBO estimates that the highway account will be unable to meet obligations in a timely manner near the end of FY2012 or during FY2013, depending on the cash flows into and out of the fund.⁴

The CBO projections also show the excess of outlays over tax revenues plus interest as \$9 billion for FY2012 and \$11.6 billion for FY2013. A gap in the neighborhood of \$10 billion remains through FY2021.⁵ CBO projects that the mass transit account, which received a \$4.8 billion general fund transfer in FY2010, will also remain above zero well into FY2014. The mass transit account's end of year negative balance jumps to a negative \$5.6 billion for FY2015 and grows rapidly thereafter.⁶

Trust Fund Prospects

The era of automatic trust fund growth appears to be over. This means that the trust fund will be an adequate source of funding for an expanded surface transportation program only if there are new sources of revenue or cuts in outlays, or both.

The revenue declines of the last few years are unprecedented historically. Even during the oil shocks of the 1970s, driving, as measured by vehicle miles traveled (VMT), returned fairly quickly to the 2% average annual growth rate experienced since the 1960s. The same has not occurred since 2008, even though fuel prices are now below that year's highs of around \$4 per gallon. The main cause of the reduction in revenues appears to be the sluggish economy, which has suppressed growth in personal incomes and also weakened demand for freight shipments.

Over the longer term, other forces are conspiring against the trust fund mechanism. Most importantly, an ongoing change appears to be under way in the U.S. vehicle fleet. In 2007,

³ Information supplied by CBO as part of its August 2011 Baseline, August 30, 2011.

⁴ A working balance of roughly \$4 billion is needed to meet state requests for reimbursement of outstanding obligations in a timely manner.

⁵ Outlays from the highway account during FY2010-FY2011 were depressed because stimulus spending from the general fund temporarily displaced trust fund outlays. The projections also show a persistent gap between the projected obligation limitation and revenues plus interest of roughly \$9 billion to \$12 billion for FY2012 through FY2021.

⁶ CBO, August 30, 2011 Baseline. See also, "CBO Releases Revised HTF Forecast With Little Change," *Transportation Weekly*, Aug. 31, 2011, pp. 1-3.

Congress enacted new fuel economy standards, and the average fuel efficiency of cars and trucks is to rise over time as new, more efficient vehicles enter the fleet.⁷ Increased sales of hybrid vehicles, electric vehicles, and alternatively powered vehicles would weaken the link between driving activity and motor fuel tax revenues. As a result of these changes, fuel use could decrease on a relative basis even if driving increases.

As a rule of thumb, adding a penny to the federal motor fuels tax provides the trust fund with between \$1.6 billion and \$1.8 billion in new revenues. An increase in the existing fuel taxes would provide immediate relief to the trust fund. The prospect of reduced motor fuel consumption, however, means that higher taxes on motor fuels probably will not be adequate to support increased surface transportation spending beyond the next decade. Policymakers, therefore, face a choice between finding new sources of income for the existing or expanded surface transportation program or settling for a smaller program, which might look very different from the one currently in place.

Revenue and Revenue-Related Studies

The reauthorization debate is not stalled due to a lack of ideas. Prior to the enacted reauthorization deadline of October 1, 2009, numerous studies looked at the strengths and weaknesses of the surface transportation program. SAFETEA created two commissions, one to study primarily the program structure and the other the financing imperatives. The former, the National Surface Transportation Policy and Revenue Study Commission, issued its report, entitled *Transportation for Tomorrow*, early in 2008.⁸ The report called for a substantial increase in overall federal transportation spending, a major reorganization of the federal surface transportation program into 10 new program areas (often across existing programmatic boundaries), and, controversially, a dramatic increase in the federal fuel tax, as well as possible new taxes and fees from a number of potential sources. The second commission, the National Surface Transportation Infrastructure Financing Commission, completed its work in February 2009.⁹ The most notable among its numerous recommendations called for an immediate 10-cent-per-gallon increase in the federal fuels taxes, indexing of these taxes for inflation, and a move to a financing system based on vehicle miles traveled in the years ahead.¹⁰

The Bush Administration provided its thoughts on reauthorization in a July 2008 report entitled “Refocus, Reform, Renew: A New Transportation Approach for America.”¹¹ The report placed heavy emphasis on how market forces and the private sector could play an expanded role in financing and providing surface transportation infrastructure. The report did not, however, call for new federal taxes for the program.

Additional studies and documents touching on reauthorization have been prepared by a wide spectrum of think tanks, research organizations, and transportation groups. Among these are the National Academy of Public Administration, the U.S. Chamber of Commerce, the American Road and Transportation Builders Association (ARTBA), the American Association of State Highway

⁷ CRS Report R40166, *Automobile and Light Truck Fuel Economy: The CAFE Standards*, by Brent D. Yacobucci.

⁸ http://www.transportationfortomorrow.com/final_report/index.htm.

⁹ <http://financecommission.dot.gov/>.

¹⁰ http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Mar09FNL.pdf.

¹¹ <http://fastlane.dot.gov/2008/07/a-new-plan-for.html>.

and Transportation Officials (AASHTO), the Bipartisan Policy Center, the Brookings Institution, and Transportation for America.¹² Most of these studies make revenue as well as programmatic recommendations.

Sales Taxes

The federal motor fuels tax, since its origin, has been structured as an excise tax on each gallon of fuel. The same is true of most states' motor fuel taxes. In a few states, however, motorists pay both a fixed cents-per-gallon excise tax on motor fuel purchases and an additional sales tax on the total purchase price of the fuel.¹³ In four states, California, Georgia, Michigan, and Utah, all of the proceeds of taxes on motor fuel are reserved for transportation purposes. In a few other states some portion of the state sales tax on fuel is made available for transportation purposes, though sometimes only in special circumstances.

AASHTO has proposed the idea of shifting the federal motor fuels tax to a sales tax, based on the value rather than volume of motor fuel sold.¹⁴ According to AASHTO, an 8.4% tax on gasoline sales and a 10.6% tax on diesel sales would produce revenue roughly equivalent to current excise tax collections. Underlying the AASHTO proposal is the expectation that fuel prices will rise in the future, as forecast by the Energy Information Administration of the U.S. Department of Energy. The sales tax rates could be adjusted in future years, if necessary, to keep up with inflation in construction costs. The proposal was designed to be "revenue neutral" at the outset so that it would not be characterized as a tax increase.

This is not the first time sales taxes have been promoted as an alternative to a fixed excise tax. After the fuel shocks of the 1970s, a significant number of states sought to make up for what turned out to be a temporary decline in fuel tax receipts by moving to forms of variable-rate taxation of motor fuels.¹⁵ In some cases these taxes were sales taxes; in others the excise tax rates were automatically adjusted by some mechanism such as the Consumer Price Index. Some states placed floors on their tax rates; others did not. Over a 20-year period most of these taxes disappeared, having not lived up to expectations in terms of revenue generation. When fuel prices fell dramatically in the 1980s, tax revenues in many cases fell quickly and states were not always able to react promptly, exacerbating their transportation funding problems.

The sales tax would be at best an interim solution to the long-term problem of finding a way to pay for transportation infrastructure because, like the current motor fuels tax, it relies on fuel

¹² *Financing Transportation in the 21st Century: a Report of the Intergovernmental Forum on Transportation Finance*, the National Academy of Public Administration (Washington, 2008), 95 p. *The Transportation Challenge: Moving the U.S. Economy*, (Washington, National Chamber Foundation, 2008), 116 p. *ARTBA Recommendations for SAFETEA-LU Reauthorization* (Washington, American Road & Transportation Builders Association, 2007), 72 p. *Performance Driven: A New Vision for U.S. Transportation Policy* (Bipartisan Policy Center, 2009). *A Bridge to Somewhere* (Brookings Institution, 2008). *The Route to Reform*, Transportation for America. *AASHTO Authorization Policy* (produced as a series of topic papers) (October 2008). 230 p.

¹³ <http://www.fhwa.dot.gov/ohim/hwytaxes/2008/s106.cfm>.

¹⁴ Josh Mitchell, "Gas-Tax Revamp Pushed to Fund Transportation Projects," *The Wall Street Journal*, October 14, 2010.

¹⁵ Jeffrey Ang-Olson, Martin Wachs, and Brian D. Taylor, *Variable-Rate State Gasoline Taxes*, Institute of Transportation Studies, University of California, Berkeley, Working Paper, UCB-ITS-WP-99-3, Berkeley, CA, July 1999.

consumption to fund transportation programs. To the extent that improved vehicle efficiency or adoption of hybrid or electric vehicles leads to long-term declines in fuel usage, a sales tax on fuel may not lead to increases in trust fund revenues. In addition, a sales tax calibrated to produce a desired amount of revenue in an environment of high motor fuel prices would significantly underperform if fuel prices were to be lower than anticipated.

