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TRANSPORTATION INFRASTRUCTURE

Alternative Financing Mechanisms for Surface Transportation

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Mr. Chairman and members of the committees:

We are pleased to be here today to discuss alternative financing for surface transportation infrastructure projects. As Congress considers reauthorizing the Transportation Equity Act for the 21st Century (TEA-21) in 2003, it does so in the face of a continuing need for the nation to invest in its surface transportation infrastructure and at a time when both the federal and state governments are experiencing severe financial constraints.¹ Many observers are concerned that a significant gap exists between the availability of funds and immediate needs. In the longer term, questions have been raised about the financial capacity of the Highway Trust Fund to sustain current and future levels of highway and transit spending. This is of particular concern since Congress has by law established a direct link between Highway Trust Fund revenues and surface transportation spending levels.

In recent years, as transportation needs have grown, Congress provided states—in the National Highway System Designation Act of 1995 (NHS) and TEA-21—additional means to make highway investments through alternative financing mechanisms. These alternative mechanisms included State Infrastructure Banks (SIBs)—revolving funds to make or guarantee loans to approved projects; Grant Anticipation Revenue Vehicles (GARVEEs)—which are state issued bonds or notes repayable with future federal-aid; and credit assistance under the Transportation Infrastructure Finance and Innovation Act (TIFIA)—including loans, loan guarantees, and lines of credit. All are part of the Federal Highway Administration’s (FHWA’s) Innovative Finance Program. As the time draws nearer to reauthorizing TEA-21, information is needed about the performance of these tools and the potential for these and other proposed tools to help meet the nation’s surface transportation infrastructure investment needs.

At the request of your Committees, we are examining a range of surface transportation financing issues, including FHWA’s Innovative Finance Program and proposed alternative financing approaches. My testimony today is based on the preliminary results of our work and discusses (1) the use and performance of existing innovative financing tools and the factors limiting their use, and (2) the prospective costs of current and newly proposed alternative financing techniques for meeting surface transportation infrastructure investment needs. I will also discuss issues

¹*Performance Budgeting: Opportunities and Challenges.* (GAO-02-1106T, Sept.19, 2002).

concerning the potential costs and benefits of expanding alternative financing mechanisms to meet our nation's surface transportation needs. My testimony is based on our review of applicable laws, FHWA's evaluation studies and other reports concerning its Innovative Financing Program, and interviews with FHWA officials, transportation officials in eight states, and bond rating companies. It is also based on a cost comparison we conducted of four current and newly proposed financing techniques.

In summary:

- A number of states are using existing alternative financing tools such as State Infrastructure Banks, GARVEE bonds, and TIFIA loans. These tools can provide states with additional options to accelerate projects and leverage federal assistance—they can also provide greater flexibility and more funding techniques. However, a number of factors can limit the use of these tools, including some states' preference not to use the tools, restrictions in state law on using them, and restrictions in federal law on the number of states and types of projects that can use them.
- Federal funding of surface transportation investments includes federal-aid highway program grant funding appropriated by Congress out of the Highway Trust Fund, loans and loan guarantees, and bonds that are issued by states and that are exempt from federal taxation. In addition, the use of tax credit bonds—where investors receive a tax credit against their federal income taxes instead of interest payments from the bond issuers—have been proposed for helping to finance surface transportation investments. Because each of these financing mechanisms is structured differently, we determined that the total cost of providing \$10 billion in infrastructure investment using each of these existing or proposed mechanisms ranges from \$10 billion to over \$13 billion (in present value terms). The mechanisms that involve greater borrowing from the private sector, such as tax-exempt bonds and tax credit bonds, require the least amount of public outlays up front. However, those same mechanisms have the highest long-term costs to the public sector participants in the investments because the latter must compensate the private investors for the risks that they assume. With respect to the federal government's contribution, tax credit bonds are the most costly mechanism, while TIFIA loans and tax exempt bonds are the least costly.
- Expanding the use of alternative financing mechanisms has the potential to stimulate additional investment and private participation. But expanding investment in our nation's highways and transit systems raises

basic questions of who pays, how much, and when. How alternative financing mechanisms are structured determines how much of the needs are met through federal funding and how much are met by the states and others. The structure of these mechanisms also determines how much of the cost of meeting our current needs are met by current users and taxpayers versus future users and taxpayers.

Background

The federal-aid highway program is financed through motor fuel taxes and other levies on highway users. Federal aid for highways is provided largely on a cash basis from the Highway Trust Fund. States have financed roads primarily through a combination of state revenues and federal aid. Typically, states raise their share of the funds by taxing motor fuels and charging user fees. In addition, debt financing—issuing bonds to pay for highway development and construction—represents about 10 percent of total state funding for highways, although some states make greater use of borrowing than others.

Federal-aid highway funding to states is typically in the form of grants. These grants are distributed from the Highway Trust Fund and apportioned to states based on a series of funding formulas. Funding is subject to grant-matching rules—for most federally funded highway projects, an 80-percent federal and 20-percent state funding ratio. States are subject to pay-as-you-go rules where they obligate all of the funds needed for a project up front and are reimbursed for project costs as they are incurred.

In the mid-1990s, FHWA and the states tested and evaluated a variety of innovative financing techniques and strategies.² Many financing innovations were approved for use through administrative action or legislative changes under NHS and TEA-21. Three of the techniques approved were SIBs, GARVEEs, and TIFIA loans.³ SIBs are state revolving loan funds that make loans or loan guarantees to approved projects; the loans are subsequently repaid, and recycled back into the revolving fund

²FHWA uses the term “innovative finance” to refer to any funding measure other than grants to states appropriated from the Highway Trust Fund. Most of the innovative measures entail debt financing. The term is used to contrast that approach with traditional methods of funding highway projects.

³FHWA’s test and evaluation research initiative (TE-045) evaluated a number of other innovations, including flexible match, toll credits, advance construction, partial conversion of advance construction, and tapered match. Many of these techniques were subsequently approved for use.

for additional loans. GARVEEs are any state issued bond or note repayable with future federal-aid highway funds. Through the issuance of GARVEE bonds, projects are able to meet the need for up-front capital as well as use future federal highway dollars for debt service. TIFIA allows FHWA to provide credit assistance, up to 33 percent of eligible project costs, to sponsors of major transportation projects. Credit assistance can take the form of a loan, loan guarantee, or line of credit. See appendix II for additional information about these financing techniques.

According to FHWA, the goals of its Innovative Finance Program are to accelerate projects by reducing inefficient and unnecessary constraints on states' management of federal highway funds; expand investment by removing barriers to private investment; encourage the introduction of new revenue streams, particularly for the purpose of retiring debt obligations; and reduce financing and related costs, thus freeing up the savings for investments into the transportation system itself. When Congress established the TIFIA program in TEA-21, it set out goals for the program to offer sponsors of large transportation projects a new tool to leverage limited Federal resources, stimulate additional investment in our nation's infrastructure, and encourage greater private sector participation in meeting our transportation needs.

Alternative Financing Mechanisms Offer States Options, But Factors Limit Their Use

Over the last 8 years, many states have used one or more of the FHWA-sponsored alternative financing tools to fund their highway and transit infrastructure projects. As of June 2002:

- 32 states (including the Commonwealth of Puerto Rico) have established SIBs and have entered into 294 loan agreements with a dollar value of about \$4.06 billion;
- 9 states (including the District of Columbia and Commonwealth of Puerto Rico) have entered into TIFIA credit assistance agreements for 11 projects, representing \$15.4 billion in transportation investment; and
- 6 states have issued GARVEE bonds with face amounts totaling \$2.3 billion.

These mechanisms have given states additional options to accelerate the construction of projects and leverage federal assistance. It has also provided them with greater flexibility and more funding techniques.

Accelerate Project Construction

States' use of innovative financing techniques has resulted in projects being constructed more quickly than they would be under traditional pay-as-you-go financing. This is because techniques such as SIBs can provide loans to fill a funding gap, which allows the project to move ahead. For example, using a \$25 million SIB loan for land acquisition in the initial phase of the Miami Intermodal Center, Florida accelerated the project by 2 years, according to FHWA. Similarly, South Carolina used an array of innovative finance tools when it undertook its "27 in 7 program"—a plan to accomplish infrastructure investment projects that were expected to take 27 years and reduce that to just 7 years. Officials in the states that we contacted that were using FHWA innovative finance tools noted that project acceleration was one of the main reasons for using them.