Distance-Based (VMT) Charges

Both of the study commissions created by SAFETEA recommended charging drivers based on vehicle miles traveled to fund federal surface transportation activities. The Financing Commission supported its recommendation for VMT charges as follows:

A federal funding system based on more direct forms of “user pay” charges, in the form of a charge for each mile driven (commonly referred to as a vehicle miles traveled or VMT fee system), has emerged as the consensus choice for the future. The Commission cast a wide net, reviewed many funding alternatives, and concluded that indeed the most viable approach to efficiently fund federal investment in surface transportation in the medium to long run will be a user charge system based more directly on miles driven (and potentially on factors such as time of day, type of road, and vehicle weight and fuel economy) rather than indirectly on fuel consumed. At the same time, this choice for the federal system provides a foundation for state and local governments that choose to use it to develop their own mileage-based systems that piggy-back on the federal system in order to raise their share on needed revenues in ways that spur more efficient use of the system. The Commission believes that such a system can and should be designed in ways that protect users’ privacy and civil liberties, that incorporate any necessary cross-subsidies (for instance, to benefit the national network or to meet social equity objectives), that do not interfere with interstate commerce, and that support goals for carbon reduction. Moreover, greater use of pricing mechanisms, including both targeted tolling and broad-based VMT pricing systems, may spur more efficient use of our highway network and, by shifting demand to less congested periods of the day or to other modes, may in turn enable more efficient investment, thus reducing the additional capacity that needs to be built.¹⁶

Fees based on vehicle miles traveled have been discussed in the transportation world for years, and have been the subject of extensive studies by the Transportation Research Board (TRB)¹⁷ and other groups. The conclusions reached by these studies almost universally suggest that a transition to a VMT system of financing is desirable and feasible. These same studies, nonetheless, suggest that the transition to a VMT system will take time, and identify numerous obstacles to implementation. The most common recommendation in these studies is that the transition process begin on a pilot basis, to gain experience prior to potential national adoption.

VMT charges could, but need not, entirely replace motor fuel taxes. Certain classes of vehicles might remain subject to fuel taxes even after a VMT charge is put into place. It is also possible

¹⁶ Finance Commission. p. 5. http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Exec_Summary_Feb09.pdf.

¹⁷ National Research Council. Transportation Research Board. National Cooperative Highway Research Program (NCHRP). “Implementable Strategies for Shifting to Direct Usage-Based Charges for Transportation Funding” NCHRP Project 20-24(69). Web-Only Document 143. October 2009. http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w143.pdf.

that the VMT charge might be used in addition to other revenue-raising measures discussed in this report.

Distance charges are viewed by economists as being a superior form of user charge. Although the fuel tax is often referred to as a user fee, it is better understood as a proxy for a user fee because fuel use does not directly correspond to the quantity (miles) of infrastructure consumed. A Toyota Prius hybrid and a gasoline-powered sport utility vehicle making the same trip, for example, use the same amount of infrastructure (highway miles), but pay different taxes based on the fuel efficiency of the vehicles. With a VMT charge, by contrast, the amount paid would be directly related to the amount of road miles used. Adding vehicle weight into the equation might result in a charge that more fully incorporates infrastructure use by reflecting the pavement wear attributable to the vehicle as well.

Distance-related charges have a long history in the transportation sector. A few states impose weight and distance taxes on trucks, despite long-standing complaints that these fees can be difficult to collect and enforce. (Notably, several states that once had weight and distance taxes have repealed them.) Many toll roads base their toll structure on miles traveled and the number of axles on a vehicle, which is used as a proxy for weight. In the aviation world, outside the United States, weight- and distance-based fees are the backbone of air traffic control system financing. The barrier to implementing distance-based fees in the surface transportation environment has always been finding an efficient means of measuring usage and collecting the corresponding fees.

An additional attraction of VMT charges, at least to some proponents, is that they can be adjusted to reflect the full costs of using a particular segment of infrastructure. For example, the VMT charge can be set at a higher level on a heavily used urban highway and lower on a lightly used rural road. It can be varied by time, traffic level, or some other measure to reflect congestion on a road segment as it occurs, giving drivers price signals that might encourage them to change their driving patterns to avoid crowded roads or rush hours. In principle, VMT charges could be set high enough to preclude the need for new highway construction or highway improvements by moving travel to time periods when the existing highway has excess capacity.

The technology to assess and collect VMT charges either already exists or will exist shortly. The widespread adoption of high-capacity electronics in new vehicles, combined with cellular communications technologies and integrated global positioning systems (GPS), are viewed as the framework of a robust VMT collection system. What is lacking at the moment, however, is a clear set of technical standards to enable the collection and processing of the information generated by this technology on a uniform basis. There are also cost, privacy, and administrative hurdles that would need to be addressed. None of these issues is viewed as a deal breaker by proponents of VMT charges. It remains to be seen, however, whether the driving public can be convinced to share the enthusiasm for a VMT-based system.

The in-vehicle communications infrastructure required for VMT charges could be used for other purposes as well. It might allow drivers to pay for tolls and parking. In theory, it might allow those who drive infrequently to purchase insurance on per-mile basis rather than paying annual premiums to insure a vehicle that is used little. The data a VMT charging system would generate could also enable transportation agencies to make more effective planning, construction, and maintenance decisions.

VMT Issues

Privacy

The same technology that makes VMT charges possible is probably the major barrier to implementation. To many, a VMT charge just sounds like “Big Brother” will be watching, constantly monitoring citizens’ movements. As a Florida newspaper editorialized,

It’s not the government’s business to know about everyone’s whereabouts. A VMT pilot program in South Florida will use a tracking device to log drivers’ mileage. Impose the VMT, and Big Brother, for all intents and purposes, will be in the back seat. Tracking your comings and goings isn’t akin to installing cameras at intersections to catch red-light-runners who threaten anyone’s safety, an effective measure we heartily endorse that saves lives. It’s a gratuitous intrusion into drivers’ lives. And an intrusion that policymakers need to steer clear of.¹⁸

Research suggests that it is the GPS tracking involved in some proposed collection schemes that causes individuals the most discomfort.¹⁹ Alternative technologies would allow tracking of vehicle mileage without the use of GPS. A well-known pilot study in Oregon relied on a periodic odometer reading of each vehicle, which could be done at some fixed interval by visiting a special facility, or else during refueling at a gas station equipped to record an electronically transmitted odometer reading. Another approach would use cellular linked technology, such as a weekly automated contact between a vehicle and a collection center, to collect mileage information without disclosing details about individual travel. These less sophisticated reporting systems, however, would be less suited to implementing the variable pricing mechanisms touted by some as a major advantage of a VMT system.

Depending on the collection technology required for a VMT system, drivers of older vehicles could face the need to install potentially costly equipment. A VMT system could avoid this problem by allowing owners of older vehicles to continue to pay fuel taxes until they replace their vehicles. This, however, would increase the complexity and administrative cost of the system.

Pricing

VMT charges are easily described as tolls, leading some critics to characterize VMT charges as a national toll system that would supplement, rather than replace, fuel taxes. This is why proponents of VMT charges have gone out of their way to suggest that a VMT system should be revenue neutral; that is, the rate charged per mile has to be roughly equivalent to the fuel tax paid by an average driver in the course of driving one mile. According to some studies, this would probably mean a fee of around 1 cent per mile initially.²⁰

¹⁸ Editorial, “Kick mileage tax to the curb before it gets any further,” *Sun-Sentinel*, Fort Lauderdale, September 18, 2009.

¹⁹ Martin Wachs, “After the Motor Fuel Tax: Reshaping Transportation Financing,” *Issues in Science and Technology*, Summer 2009, pp. 85-89; Paul Sorensen, Liisa Ecola, and Martin Wachs, et al., *Implementable Strategies for Shifting to Direct Usage-Based Charges for Transportation Funding*, National Cooperative Highway Research Program, Transportation Research Board, NCHRP Web-Only Document 143, Washington, DC, June 2009, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w143.pdf.

²⁰ Miller Center of Public Affairs, University of Virginia, “Well Within Reach: America’s New Transportation (continued...)”

Individual drivers, however, do not necessarily pay “average” fuel taxes. As a result, the suggestion that a VMT charge of around 1 cent per mile will be revenue neutral is, from an individual driver’s perspective, a potentially dubious claim. Many drivers may be unable to determine whether a VMT charge at 1 cent per mile will cost them more or less than the current fuel tax. Some vehicle owners, such as those who have paid a premium to buy a hybrid vehicle that uses little fuel, may face higher costs with a VMT system—and may object to paying the same charges as an individual driving a fuel-inefficient SUV.

Such concerns introduce issues of social equity into the VMT rate-setting process. In theory, economists generally agree that drivers should pay the full “social cost” of their vehicles, but there is little agreement about what those costs are. Attempting to reward certain classes of vehicles with lower charges might raise further barriers to public acceptance of VMT charges.

Setting initial charges at the revenue-neutral level poses a further problem. One argument for moving to VMT charges is that fuel taxes are providing insufficient funds for transportation infrastructure. If a VMT charge is to provide additional revenue, then by definition it cannot be revenue neutral. In that case, the initial charge would need to be higher than 1 cent per mile. Although the rate could be set low initially and raised over time, there is nothing to suggest that raising a VMT rate on a periodic basis will be any easier politically than raising the fuel tax has been. The obvious solution for this problem would be to index a VMT charge to the Consumer Price Index or some construction cost index, but this would have the same political issues as indexation of fuel taxes, an idea that has not been enacted by Congress.

Transition Costs/Complexity

A major advantage of the federal fuel tax system is its low cost of collection. Less than 1% of revenues is devoted to collection. In part this is due to the relatively small number of places where the fuel tax is collected: it is paid not at the fuel pump, but at the so-called “first point of distribution,” normally a refinery or a tank farm. This collection system has been developed over time to reduce the opportunity for fraud and theft. It also saves money, because it is much easier administratively to collect taxes from a few rather than many locations and firms.

A VMT charge portends a far broader collection system. Depending on the technology employed, the number of collection locations could be extremely large. Experience in Germany, where trucks using the autobahns pay VMT charges, suggests that the cost of collecting a VMT charge could be 6% or more of collections, although that might decline over time.²¹

Administratively, billing is a major challenge for a VMT charge collection system. It can, of course, be automated. For example, an autonomous vehicle-based system could take periodic mileage readings and use a linked credit or other account to deposit the appropriate fee in a

(...continued)

Agenda,” Conference Report, Charlottesville, VA, October 10, 2010, http://web1.millercenter.org/conferences/report/conf_2009_transportation.pdf.