Leverage Federal Investments

Innovative finance—in particular the TIFIA program—can leverage federal funds by attracting additional nonfederal investments in infrastructure projects. For example, the TIFIA program funds a lower share of eligible project costs than traditional federal-aid programs, thus requiring a larger investment by other, non-federal funding sources. It also attracts private creditors by assuming a lower priority on revenues pledged to repay debt. Bond rating companies told us they view TIFIA as "quasi-equity" because the federal loan is subordinate to all other debt in terms of repayments and offers debt service grace periods, low interest costs, and flexible repayment terms.

It is often difficult to measure precisely the leveraging effect of the federal investment. As a recent FHWA evaluation report noted, just comparing the cost of the federal subsidy with the size of the overall investment can overstate the federal influence—the key issue being whether the projects assisted were sufficiently credit-worthy even without federal assistance and the federal impact was to primarily lower the cost of the capital for the project sponsor.

However, TIFIA's features, taken together, can enhance senior project debt ratings and thus make the project more attractive to investors. For example, the \$3.2 billion Central Texas Turnpike project—a toll road to serve the Austin–San Antonio corridor—received a \$917 million TIFIA loan and will use future toll revenues to repay debt on the project, including revenue bonds issued by the Texas Transportation Commission and the TIFIA loan. According to public finance analysts from two ratings firms, the project leaders were able to offset potential concerns about the uncertain toll road revenue stream by bringing the TIFIA loan to the project's financing.

Provide Greater Flexibility And Additional Financing Techniques

FHWA's innovative finance techniques provide states with greater flexibility when deciding how to put together project financing. By having access to various alternatives, states can finance large transportation projects that they may not have been able to build with pay-as-you-go financing. For example, faced with the challenge of Interstate highway needs of over \$1.0 billion, the state of Arkansas determined that GARVEE bonds would make up for the lack of available funding. In June 1999, Arkansas voters approved the issuance of \$575 million in GARVEE bonds to help finance this reconstruction on an accelerated schedule. The state will use future federal funds, together with the required state matching funds and the proceeds from a diesel fuel tax increase, to retire the bonds. The GARVEE bonds allow Arkansas to rebuild approximately 380 miles, or 60 percent of its total Interstate miles, within 5 years.

Factors Can Limit the Use of Finance Tools

Although FHWA's innovative financing tools have provided states with additional options for meeting their needs, a number of factors can limit the use of these tools.

- State DOTs are not always willing to use federal innovative financing tools, nor do they always see advantages to using them. For example, officials in two states indicated that they had a philosophy against committing their federal aid funding to debt service. Moreover, not all states see advantages to using FHWA innovative financing tools. For example, one official indicated that his state did not have a need to accelerate projects because the state has only a few relatively small urban areas and thus does not face the congestion problems that would warrant using innovative financing tools more often. Officials in another state noted that because their DOT has the authority to issue tax-exempt bonds as long as the state has a revenue stream to repay the debt, they could obtain financing on their own and at lower cost.
- Not all state DOTs have the authority to use certain financing mechanisms, and others have limitations on the extent to which they can issue debt. For example, California requires voter approval in order to use its allocations from the Highway Trust Fund to pay for debt servicing costs. In Texas, the state constitution prohibits using highway funds to pay the state's debt service. Other states limit the amount of debt that can be incurred. For example, Montana has a debt ceiling of \$150 million and is now paying off bonds issued in the late 1970s and early 1980s and plans to issue a GARVEE bond in the next few years.

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- Some financing tools have limitations set in law. For example, five states are currently authorized to use TEA-21 federal-aid funding to capitalize their SIBs. Although other states have created SIBs and use them, they could not use their TEA-21 federal-aid funding to capitalize them. Similarly, TIFIA credit assistance can be used only for certain projects. TIFIA's requirement that, in general, projects cost at least \$100 million restricts its use to large projects.

Costs and Risks of Alternative Financing Mechanisms Vary

We assessed the costs that federal, state and local governments (or special purpose entities they create) would incur to finance \$10 billion in infrastructure investment using four current and newly proposed financing mechanisms for meeting infrastructure investment needs.⁴ To date, most federal funding for highways and transit projects has come through the federal-aid highway grants—appropriated by Congress from the Highway Trust Fund. Through the TIFIA program, the federal government also provides subsidized loans for state highway and transit projects. In addition, the federal government also subsidizes state and local bond financing of highways by exempting the interest paid on those bonds from federal income tax. Another type of tax preference—tax credit bonds—has been used, to a very limited extent, to finance certain school investments. Investors in tax credit bonds receive a tax credit against their federal income taxes instead of interest payments from the bond issuer.⁵ Proposals have been made to extend the use of this relatively new financing mechanism to other public investments, including transportation projects.

⁴In deriving our comparisons we use current rules and practices relating to state matching expenditures. Specifically, when computing the costs associated with grants we assume that states pay for 20 percent of the investment expenditures; we assume a similar matching rate would be applied if a tax credit bond program were introduced. Our tax-exempt bond example represents independent investments by the state or local governments (or special purpose entities) with no federal support other than the tax subsidy. In the case of the direct loan program, we assume that the \$10 billion of expenditures is financed by approximately the same combination of federal loans, federal grants, state, local or special purpose entity bonds, state appropriations, and private investment as the average project currently financed by TIFIA loans. (See app. I for further details of our methodology). However, it is important to note that the current rules and practices could be revised so that any desired cost sharing between the federal and state governments could be achieved through any of the mechanisms.

⁵The only tax credit bonds currently in existence are Qualified Zone Academy bonds. State or local governments may issue these bonds to finance improvements in public schools in disadvantaged areas. The issuance limit for these bonds is set at \$400 million for 2002 and is allocated to the states on the basis of their portion of the population below the poverty level.

The use of these four mechanisms to finance \$10 billion in infrastructure investment result in differences in (1) total costs—and how much of the cost is incurred within the short term 5-year period and how much of it is postponed to the future; (2) sharing costs—or the extent to which states must spend their own money, or obtain private investment, in order to receive the federal subsidy; and (3) risks—which level of government bears the risk associated with an investment (or compensates others for taking the risk). As a result of these differences, for any given amount of highway investment, combined and federal government budget costs will vary, depending on which financing mechanism is used.

Total Costs—And Short And Long Term Costs— Differ

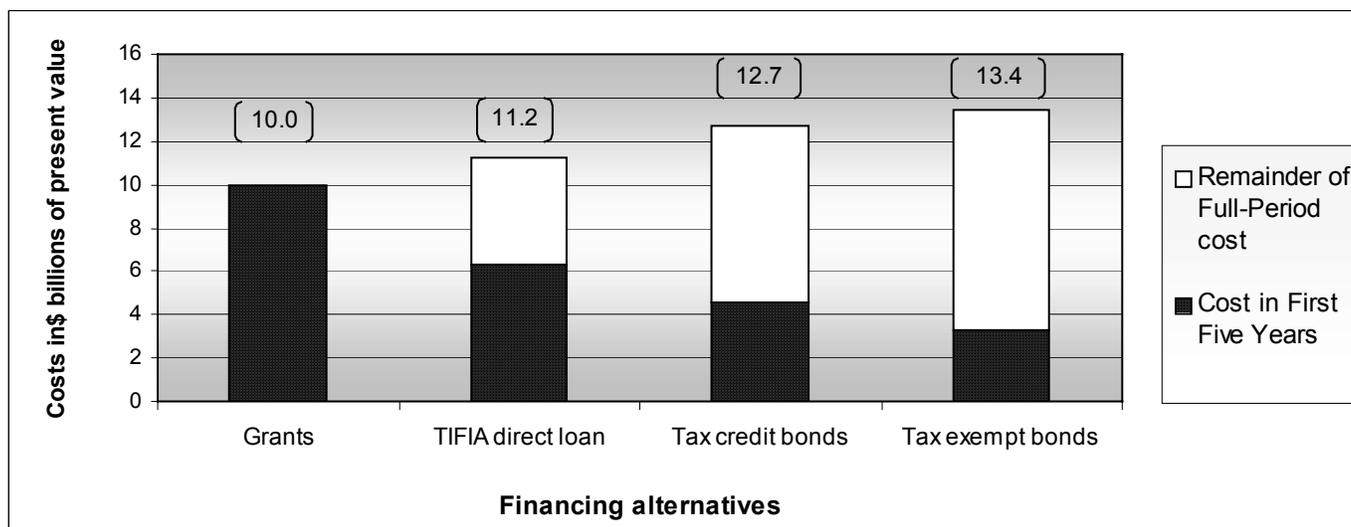
Total costs—and how much of the cost is incurred within the short term 5-year period and how much of it is postponed to the future—differ under each of the four mechanisms. As figure 1 shows, grant funds are the lowest-cost method to finance a given amount of investment expenditure, \$10 billion.⁶ The reason for this result is that it is the only alternative that does not involve borrowing from the private sector through the issuance of bonds. Bonds are more expensive than grants because the governments have to compensate private investors for the risks that they assume (in addition to paying them back the present value of the bond principal). However, because the grants alternative does not involve borrowing, all of the public spending on the project must be made up front. The TIFIA direct loan, tax credit bond, and tax-exempt loan alternatives involve increased amounts of borrowing from the private sector and, therefore, increased overall costs.