²¹ Estimates of the administrative costs that could be associated with a national VMT fee collection system vary dramatically. In part this is due to the lack of experience with VMT charge collection. A tax imposed on trucks using the German autobahn system is perhaps the closest example of a currently operating system VMT system. In scale and scope, however, it is much different from the national system under discussion in this report: <http://utcm.tamu.edu/mbuf/2010/proceedings/US-deployment-panel.stm>.

collection center that is also automated and linked to the appropriate revenue authority. This represents, however, a huge technological challenge. There were almost 244 million privately owned vehicles in the United States in 2008, not counting 7.7 million motorcycles.²² Each of these vehicles is a potential tax collection point.

Obviously the transition from a tax collected at a few places to a fee collected at many places creates efficiency issues. Also relevant in this context are questions about a possible rise in avoidance and fraud, both of which, in the history of the fuel tax collection, occurred at a higher rate when more collection points existed. These complexities would need to be overcome for a VMT charge to become an efficient source of revenue.

Public Support

The driving population of the United States is mostly unaware of the VMT discussion. Where the idea has been aired, as was the case in the Florida example cited earlier, the reaction has not always been positive. In one survey, 61% of those queried about adopting a VMT tax were opposed to it.²³

One major transportation group, the American Trucking Association, has declared its opposition to a VMT-based system of transportation finance. Primary among its reasons is the likelihood that trucks will remain dependant on diesel fuel long after other types of vehicles have transitioned to hybrid, electric, and other technologies. The group prefers an increase in the federal tax on diesel fuel, with the caveat that the increased revenues be used for transportation projects that benefit the trucking industry.

Marshaling public support for a shift in the method of raising transportation revenue would be challenging. Although there has been some acceptance of VMT charges in the small number of pilot programs launched to date, there is no larger public call for a change in the method of financing transportation outlays. The public is largely unaware of the underlying trends that have stimulated interest in a move away from fuel taxes. The transition may be a slow process that would require many pilot programs, using different types of technologies, to determine what is ultimately publicly acceptable. An alternative approach would phase in VMT charges starting with non-fossil fuel vehicles. As these vehicles would not otherwise be paying any taxes specifically for transportation, a VMT charge in lieu of a fuel tax might meet with public acceptance.²⁴

VMT and Non-Highway Programs

Since 1982, when the transit account within the highway trust fund was established, there has been an unwritten truce between highway and other transportation interests not to reopen the debate over funding non-highway programs from the trust fund so long as total federal transportation spending continued to increase. With trust fund revenues no longer soaring, the question of appropriate uses of the trust fund is likely to arise again.

²² <http://www.fhwa.dot.gov/policyinformation/statistics/2008/mv1.cfm>.

²³ William B. Cassidy, "Trucking Group Opposes Vehicle Miles Tax," *The Journal of Commerce*, April 21, 2010.

²⁴ Edward Huang, Henry Lee, and Grant Lovellette, et al., "Transportation Revenue Options: Infrastructure, Emissions, and Congestion," Harvard Kennedy School, Belfer Center, Cambridge, MA, September 2010.

The move to a VMT charge would reopen this debate. If the VMT charge were collected strictly from motorists and applied only to highway financing, it might reasonably be characterized as a user fee, even if, as noted above, the amount paid by each individual driver would be unlikely to correspond precisely to the social cost of that user's driving. If instead the amounts collected were distributed among various transportation modes (which is the case to some degree in the current trust fund-based system), the VMT charge might appear more as a tax.

From a policy perspective, the question of whether a VMT charge is perceived as a user fee or a tax is an important question. Transit, bikeways, and a wide range of alternative transportation activities have had growing access to federal funds collected from highway users over the last three decades. Supporters of these programs assert that the programs benefit society by reducing congestion and pollution, curbing fuel consumption, and strengthening dense urban areas. Any debate over shifting from fuel taxes to VMT charges would reenergize the highway versus transit debate, as Congress would almost certainly have to consider the uses to which any VMT revenues would be put.

Other Options

In addition to the revenue initiatives discussed in detail in this report, a wide range of additional proposals has been put forward. These proposals largely originated from the work of the two SAFETEA congressional commissions and of groups such as AASHTO and TRB.²⁵ Among these are the establishment of freight-related taxes or fees such as a freight waybill tax, container fee, or terminal facility charge. These revenues could be used to address freight bottlenecks. Similarly, some portion of customs duties, which are deposited in the general fund, could be made available for freight-related port-of-entry infrastructure. Further, some believe that transportation in general, and perhaps the trust fund specifically, should benefit from any revenues generated by a broad-based carbon tax that might be imposed primarily for environmental reasons.

AASHTO has compiled an expansive list of potential revenue sources, including those mentioned above. An AASHTO table showing these alternatives and estimating how much revenue each potential source could produce for surface transportation over a six-year period is reproduced in **Table 1**. It should be emphasized that the estimates are suggestive rather than precise forecasts of what each revenue source could produce. Also, there are variables attached to each estimate that are not delineated. For example, the number of annual auto registrations could turn out to be higher or lower than AASHTO assumed for purposes of revenue estimation.

If Congress chooses not to impose new taxes and fees as part of the reauthorization process, it could still expand the surface transportation program with general fund monies. This would reduce the highway and transit programs' dependence on the trust fund, but also would weaken the historic link between the revenue derived from taxes and fees paid by highway users and spending on the nation's highways and bridges.

²⁵ The Transportation Research Board, through its research programs, has prepared several reports on future surface transportation finance that discuss VMT and other options, including National Cooperative Highway Research Program (NCHRP), "Future Financing Options to Meet Highway and Transit Needs," NCHRP Project 20-24, Web-Only Document 102, December 2006, available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf; and Transportation Research Board, "The Fuel Tax and Alternatives for Transportation Funding," Special Report 285, January 2006, available at <http://onlinepubs.trb.org/onlinepubs/sr/sr285.pdf>.

Finally, Congress could ultimately choose to reduce the highway program's size. It could, for example, relegate some programs currently, but not historically, funded by the trust fund, such as the Appalachian Roads Program, to general fund status. It could also consider reducing the existing program matching ratios (90:10 for interstates, 80:20 for most everything else, with the notable exception of the transit "new starts" program where the matching rates vary dramatically) to levels in place in the 1980s or earlier (75:25 or 70:30), thereby spreading the available trust fund revenues more broadly.

Table I. Revenue Options for Consideration

(all revenue estimates in \$ millions)

Funding Mechanisms	Mechanism Yield (2011)	Illustrative Rate	Revenues 2011	Average Annual Revenues 2011-2016	Total Revenues 2011-2016	
Annual Drivers License Surcharge	\$1.00 Surcharge =	\$222	\$5.00	\$1,110	\$1,165	\$6,993
Annual Highway Miles Traveled Fee (All Light Duty Vehicles) ^a	1 cent/VMT =	\$6,538	2 cents	\$13,075	\$28,413	\$170,478
Annual Highway Miles Traveled Fee (All Trucks) ^a	1 cent/VMT =	\$977	3 cents	\$2,931	\$3,401	\$20,406
Annual Registration Fee (Light Duty Vehicles)	\$1.00 Fee =	\$261	\$10.00	\$2,613	\$2,741	\$16,448
Annual Registration Fee (Trucks)	\$1.00 Fee =	\$4	\$15.00	\$66	\$66	\$399
Container Tax	\$1 per TEU =	\$605	\$15.00	\$9,076	\$10,658	\$63,946
Dedicated Income Tax—Personal	0.1% of current taxes =	\$1,130	1.0%	\$11,301	\$11,881	\$71,285
Dedicated Income Tax—Business	0.1% of current taxes =	\$383	1.0%	\$3,832	\$4,029	\$24,172
Diesel Tax Increase	1 cent/gal =	\$386	15 cents	\$5,794	\$6,052	\$36,309
Gas Tax Increase	1 cent/gal =	\$1,379	10 cents	\$13,795	\$14,030	\$84,183
Harbor Maintenance Tax	0.1% Tax =	\$1,236	2.0%	\$24,725	\$26,323	\$157,939
Heavy Vehicle Use Tax Increase	10% Increase =	\$97	15.0%	\$15	\$169	\$1,017
Imported Oil Tax	\$1.00/Bbls =	\$4,217	\$1.00	\$4,217	\$4,356	\$26,138
Sales Tax on Auto-related Parts & Services	1.0% of Sales =	\$2,567	1.0%	\$2,567	\$2,823	\$16,938
Sales Tax on Gas	1.0% of Sales =	\$2,987	8.4%	\$25,091	\$30,945	\$185,671
Sales Tax on Diesel	1.0% of Sales =	\$868	10.6%	\$9,198	\$11,484	\$68,903
Sales Tax on New Light Duty Vehicles	1.0% of Sales =	\$2,337	1.0%	\$2,337	\$2,571	\$15,427
Sales Tax on New and Used Light Duty Vehicles	1.0% of Sales =	\$3,515	1.0%	\$3,515	\$3,837	\$23,021
Share of US Customs Revenues	1% of Receipts =	\$333	1.0%	\$333	\$381	\$2,288
Tire Tax on Light Duty Vehicles	\$1.00 Fee =	\$1,960	\$3.00	\$5,880	\$6,168	\$37,009
Ton Freight Charge—All Modes	1 cent/ton =	\$164	25 cents	\$4,111	\$4,432	\$26,592
Ton Freight Charge—Truck Only	1 cent/ton =	\$113	25 cents	\$2,835	\$3,057	\$18,340

Funding Mechanisms	Mechanism Yield (2011)	Illustrative Rate	Revenues 2011	Average Annual Revenues 2011-2016	Total Revenues 2011-2016
Ton-Mile Freight Charge—All Modes	1 cent/ton-mile = \$43,497	0.5 cent	\$21,748	\$23,446	\$140,678
Ton-Mile Freight Charge—Truck Only	1 cent/ton-mile = \$12,731	0.5 cent	\$6,365	\$6,862	\$41,174
Truck/Trailer Sales Tax Increase	1% of Sales = \$219	5.0%	\$1,095	\$1,529	\$9,174
Truck Tire Tax Increase	10% Increase = \$33	10.0%	\$33	\$477	\$2,863
US Freight Bill—All Modes	1% of Sales = \$7,612	1.0%	\$7,612	\$8,206	\$49,236
US Freight Bill—Truck Only	1% of Sales = \$6,608	1.0%	\$6,608	\$7,124	\$42,745
Total Revenues			\$191,878	\$226,629	\$1,359,772

Source: Provided by AASHTO.

a. VMT fee estimates refer to miles traveled on the interstate system.

The Future of the Trust Fund

Any of the financing alternatives discussed above—higher motor fuel taxes, sales taxes on motor fuel, VMT charges—could easily be used to sustain the existing federal financing mechanism, the highway trust fund. But if Congress considers changes in the sources of highway financing, it may also wish to consider alternatives or supplements to the existing trust fund structure.

The trust fund was set up as a temporary device that was supposed to disappear when the interstate system was finished. It has endured, and its breadth of financing has expanded well beyond the interstates. But it is certainly not essential to a federal role in transportation finance. Congress routinely funds large infrastructure projects, such as those constructed by the Army Corps of Engineers, from general fund appropriations. Before 1956, it funded highway and other transportation projects using annual appropriations. As recently as the 1990s, significant highway programs such as the Appalachian Highway System were funded from the general fund.

One alternative would be to refocus the trust fund only on highway-related programs integral to the national network,²⁶ such as the interstates, the national highway system, key bridge infrastructure, and the Federal Lands Highway Program.²⁷ This would leave transit and other surface transportation programs to be funded exclusively by annual appropriations of general funds.

Such a change would have political implications. Since the early 1990s, transit and cycling advocates, environmentalists, and a wide range of other groups have become full-fledged supporters of the surface transportation program, as it has benefited their interests. The expanded coalition supporting the surface transportation program played an important role in the hard-fought political battles of the mid-1990s that gave the trust fund accounts special status as separate accounts in the budget. This special status, in turn, broadened support for large spending increases in each of the last two reauthorization bills.

From a congressional perspective, restricting the trust fund to highways would be difficult as well. In 1998, budget changes occurred which gave the highway account and the transit account special status within the annual congressional budget similar to that enjoyed by the Social Security trust fund. This occurred over objections by the appropriations and budget committees, which had previously exerted far more control over transportation spending than they do today.²⁸ Control over the majority of trust fund programs now rests primarily with congressional authorizing committees. Removing transit and other non-highway transportation from the trust fund would raise questions about congressional committee jurisdiction over these programs.

Another alternative would be to eliminate the trust fund structure, thereby doing away with its complicated budget framework of contract authority, obligations, and apportionments. The purported advantages of the trust fund are that it prevents appropriators from spending trust fund revenues on non-transportation programs and that it encourages Congress to fully spend amounts

²⁶ Ken Orski, *Innovation News Briefs*, Vol. 21, No. 21 2010.

²⁷ Robert W. Poole and Adrian T. Moore, *Restoring Trust in the Highway Trust Fund*, Reason Foundation, Policy Study, August 2010.

²⁸ CRS Report 98-749, *The Transportation Equity Act for the 21st Century (TEA-21) and the Federal Budget*, by John W. Fischer.

collected from system users on an annual basis. Eliminating the trust fund would force surface transportation to compete with other federal programs for funding each year, possibly leading to less spending on transportation. The events of the last three fiscal years, however, suggest that Congress is willing to spend money on surface transportation regardless of the revenue source. Congress has authorized substantial contributions of general fund monies to the trust fund. Additionally, funds provided by the American Recovery and Reinvestment Act (ARRA) have also involved large expenditures from the general fund for transportation purposes.

There could be advantages to moving away from trust fund financing of surface transportation. One of the most intractable arguments in every reauthorization debate concerns which states are “donors” to transportation programs and which are “donees.” The donor-donee dispute is unique to the federal highway program, and occurs only because of the ability to track federal fuel tax revenues by state. This issue would likely disappear if transportation-related taxes were deposited into the general fund instead of the trust fund. Treating fuel taxes as just another source of federal revenue would also dampen the long-standing link between road user charges and program spending. This would provide Congress with greater flexibility to allocate funding among various transportation modes and between transportation and non-transportation uses.

Eliminating the trust fund might also focus more attention on the costs and benefits of individual surface transportation programs. Most trust-fund outlays take the form of formula grants over which states have a great deal of spending discretion. Especially within the highway program, money can be transferred among projects relatively easily. While there are many federal requirements attached to trust fund expenditures, there are relatively few performance-oriented goals that the states are required to meet in selecting projects to be undertaken with federal monies.²⁹

Getting rid of the trust fund in and of itself will not cause states to choose better projects, but it might allow for the injection of performance measurement into all federally supported surface transportation activities. Eliminating the trust fund might also allow for creativity in thinking about the provision of transportation infrastructure across the modal boundaries that now define much of federal transportation spending. Historically, important parts of the U.S. transportation infrastructure, such as the transcontinental railroads and the Panama Canal, were authorized by specific congressional enactments rather than grant programs. Reconsidering the trust fund structure might give Congress and the President the opportunity to come up with a new way to fund infrastructure needs.

Toll Financing of Federal-Aid System Highways

During much of the history of federal aid to highways, toll financing was prohibited, discouraged, or relegated to a minor role.³⁰ Given this, the small share (5%) of overall highway finance provided by tolling is not surprising. The Federal-Aid Highway and Federal Highway Revenue Acts of 1956 (70 Stat. 374; P.L. 84-627), which provided for the construction and financing of the interstate highway system, reaffirmed the prohibition of tolling of federal-aid highways. Thirty-

²⁹ *Performance Driven: A New Vision for U.S. Transportation Policy*, p. XX.

³⁰ The post–World War II toll road construction, most of which was “grandfathered” in to the Interstate System, was done on the initiative of the states. Prior to the passage of the 1956 Act, the states were far more active in road construction and spending on roads, spending nearly six times what the federal government did in 1955.

five years later, however, the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA; P.L. 102-240) opened non-interstate system highways to tolling, subject to certain limitations (including requiring public jurisdiction over privately owned toll facilities). Both the 1998 Transportation Equity Act for the 21st Century (TEA-21; P.L. 105-178, as amended by P.L. 105-206) and SAFETEA included tolling provisions which changed the legal treatment of high-occupancy vehicle (HOV) lanes, established pilot projects for tolling of a limited number of interstate system routes, and provided for the use of congestion pricing in some instances.

Significant growth of nationwide toll revenues would require the building of more tolled facilities, conversion of free roads and bridges to toll roads, increases in toll rates on existing toll facilities, or increases in traffic. Augmenting toll road mileage is difficult to accomplish: FHWA statistics identify 5,238 tolled miles of roads, bridges, and tunnels as of 2009,³¹ a net increase of only 517 toll road miles, or 11%, since 1990, despite the relaxed federal tolling prohibitions.³² Nor have the changes in Title 23's highway tolling provisions in the last three authorization bills led to an increase in toll receipts as a share of total revenues. Since FY1991, toll revenues have kept pace with the combined total of other sources of highway funding. Although toll revenues grew in nominal terms, from \$7.75 billion in FY2005 to \$9.3 billion in FY2008, they accounted for approximately 5% of total funds available in each of the last four fiscal years.³³ This is only slightly above the annual average since FY1955.³⁴

The recent inability of the current combination of federal highway user taxes and fees to provide sufficient revenues to support even the SAFETEA baseline has encouraged consideration of policy changes that could include the expansion of toll financing. Toll road financing can be used to build projects that, under pay-as-you-go financing, would otherwise be delayed as a state waits for the needed amount of federal grant funding. Another advantage of tolls is that they can provide the flow of funds necessary to attract private financing of road projects or to support public-private partnerships (PPPs) and other innovative financing techniques (such as those discussed later in this report).

Tolls can be advocated as a form of user charge, even though a few jurisdictions use highway toll revenues for non-highway purposes, notably mass transportation. Unlike VMT charges, tolls are broadly familiar to the driving public. (Currently, 31 states have at least one toll road, bridge, or tunnel.) A few toll road operators have attempted to manage congestion by setting higher tolls during the most congested hours or adjusting the charge throughout the day to keep traffic in the toll facility flowing freely.

³¹ Federal Highway Administration, *Toll Facilities of the United States 2009*, "FHWA-PL-09-00021," Washington, DC, August 2009, <http://www.fhwa.dot.gov/ohim/tollpage.htm>.

³² Federal Highway Administration, *Toll Facilities in the United States: Bridges-Roads-Tunnels-Ferries*, "Publication No: FHWA-PL-91-009," Washington, DC, 1991, p. v.