Grants entail the highest short term costs as these costs, in our example, are all incurred on a pay-as-you-go basis. The tax-exempt bond alternative, which involves the most borrowing and has the highest combined costs, also requires the least amount of public money up front.⁷

⁶We present our results in present value terms so that the value of dollars spent in the future are adjusted to make them comparable to dollars spent today.

⁷The results presented in figure 1 were computed using current interest rates, which are relatively low by historical standards. At higher interest rates, the combined costs of the alternatives that involve bond financing would be higher, while the costs of grants would remain the same. If we had used bonds with 20-year terms, instead of 30-year terms, in our examples, the costs of the three alternatives that involve bond financing would be lower, but they all would still be greater than the costs of grants.

Figure 1: Present Value Costs of Financing \$10 Billion of Spending on Transportation, Using Alternative Approaches



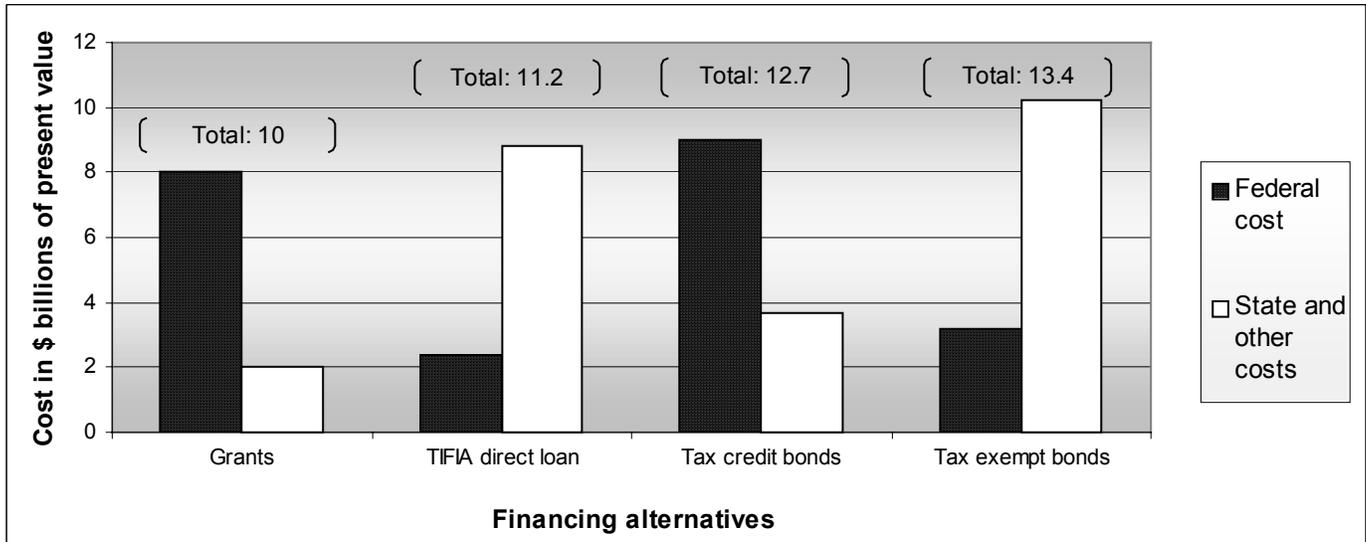
Source: GAO analysis.

Alternatives Result in Different Shares of the Cost

There are significant differences across the four alternatives in the cost sharing between federal and state governments. (See fig. 2). Federal costs would be highest under the tax credit bond alternative, under which the federal government pays the equivalent of 30 years of interest on the bonds. Grants are the next most costly alternative for the federal government. Federal costs for the tax-exempt bond and TIFIA loan alternatives are significantly lower than for tax credit bonds and grants.⁸

⁸Using different assumptions could produce different results. For example, Congress could reduce the federal cost differences across the four alternatives by establishing higher state matching requirements for those programs. In the case of tax credit bonds, setting the rate of credit to substitute for only a fraction of the interest that bond investors would demand would require states to pay the difference.