³³ "Figure 6-6: Toll Facility Revenue: 1993-2008," *Our Nation's Highways: 2010*, http://www.fhwa.dot.gov/policyinformation/pubs/pl10023/fig6_6.cfm.

³⁴ Federal Highway Administration, *Highway Statistics: Summary to 1975*, Table HF-211, Washington, DC, 1977, pp. 107-136. Also *Highway Statistics: Summary to 1995*, Table SF-210 and *Highway Statistics*, various years, Tables SF-21, HF-10 and HF-10a. Also "Figure 6-6: Toll Facility Revenue: 1993-2008," *Our Nation's Highways: 2010*, http://www.fhwa.dot.gov/policyinformation/pubs/pl10023/fig6_6.cfm. Toll revenues grew during FY1993-FY2008 at an average annual rate approaching 8%.

Tolling of Federal-Aid Highways Under Current Law

The conversion of most federal-aid highways, bridges, and tunnels to toll roads is permissible under current law, subject to certain limitations. The major exception is the prohibition of tolling of the interstate highway system. The interstate system exception is important from a policy perspective because it is those routes that most often carry a volume of traffic sufficient to make toll financing economically viable. **Table 2**, below, briefly describes active federal tolling programs.

Table 2. Active Federal Tolling Programs

Program	Intent
Section 129 Exceptions to the Freedom from Tolls Provision	Authorizes federal participation in the construction of a toll road, bridge, tunnel or ferry; reconstruction of existing toll facilities; reconstruction of a toll-free federal-aid highway (other than on the interstate system) and conversion to a toll facility; and preliminary studies to determine toll facility feasibility. Facility must be publicly owned or, if privately owned, under contract to a public authority.
High Occupancy Vehicle (HOV) Facilities	Section 1121 of SAFETEA allows states to charge tolls on vehicles that do not meet the occupancy requirements for HOV use (including HOVs on the interstate system).
Interstate System Reconstruction and Rehabilitation Toll Pilot Program	Allows tolls on three pilot projects in different states to reconstruct an existing interstate system highway and convert it to a tolled facility. Originally passed in TEA-21.
Interstate System Construction Toll Pilot Program	Allows tolls on three projects by a state or compact of states to construct new interstate system highways.
Value Pricing Pilot Program	Provides funds for local transportation programs to try value pricing approaches to managing congestion, including the use of tolling.
Express Lanes Demonstration Program	Allows 15 demonstration projects to use tolling on Interstate Highways to manage congestion, reduce emissions, or finance additional interstate system lanes to reduce congestion.

Source: FHWA. Title 23 U.S.C. § 129, 301. P.L. 109-59, Sec. 1604.

The programs of the largest scope are the Section 129 exceptions (which have been in place since 1991) and the HOV lane tolling provision. The others are programs of pilot projects to encourage and test the use of pricing to manage congestion or pilot projects to provide experience in converting interstate highways.³⁵

Toll Financing Issues

Congress, if it chose, could expand the role of tolling in federal highway policy in several ways. A policy requiring, for example, that most or all new construction on the federal-aid system be toll-

³⁵ Federal Highway Administration, Office of Innovative Program Delivery, *Tolling and Pricing Program*, Washington, DC, http://ops.fhwa.dot.gov/tolling_pricing/index.htm.

financed might relieve the demands on other sources of revenue.³⁶ An even broader alternative would be to allow states to toll any federal-aid highway. Such authorizations might, or might not, encourage further use of tolls that vary by time of day or by degree of congestion.

Another approach would make more or all interstate system highways eligible for conversion to toll roads. The interstates carry high traffic volumes relative to other roads and are often congested in urban areas. Only 7% of urban interstates are tolled. Both of the commissions established under SAFETEA³⁷ recommended allowing expanded tolling of interstate highways. Such a policy would overturn the “freedom from tolls” provision of the 1956 Act, and might be open to criticism that tolling of roads that were built or improved with highway trust fund revenues is double taxation.

One issue in the expansion of tolling is the extent to which state and local governments may use increased toll revenues to substitute for other spending, reducing the net impact of more expansive federal tolling policy. If its aim is to increase total spending on transportation infrastructure, Congress may wish to require that state and local governments not simply use revenues from tolls on federal-aid highways to replace current transportation outlays.

How tolling would interact with a national VMT charge could become an issue if a VMT charge is imposed. It might be possible to use the VMT collection system to collect tolls on certain roads, although this could raise the issue of double taxation. The issue could also become moot should the driving public come to view a VMT charging system as a national toll set at an identical per-mile rate on every road, if such a collection structure were adopted.

Most toll facilities in the United States are controlled by public authorities, many of which have been in continuous operation since the 1950s. Private-sector involvement in toll financing of public roads has received increased attention, especially with the growing number of public-private partnerships (PPPs). A policy encouraging both private investors and public authorities to pursue toll road projects could be considered.

Obstacles to the Expanded Use of Tolling

Raising tolling to greater prominence in federal highway policy faces significant obstacles. Overcoming general public hostility to tolls and garnering political support may be the greatest obstacle to tolling projects.

Tolling in the United States is primarily a state and local issue, as there are no federal toll roads. For a state or local entity to toll a federal-aid highway, certain federal requirements must be adhered to, including the negotiation of a toll agreement with the Federal Highway

³⁶ According to FHWA, 60% to 70% of toll project revenues are used to pay for new highway, bridge, and tunnel capacity, compared with 20% of total highway revenues. See *Current Toll Road Activity in the U.S.: a Survey and Analysis*, by Benjamin Perez and Steve Lockwood, Washington, DC, Federal Highway Administration, January 2009, p. 21.

³⁷ National Surface Transportation Policy and Revenue Study Commission, *Transportation for Tomorrow: Final Report*, Chapter 5, http://mtcfilehost.net/transportationfortomorrow/final_report/pdf/volume_2_chapter_5.pdf. The study estimated that aggressive use of tolling opportunities in SAFETEA could generate \$8.9 billion in additional revenue between FY2007 and FY2017. See also National Surface Transportation Infrastructure Financing Commission, *Paying Our Way: a New Framework for Transportation Finance, Final Report*, Washington, DC, February 26, 2009, pp. 28, 25-36, 207, http://financecommission.dot.gov/Documents/NSTIF_Commission_Final_Report_Mar09FNL.pdf.

Administration (FHWA). Some states already rely on tolls as an important source of income. Five states (Florida, New Jersey, New York, Pennsylvania, and Illinois) receive over 10% of their annual highway revenues from tolls.³⁸ On the other hand, there are 19 states that have no toll facilities and others that have only bridge or tunnel tolls. Because toll facilities by their very nature are local, public acceptance of toll facilities can vary by location. The fact that decisions about tolling are made locally may limit the impact of changes in federal tolling policy.

At the local level, expanding tolling faces a number of challenges beyond general public hostility.³⁹ Revenue projections from planned toll facilities generally do not cover project costs, and some states find it hard to garner public support for toll projects that also require public subsidization. For projects with private partners, often either a public subsidy is needed or the competing free facilities must be converted to toll facilities for the projects to make business sense. Other challenges include securing the authority at the state level to consider a range of tolling options and public concerns about diversion of traffic, especially trucks, from the tolled roads to adjacent free roads.

Views on the Growth Potential of Toll Revenues

Few systematic estimates of the growth potential for toll revenues exist. A 2006 TRB report, *Future Financing Options to Meet Highway and Transit Needs*, estimated that an aggressive use of the tolling and pricing opportunities in SAFETEA could generate an average additional \$1.1 billion in revenue per year during 2010 to 2017, reaching an additional \$2.4 billion for 2017.⁴⁰ Another TRB publication, also published in 2006, *The Fuel Tax and Alternatives for Transportation Funding*, argued that an aggressive program of “toll conversion and new toll road development following the models of the HOT networks and FAST lanes proposals might raise additional revenue equal to the tolls already being collected on U.S. highways.”⁴¹

Some more recent commentaries, however, have expressed caution in projecting revenues from high-occupancy toll (HOT) lanes and other tolled express lanes, warning that “HOT lanes are not necessarily big generators of revenue ... most projects—particularly HOV-to-HOT expansion projects—barely cover ongoing expenses for management and operations, much less offset the capital costs.”⁴² Another article examining the value pricing experience of I-15 in San Diego

³⁸ Benjamin Perez and Steve Lockwood, *Current Toll Road Activity in the U.S.: a Survey and Analysis*, Federal Highway Administration, Washington, DC, January 2009, pp. 2-3, http://www.fhwa.dot.gov/ipd/pdfs/2008_toll_activity_white_paper.pdf.

³⁹ U.S. Government Accountability Office, *Highway Finance: States' Expanding use of Tolling Illustrates Diverse Challenges and Strategies*, GAO-06-554, June 2006, pp. 32-42, <http://www.gao.gov/new.items/d06554.pdf>. See also GAO, *Highways and Transit: Private Sector Sponsorship of and Investment in Major Projects Has Been Limited*, GAO-04-419, Washington, DC, March 2004, pp. 20-24, <http://www.gao.gov/new.items/d04419.pdf>.

⁴⁰ Alan E. Pisarski and Martin Wachs, *Future Financing Options to Meet Highway and Transit Needs*, National Cooperative Highway Research Program, Transportation Research Board, NCHRP Web-Only Document 102, Washington, DC, December 2006, pp. ES-8, F-9, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf. The National Surface Transportation Policy and Revenue Study Commission, *Final Report*, used the NCHRP estimates.

⁴¹ Transportation Research Board, *Fuel Tax and Alternatives for Transportation Funding*, Special Report 285, Washington, DC, 2006, p. 154, <http://onlinepubs.trb.org/onlinepubs/sr/sr285.pdf>. “Fast Lanes” are electronically tolled express lanes with tolls set to limit traffic to the free-flowing maximum; the regular adjoining lanes would be free. The Express Lanes Demonstration Program enacted in SAFETEA is a version of the Fast Lanes proposal.

⁴² Ginger Goodin and Chuck Fuhs, “Tolled Managed Lanes: Lessons Learned and Challenges to Meet,” *TR News*, no. 263 (July-August 2009), pp. 20-21.

found that it generated only enough revenues to cover operating costs, pay for the California Highway Patrol to enforce vehicle occupancy rules, and provide a small amount to support bus services on I-15.⁴³ In 2008, AASHTO president Pete Rahn testified before the House Transportation and Infrastructure Committee that “[e]ven the most optimistic forecasts project that this revenue source [tolls] would only meet seven to nine percent of investment needs nationally in the future.”⁴⁴

Since most planned tolling projects in the United States would use express toll lanes that parallel “free” regular lanes, the revenue question is an important issue for federal policymakers. Annual national toll revenues totaled \$9.3 billion for FY2008, up from \$6.6 billion in FY2004. The revenue increase appears to be due more to traffic growth and increases in the rates charged by toll authorities than to increased miles or lanes of tolled roads. The big generators of revenue continue to be the long-standing toll facilities. The *Fuel Tax* special study also concluded that adding tolls to all lanes of selected heavily traveled intercity routes could raise revenue, but would raise less than anticipated because public opposition would lead state legislatures to adjust other fees to partially offset the tolls.⁴⁵

Value Capture

Value capture represents an attempt to cover part or all of the cost of transportation improvements from landowners or developers who benefit from the resulting increase in the value of real property. Value capture revenue mechanisms include tax increment financing, special assessments, development impact fees, negotiated exactions, and joint development.⁴⁶ As the Government Accountability Office (GAO) noted in a recent report, the federal role in value capture strategies may be limited.⁴⁷ It is worth describing those strategies here, however, to provide a fuller picture of the ways in which more commonly used funding and financing mechanisms may be supplemented or supplanted.

Value capture is not a new idea. Land developers built and operated a number of streetcar systems in the late 19th century as a way to sell houses on the urban fringe, for example. Much of the recent experience with value capture has been associated with public transit. GAO found in its recent study that the most widely used mechanism is joint development, in which a real estate project at or near a transit station is pursued cooperatively between the public and private sectors.

⁴³ Derek Toups, “What’s in Store for Second-Generation Express Lanes in San Diego?,” *TR News*, no. 263 (July-August 2009), p. 24.

⁴⁴ U.S. Congress, House Committee on Transportation and Infrastructure, Hearing on State Perspectives on Transportation for Tomorrow, Recommendations of the National Surface Transportation Policy and Revenue Study Commission, Testimony by Pete Rahn, 110th Cong., 2nd sess., February 13, 2008, <http://transportation.house.gov/Media/File/Highways/20080213/Pete%20Rahn%20Testimony.pdf>.

⁴⁵ Growth in nationwide toll revenues alone is not an ideal metric for the provision of increased mobility or new infrastructure because the revenue growth can, in some years, be a reflection of rate increases at existing toll facilities.

⁴⁶ Adeel Lari, David Levinson, and Zhirong Zhao, et al., *Value Capture for Transportation Finance: Technical Research Report*, Center for Transportation Studies, University of Minnesota, June 2009, <http://www.cts.umn.edu/Research/Featured/ValueCapture/index.html>.

⁴⁷ Government Accountability Office, *Public Transportation: Federal Role in Value Capture Strategies for Transit Is Limited, but Additional Guidance Could Help Clarify Policies*, GAO-10-781 (Washington, DC, July 2010), <http://www.gao.gov/new.items/d10781.pdf>.

An example might involve a transit agency leasing air rights over a station to a developer in exchange for a regular payment.

GAO found that joint development has generated relatively small amounts of money for transit agencies.⁴⁸ For example, the Metropolitan Atlanta Rapid Transit Authority expected about \$4 million from such deals in FY2008, about 1% of its \$374 million operating budget. However, less widely used strategies, such as special assessment districts, are estimated to generate significant amounts of funding for specific projects. A special assessment district in Seattle produced \$25 million of the \$53 million (47%) needed to fund the South Lake Union streetcar project.⁴⁹

There has been less use of value capture in highway projects, but this appears to be changing. Texas, for example, has authorized the creation of transportation reinvestment zones to help fund highway projects. Special assessment districts have been set up in several states, including Florida and Virginia, to fund highway projects. In Virginia a special assessment district was used to help fund the expansion of Route 28 near Washington Dulles International Airport beginning in the late 1980s.⁵⁰

Public-Private Partnerships

Growing demands on the transportation system and constraints on public resources have led to calls for more private-sector involvement in the provision of highway and transit infrastructure through what are known as “public-private partnerships” (PPPs). Private involvement can take a variety of forms, including design-build and design-build-finance-operate agreements. The focus here is on private financing and other ways in which PPPs can lessen demands on public-sector funding. The opportunity to own or lease assets that could have the potential for generating stable, medium-level revenues over the long term has attracted private-sector interest. Typically the “public” in public-private partnerships refers to a state government, local government, or transit agency. The federal government, nevertheless, exerts influence over the prevalence and structure of PPPs through its transportation programs, funding, and regulatory oversight.

Private Financing

PPPs offer a means of financing highway and transit infrastructure. They may be viable when there is an anticipated project-related revenue stream from a source such as vehicle tolls, container fees, or, in the case of transit station development, building rents. Private-sector resources may come from an initial payment to lease an existing asset in exchange for future revenue, as with the Indiana Toll Road and Chicago Skyway, or they may arise from a newly developed asset that creates a new revenue stream. Either way, a facility user fee is often the key to unlocking private-sector participation and resources.

In some cases, private-sector financing is backed by “availability payments,” regular payments made by government to the private entity based on negotiated quality and performance standards of the facility. For example, major improvements to I-595 near Fort Lauderdale, FL, are being

⁴⁸ Ibid., p. 16.

⁴⁹ Ibid., p. 20.

⁵⁰ For more information, see <http://www.28freeway.com/index.html>.

made by a private company that will design, build, finance, operate, and maintain the facility for 35 years with availability payments made by the Florida Department of Transportation (FDOT). Toll rates on the new express lanes will be set by FDOT, and revenue collected will be retained by the state.⁵¹ The financing includes a federal TIFIA loan (see discussion below) and state funds.

Tolled highways are particularly attractive assets for private financing. Of course, the public sector can build toll roads, raise tolls on existing facilities, or, in some cases, even institute tolls on existing “free” roads, bridges, and tunnels. Two factors purportedly enable PPPs to attract more capital to highways than the public sector alone can muster.⁵²

First, a privately operated toll road can be financed with both debt (bond) and equity financing. Because equity investors have an opportunity to share in the profits, they may be less conservative than traditional municipal bond investors in selecting which projects to finance. Private concessions are often for terms longer than traditional municipal bond maturities of 25, 30, or 40 years, and with an assured income stream over a longer period the concessionaire may be able to raise additional capital. One estimate suggests that, under public control, the Chicago Skyway would only have supported at most \$800 million in traditional revenue-bond financing, compared with the \$1.83 billion received by the city for the 99-year concession.⁵³

Second, toll facilities are thought to be more successful when operated privately because tolls can be raised in line with costs and demand. Due to political pressures, public agencies often have difficulty raising tolls, a factor that not only reduces revenues, but also affects an agency’s ability to borrow money to initiate construction. The private sector would be more able to generate funding if lenders think it more likely that decisions about toll rates will be based primarily on business considerations.⁵⁴ The private operator usually does not have complete freedom to set tolls because toll rates are often regulated under leasing agreements. Nevertheless, proponents of private-sector involvement argue “long-term toll road concessions ... are not simply a private-sector version of a public-sector toll agency. They are a new and important innovation in U.S. highway finance.”⁵⁵

How much private investment is available for transportation infrastructure, such as toll roads, is open to question. Prior to the recent economic crisis, the former Secretary of Transportation, Mary Peters, repeatedly stated that there is at least \$400 billion of private-sector capital available for infrastructure.⁵⁶ One independent review of the evidence has suggested that this was a credible number, with funds available, after leveraging existing capital, ranging from \$340 billion to \$600

⁵¹ Florida Department of Transportation, I-595 Improvements, District 4, Project Overview, June 3, 2010, http://www.i-595.com/Public_Documents/I-595%20Project%20Overview_2010-06-03.pdf.

⁵² Peter Samuel, “The Role of Tolls in Financing 21st Century Highways,” *Reason Foundation Policy Study 359*, May 2007, <http://reason.org/files/7227d934ecfa04d5db576c126f0385a6.pdf>.

⁵³ *Ibid.*, p. 29.

⁵⁴ Robert W. Poole, “Tolling and Public-Private Partnerships in Texas: Separating Myth from Fact,” Reason Foundation Working Paper, May 2007, <http://reason.org/files/f4b3060c451c35f004519f3971d05fb3.pdf>.

⁵⁵ *Ibid.*, p. 5. An exception to the difference between the public and private sector in setting toll rates is the use of dynamic tolling in congestion pricing schemes in which the toll is adjusted up and down to maintain “free-flowing” traffic. In such cases, traffic demand determines the price. An exception to the difference between the public and private sector in setting toll rates is the use of dynamic tolling in congestion pricing schemes in which the toll is adjusted up and down to maintain “free-flowing” traffic. In such cases, traffic demand determines the price.