Figure 2: Present Value of Federal, State, and Other Costs of Financing \$10 Billion of Spending on Transportation, Using Alternative Approaches



Source: GAO analysis.

In some past and current proposals for using tax credit bonds to finance transportation investments, the issuers of the bonds would be allowed to place the proceeds from the sales of some bonds into a “sinking fund” and, thereby, earn investment income that could be used to redeem bond principal. This added feature would reduce (or eliminate) the costs of the bond financing to the issuers, but this would come at a significant additional cost to the federal government. For example, in our example where states issue \$8 billion of tax credit bonds to finance highway projects, if the states were allowed to issue an additional \$ 2.4 billion of bonds to start a sinking fund, they would be able to earn enough investment income to pay back all of the bonds without raising any of their own money. However, this added benefit for the states could increase costs to the federal government by about 30 percent—an additional \$2.7 billion (in present value), raising the total federal cost to \$11.7 billion.

The Federal Role in Bearing Investment Risk Varies

In some cases private investors participate in highway projects, either by purchasing “nonrecourse” state bonds that will be repaid out of project revenues (such as tolls) or by making equity investments in exchange for a share of future toll revenues.⁹ By making these investments the investors are taking the risk that project revenues will be sufficient to pay back their principal, plus an adequate return on their investment. In the case where the nonrecourse bond is a tax-exempt bond, the state must pay an interest rate that provides an adequate after-tax rate of return, including compensation for the risk assumed by the investors. By exempting this interest payment from income tax, the federal government is effectively sharing the cost of compensating investors for risk. Nevertheless, the state still bears some of the risk-related cost and, therefore has an incentive to either select investment projects that have lower risks, or select riskier projects only if the expected benefits from those projects are large enough to warrant taking on the additional risk.

In the case of a tax credit bond where project revenues would be the only source of financing to redeem the bonds and the federal government would be committed to paying whatever rate of credit investors would demand to purchase bonds at par value, the federal government would bear all of the cost of compensating the investors for risk.¹⁰ States would no longer have a financial incentive to balance higher project risks with higher expected project benefits. Alternatively, the credit rate could be set equal to the interest rate that would be required to sell the average state bonds (issued within the same timeframe) at par value. In that case, states would bear the additional cost of selling bonds for projects with above-average risks.

In the case of a TIFIA loan for a project that has private sector participation, the federal loan does not compensate the private investors for their risk; instead, the federal government assumes some of the risk

⁹A nonrecourse bond is not backed by the full faith and credit of the state or local government issuer. Purchasers of such bonds do not have recourse to the issuer’s taxing authority for bond repayment.

¹⁰In the case of Qualified Zone Academy Bonds the statute calls for the credit rate to be set so that the bonds sell at par. Selling at par means that the issuer can sell a bond with a face value of \$1,000 to an investor for \$1,000. If, alternatively, the credit rate were set at an average interest rate, bonds for riskier projects would have to be sold below par (e.g., a bond with a \$1,000 face value might sell for only \$950), meaning that the issuer receives less money to spend for a given amount of bonds issued. Conversely, bonds sold for less risky projects could be sold above par, so that issuers receive more funds than the face value of the bonds issued.

and, thereby, lowers the risk to the private investors and lowers the amount that states have to pay to compensate for that risk.

In summary, Mr. Chairman, alternative financing mechanisms have accelerated the pace of some surface transportation infrastructure improvement projects and provided states additional tools and flexibility to meet their needs—goals of FHWA’s Innovative Finance Program. FHWA and the states have made progress to attain the goal Congress set for the TIFIA program—to stimulate additional investment and encourage greater private sector participation—but measuring success involves measuring the leverage effect of the federal investment, which is often difficult. Our work raises a number of issues concerning the potential costs and benefits of expanding alternative financing mechanisms to meet our nation’s surface transportation needs. Congress likely will weigh these potential costs and benefits as it considers reauthorizing TEA-21.