⁵⁶ U.S. Department of Transportation, “Over \$400 Billion Available Today for Road, Bridge and Transit Projects U.S. Secretary of Transportation Mary E. Peters Announces,” Press Release, DOT 43-08, Wednesday, March 26, 2008.

billion.⁵⁷ However, this approximately \$400 billion of private capital was available to be invested anywhere in the world and in any type of infrastructure,⁵⁸ casting some doubt on how much might flow to highways and transit in the United States.⁵⁹ The economic crisis that began in 2007 likely reduced the amount of private capital available for U.S. transportation projects, at least temporarily, although more money may become available as credit conditions improve.⁶⁰

While PPPs are likely to attract new private investment in highway and transit infrastructure, the amount of capital is likely to be relatively modest when viewed in the context of total highway and transit infrastructure spending.⁶¹ Because transit is revenue negative, that is, its costs are greater than its operating revenues, it is likely that transit PPPs will never generate a significant share of investment. It may be unrealistic to expect PPPs to generate more than 7% to 9% of the future needs of highway and transit infrastructure nationally. Private-sector financing generated through PPPs probably ought to be seen as a supplement to traditional public-sector funding rather than as a substitute.

State and local governments have significant demands for funding in many different areas, and there is no assurance that the resources generated from transportation PPPs will be reinvested to finance transportation infrastructure needs. Asset leases, in particular, provide a mechanism to generate large sums of money that could be used to fund a wide range of social or other governmental services. That is why the leasing of existing roads might be considered “revenue extraction,” whereas concessions involving the provision of new toll roads are “added value.”⁶²

This concern has been realized in the case of the Chicago Skyway, discussed earlier, as some of the lease payment has been used for non-transportation purposes. The city of Chicago contends, however, that it has created a reserve fund that generates in interest revenue what the road did in toll revenue, and notes that excess toll revenues from the Skyway were previously directed to the city’s general fund.⁶³ GAO has stated that the city’s credit rating improved when it reduced its general obligation debt using lease revenues, thereby reducing the future cost of borrowing.⁶⁴ The possibility remains, nevertheless, that future facility users may face higher tolls if the money generated by asset leases is used for non-transportation needs.⁶⁵

⁵⁷ Orski, K., “A \$400 Billion Solution,” *Innovation Briefs*, Vol. 19, No. 8, March 10, 2008.

⁵⁸ Ibid.

⁵⁹ See McNally, Sean, “Investors Look to Banks for Help With Infrastructure Deals,” *Transport Topics*, April 21, 2008, p. 14.

⁶⁰ Ianthe Jeanne Dugan, “Private Investors Push Public Projects,” *Wall Street Journal*, October 14, 2010.

⁶¹ Transportation Research Board, National Cooperative Highway Research Program, *Future Financing Options to Meet Highway and Transit Needs*, NCHRP Web-Only Document 102 (Washington, DC, 2006), p. 4-1, http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_w102.pdf; see also Organisation for Economic Cooperation and Development (OECD) and International Transport Forum, *Transport Infrastructure Investment: Options for Efficiency* (Paris, 2008); and General Accounting Office (now the Government Accountability Office), March 2004.

⁶² Steve A. Steckler, “Squeezing Cash from Concrete: Navigating the Perils of Turnpike Privatization,” Infrastructure Management Group, <http://www.imggroup.com/transportation/documents/PennsylvaniaTollwayLeasing.pdf>.

⁶³ John Schmidt, “The Pros and Cons of Toll Road Leasing,” *Public Works Financing*, Vol. 2005, May 2006, p. 9.

⁶⁴ 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 (Washington, DC, February 2008), p. 21, <http://www.gao.gov/new.items/d0844.pdf>.

⁶⁵ Ibid., p. 34.

Diversion of resources may also be of more general concern in that new private resources attracted to transportation infrastructure may substitute for public resources in the sector, not add to them. With competing demands for public funds, it is possible that with increases in private funding, state and local governments would divert public resources to other public programs with no net gain in transportation outlays. In a study of the effect of federal highway funding increases on state highway funding between 1982 and 2002, GAO observed a substitution effect, particularly between 1998 and 2002, when a 40% increase in federal capital spending was accompanied by a 4% drop in state and local capital spending.⁶⁶

Nearly all toll road privatization discussions face the issue of paying back any federal funding spent to build or improve the facility that is up for lease. In the cases of the Indiana Toll Road and Chicago Skyway, toll facilities that were leased to private investors, federal money was not an issue, as the facilities were not built with federal funds. Many existing toll facilities, however, were built with federal aid. Congress could allow waiver of the payback provisions under certain circumstances, but careful scrutiny may be needed to ensure that privatization does not give the private investor a windfall thanks to earlier government investment.

Other Resource Benefits of PPPs

As well as the potential for additional capital, PPPs may generate new resources for highway and transit infrastructure in at least two other ways. First, PPPs may improve efficiency through better management and innovation in construction, maintenance, and operation, in effect providing more infrastructure for the same price. Private companies may be more able to examine the full life-cycle cost of investments, whereas public agency decisions are often tied to short-term budget cycles. In the case of the Hudson-Bergen Light Rail in New Jersey, procured under a design-build-operate-maintain contract, the U.S. Department of Transportation (DOT) estimates saving of 30%, or about \$345 million, over the more traditional design-bid-build procurement method.⁶⁷ Such cost reductions may not materialize, however, if the public sector has to spend a substantial amount of time on procurement, oversight, dispute resolution, and litigation. For example, the California Department of Transportation has had a number of costly disputes with its private partners.⁶⁸ Furthermore, GAO argues that most state governments do not have the capacity to manage PPP contracts.⁶⁹

Second, PPPs are meant to reduce government agencies' costs by transferring the financial risks of building, maintaining, and operating infrastructure to private investors. These risks include construction delays, unexpectedly high maintenance costs, and the possibility that demand will be less than forecast. There is a danger, however, this transfer of risk may prove illusory if major

⁶⁶ Government Accountability Office, *Federal-Aid Highways: Trends, Effect on State Spending, and Options for Future Program Design*, GAO-04-802 (Washington, DC, 2004), <http://www.gao.gov/new.items/d04802.pdf>.

⁶⁷ U.S. Department of Transportation, *Report to Congress on Public-Private Partnerships* (Washington, DC, 2004), pp. 38-39, <http://www.fhwa.dot.gov/reports/pppdec2004/pppdec2004.pdf>.

⁶⁸ Testimony of Alan Lowenthal, Chair, California Senate Transportation and Housing Committee, in U.S. Congress, House Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, *Hearing on Public-Private Partnerships: State and User Perspectives*, May 24, 2007, <http://transportation.house.gov/Media/File/Highways/20070524/Cal%20State%20Senate%20Lowenthal%20testimony.pdf>.

⁶⁹ Government Accountability Office, *Federal-Aid Highways: Increased Reliance on Contractors Can Pose Oversight Challenges for Federal and State Officials*, GAO-08-198 (Washington, DC, 2008), <http://www.gao.gov/new.items/d08198.pdf>.

miscalculations force the public agency to renegotiate contracts or provide financial guarantees.⁷⁰ Moreover, as GAO points out, not all the risks can or should be shifted to the private sector. For instance, private investors are unlikely to accept the risk of higher construction costs due to delays in the environmental review process.⁷¹

TIFIA Financing

An existing federal mechanism for providing credit assistance to relatively large transportation infrastructure projects is TIFIA financing. TIFIA stands for the Transportation Infrastructure Finance and Innovation Act, legislation that was enacted in 1998 as part of TEA-21. TIFIA provides federal credit assistance up to a maximum of 33% of project costs in the form of secured loans, loan guarantees, and lines of credit.

Federal credit assistance provides funds at a relatively low rate and lowers project risk, thereby helping to secure other financing at rates lower than would otherwise be possible. Another purpose of TIFIA funding is to leverage non-federal funding, including investment from the private sector. Loans must be repaid with a dedicated revenue stream, typically a project-related user fee but sometimes also including dedicated tax revenue. Transportation projects costing at least \$50 million (or at least \$15 million in the case of Intelligent Transportation Systems (ITS) projects) are eligible for TIFIA financing. As of July 29, 2010, according to the Federal Highway Administration (FHWA), TIFIA had provided assistance of \$7.9 billion to 22 projects. The overall cost of the projects supported is estimated to be \$29 billion.⁷²

SAFETEA made a number of changes to the TIFIA program as enacted under TEA-21. These modifications included permitting public-private partnerships to apply directly instead of having to go through a government entity, expanding eligibility to freight rail and intermodal facilities, and lowering the eligibility threshold.⁷³ SAFETEA also broadened project eligibility by including some private rail projects. Eligibility now includes rail facilities providing benefits to highway users, intermodal freight transfer facilities, access to freight facilities, and port projects involving improved surface transportation access.

SAFETEA provided \$122 million in contract authority from the highway trust fund for TIFIA in each fiscal year from FY2005 through FY2009. Extension legislation provided another \$122 million for FY2010. In its notice of funding availability for FY2010, DOT noted that after administrative costs and other deductions it can apply approximately \$110 million annually to covering loan subsidy costs.⁷⁴

⁷⁰ Engel, E., R. Fischer, and A. Galetovic, "Privatizing Highways in the United States," *Review of Industrial Organization*, 2006, Vol. 29, pp. 27-53.

⁷¹ Government Accountability Office, *Highway Public-Private Partnerships*, February 2008.

⁷² U.S. Department of Transportation, Federal Highway Administration, "TIFIA Portfolio," http://www.fhwa.dot.gov/ipd/tifia/projects_case_studies/tifia_portfolio.htm.

⁷³ Hedlund, K.J. and N.C. Smith, "SAFETEA-LU Promotes Private Investment in Transportation," report prepared for Nossaman, Guther, Knox, & Elliott, LLP, August 1, 2005, http://www.fhwa.dot.gov/PPP/pdf/safetea_lu_hedlund.pdf.

⁷⁴ Department of Transportation, "Notice of Funding Availability for Applications for Credit Assistance Under the Transportation Infrastructure Finance and Innovation Act (TIFIA) Program; Clarification of TIFIA Selection Criteria; and Request for Comments on Potential Implementation of Pilot Program To Accept Upfront Payments for the Entire Subsidy Cost of TIFIA Credit Assistance," 74 *Federal Register* 63497-63501, December 3, 2009, (continued...)

The subsidy cost is calculated for each loan based on an estimate of expected loss across a portfolio of loans. Historically, the subsidy cost of a loan has averaged 8%. The subsidy cost largely determines the amount of money that can be made available to project sponsors. For instance, with a subsidy cost of 8%, \$110 million in contract authority represents about \$1.375 billion in potential credit assistance (\$110 million divided by 8% equals \$1.375 billion). According to DOT, the subsidy cost has been higher in recent years, therefore lowering the amount of credit assistance available. For example, DOT estimated that the \$110 million made available in FY2010 would support about \$1.1 billion in TIFIA credit assistance, a subsidy cost of 10%.⁷⁵

The demand for TIFIA credit assistance appears to be higher than program funding can support. In September 2008, DOT estimated that in FY2009 “the gap between resources and demand could be as large as \$450 million, representing approximately \$3.75 billion in credit assistance.”⁷⁶ In FY2010, according to DOT, there were requests for almost \$13 billion in TIFIA credit assistance, much more than the approximately \$1.1 billion available.⁷⁷ Because of the strong loan demand, some transport interests have argued for a larger TIFIA program, while others urge the creation of a special-purpose entity, such as a national infrastructure bank.

National Infrastructure Bank

A number of proposals have been introduced in Congress over the years to create a special-purpose entity to help finance infrastructure projects. One such proposal, introduced in the 111th Congress, is the National Infrastructure Development Bank Act of 2009 (H.R. 2521). H.R. 2521 would have established an infrastructure bank as a wholly owned government corporation controlled by a five-member board of directors appointed by the President and confirmed by the Senate. The bank would have the ability to issue bonds with maturities of 30 years or more and to use the proceeds to provide loans and loan guarantees. The bank would be capitalized by appropriations of \$25 billion, and another \$225 billion would be callable capital, available from the Treasury only if needed by the bank to meet its obligations.

The bank would be permitted to leverage these amounts by 2.5 to 1, representing issuance of \$625 billion of bonds. The bonds would be backed by the full faith and credit of the U.S. Treasury. Projects would not be limited to transportation infrastructure, but could include environmental, energy, and telecommunications infrastructure. Projects for assistance would be chosen on their merits by the board, although within the confines of the enabling law. H.R. 2521

(...continued)

http://www.fhwa.dot.gov/ipd/pdfs/tifia/fy2010_tifia_nofa.pdf.

⁷⁵ Ibid.

⁷⁶ U.S. Department of Transportation, Federal Highway Administration, *Transportation Infrastructure Finance and Innovation Act: Report to Congress 2008*, Washington, DC, September 2008, p. 2, http://tifia.fhwa.dot.gov/about/rtc/tifia_2008_rtc.pdf.

⁷⁷ U.S. Congress, House Committee on Transportation and Infrastructure, Subcommittee on Highways and Transit, Testimony of Christopher Bertram, Assistant Secretary for Budget and Programs and Chief Financial Officer, U.S. Department of Transportation, *Hearing on Using Innovative Finance to Deliver Highway and Transit Projects*, 111th Cong., 2nd sess., April 14, 2010, <http://transportation.house.gov/Media/file/Highways/20100414/Bertram.pdf>.

listed a host of factors, including workforce development, reducing inequality, and public health benefits, that the board must take into account when deciding which projects to fund.⁷⁸

One purported advantage of a national infrastructure bank is that, by issuing non-tax-exempt securities, it could tap pools of private capital that do not invest in tax-exempt bonds, the traditional source of much project finance. Tax-exempt municipal securities are unattractive to some investors, either because individual issues are too small to interest them or because the investors do not benefit from the tax preference. Taxable bonds with long maturities might be attractive to such investors, such as pension funds and foreign citizens.⁷⁹ An infrastructure bank also might reduce the federal government's share of project costs with greater reliance on non-federal capital and user fees.

Most infrastructure bank proposals assume the bank would improve the allocation of public resources by funding projects with the highest economic returns regardless of infrastructure system or type. Selection of the projects with the highest returns, however, might conflict with the traditional desire of Congress to assure funding for various purposes. In the extreme case, many transportation projects might not be funded if the bank were to exhaust its lending authority on water or energy projects offering higher returns.

An infrastructure bank may not be the lowest-cost means of increasing infrastructure spending. The Congressional Budget Office (CBO) has pointed out that a special entity that issues its own debt would not be able to match the lower interest and issuance costs of the U.S. Treasury.⁸⁰ Moreover, in some formulations, including H.R. 2521, a national infrastructure bank exposes the federal government to the risk of default. If Congress were to direct the bank to consider factors, such as job creation and poverty reduction, as H.R. 2521 would have done, those obligations might constrain its ability to assist the most economically viable projects.⁸¹

⁷⁸ U.S. Congress, House Committee on Ways and Means, Subcommittee on Select Revenue Measures, Testimony of Rosa L. DeLauro, *Hearing on the National Infrastructure Banks*, 111th Cong., 2nd sess., May 13, 2010, http://waysandmeans.house.gov/media/pdf/111/2010May13_DeLauro_Testimony.pdf; see also U.S. Congress, House Committee on Transportation and Infrastructure, Hearing on Financing Infrastructure Investments, "Summary of Subject Matter," 110th Cong., 2nd sess., June 10, 2008, http://transportation.house.gov/Media/File/Full%20Committee/20080610/SSM_FC_6-10-08.pdf.

⁷⁹ U.S. Congress, Senate Committee on Banking, Housing, and Urban Affairs, Testimony of Felix Rohatyn, Co-Chair of the Commission on Public Infrastructure, *Hearing on Condition of Our Nation's Infrastructure and Proposals for Needed Improvement*, 110th Cong., 2nd Sess., March 11, 2008, http://banking.senate.gov/public/index.cfm?FuseAction=Hearings.Hearing&Hearing_ID=9ddc8203-a3d1-448d-946e-3b1f671fda8a; U.S. Congress, House Committee on Transportation and Infrastructure, Testimony of Bernard Schwartz, President and CEO, BLS Investments, *Hearing on Financing Infrastructure Investments*, 110th Cong., 2nd Sess., June 10, 2008, http://transportation.house.gov/Media/File/Full%20Committee/20080610/Schwartz%20Testimony_6-10-08.pdf. The Public Infrastructure Commission, Center for Strategic and International Studies, co-chaired by Felix Rohatyn, has proposed the creation of a national infrastructure financing agency; see Ehrlich, Everett and Benjamin Landy, *Public Works, Public Wealth: New Directions for America's Infrastructure*, Center for Strategic and International Studies, November 2005.

⁸⁰ U.S. Congress, House Committee of the Budget and the Committee on Transportation and Infrastructure, Testimony of Peter R. Orszag, Director, Congressional Budget Office, *Hearing on Financing Infrastructure Investment*, 110th Cong., 2nd Sess., May 8, 2008, http://transportation.house.gov/Media/File/Full%20Committee/20080508/05-08-Infrastructure_Testimony.pdf.

⁸¹ U.S. Congress, House Committee on Ways and Means, Subcommittee on Select Revenue Measures, Testimony of Samuel Staley, *Hearing on the National Infrastructure Banks*, 111th Cong., 2nd sess., May 13, 2010, http://waysandmeans.house.gov/media/pdf/111/2010May13_Staley_Testimony.pdf.

National Infrastructure Innovation and Finance Fund

After including a \$5 billion request for a national infrastructure bank in its FY2010 budget request,⁸² contingent on its subsequent creation, the Obama Administration dropped this idea from its FY2011 budget in favor of \$4 billion for a National Infrastructure Innovation and Finance Fund. The Obama Administration envisions this \$4 billion as the first installment of five to capitalize the fund with \$25 billion.⁸³ The fund would be set up as an operational unit of DOT and would provide loans and grants to leverage non-federal funding, including private-sector capital. Projects of national and regional significance would be chosen through some sort of merit-based analysis. The appropriations committees have stated that they do not support the idea in its current form.⁸⁴

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Acknowledgments

John W. Fischer, former Specialist in Transportation Policy, contributed to this report.

⁸² Office of Management and Budget, *Budget of the U.S. Government, FY2010: Analytical Perspectives*, Washington, DC, 2009, table 6-2, <http://www.gpoaccess.gov/usbudget/fy10/pdf/spec.pdf>.

⁸³ Testimony of Christopher Bertram, Assistant Secretary for Budget and Programs and Chief Financial Officer, U.S. Department of Transportation, April 14, 2010.

⁸⁴ H.Rept. 111-564, p. 20; S.Rept. 111-230, pp. 16-17.