Expanding the use of alternative financing mechanisms has the potential to stimulate additional investment and private participation. But expanding investment in our nation’s highways and transit systems raises basic questions of who pays, how much, and when. How alternative financing mechanisms are structured determines how much of the needs are met through federal funding and how much are met by the states and others. The structure of these mechanisms also determines how much of the cost of meeting our current needs are met by current users and taxpayers versus future users and taxpayers.

While alternative finance mechanisms can leverage federal investments, they are, in the final analysis, different forms of debt financing. This debt ultimately must be repaid, with interest, either by highway users—through tolls, fuel taxes, or licensing and vehicle fees—or by the general population through increases in general fund taxes or reductions in other government services. Proposals for tax credit bonds would shift the costs of highway investments away from the traditional user-financed sources, unless revenues from the Highway Trust Fund are specifically earmarked to pay for these tax credits.

Mr. Chairman this concludes my prepared statement. I would be pleased to answer any questions you or other members of the Committees have.

Contact and Acknowledgments

For further information on this testimony, please contact JayEtta Z. Hecker (heckerj@gao.gov) or Steve Cohen (cohens@gao.gov). Alternatively, they may be reached on (202) 512-2834. Individuals making key contributions to this testimony include Lynn Filla-Clark, Jennifer Gravelle, Gail Marnik, Jose Oyola, Eric Tempelis, Stacey Thompson, and Jim Wozny.

Appendix I: Methodology for Estimating the Costs of Transportation Financing Alternatives

We estimated the costs that the federal, state or local governments (or special purpose entities they create) would incur if they financed \$10 billion in infrastructure investment using each of four alternative financing mechanisms: grants, tax credit bonds, tax-exempt bonds, and direct federal loans. The following subsections explain our cost computations for each alternative. We converted all of our results into present value terms, so that the value of the dollars spent in the future are adjusted to make them comparable to dollars spent today.¹ This adjustment is particularly important when comparing the costs of bond repayment that occur 30 years from now with the costs of grants that occur immediately.

The Cost of Grants

We estimated the cost to the federal and state governments of traditional grants with a state match. We assume the state was responsible for 20% of the investment expenditures. We then found the percentage of federal grants such that the federal grant plus the state match totaled \$10 billion. This form of matching resulted in the state being responsible for \$2 billion of the spending and the federal government being responsible for \$8 billion.

The Cost of Tax Credit Bonds

We estimated the cost to the federal and state governments of issuing \$8 billion in tax credit bonds with a state match of \$2 billion. The cost to the federal government equals the amount of tax credits that would be paid out over a given loan term.² We estimated the amount of credit payment in a given year by multiplying the amount of outstanding bonds in a given year by the credit rate. We assumed that the credit rate would be approximately equal to the interest rates on municipal bonds of comparable maturity, grossed up by the marginal tax rate of bond purchasers.³ For the results presented in figures 1 and 2 we assumed that the bonds would have a 30-year term and would have a credit rating between Aaa and Baa. The cost to the issuing states would consist of the

¹For example, current interest rates on long-term bonds indicate that, to the government and investors, the present value of a dollar to be spent 30 years from now is less than 25 cents.

²Although the credits that investors earn on tax credit bonds are taxable, we assume that any tax the federal government would gain from this source would be offset by the tax that investors would have paid on income from the investments they would have made if the tax credit bonds were not available for purchase.

³For the tax credit and tax-exempt bond computations we based our rates on municipal bond interest rates reported in the August 22, 2002 issue of the *Bond Buyer*.

repayment of bond principal in future years, plus the upfront cost of \$2 billion in state appropriations for the matching contribution.

The Cost of Tax-Exempt Bonds

The cost of tax-exempt bonds to the state or local government (or special purpose entity) issuers would consist of the interest payments on the bonds and the repayment of bond principal. The cost to the federal government would equal the taxes forgone on the income that bond purchasers would have earned from the investments they would have made if the tax-exempt bonds were not available for purchase. For the results presented in figures 1 and 2 we made the same assumptions regarding the terms and credit rating of the bonds as we did for the tax credit bond alternative. We computed the cost of interest payments by the state by multiplying the amount of outstanding bonds by the current interest rate for municipal bonds with the same term and credit rating. We assumed that the pretax rate of return that bond purchasers would have earned on alternative investments would have been equal to the municipal bond rate divided by one minus the investors' average marginal tax rate. Consequently, the federal revenue loss was equal to that pretax rate of return, multiplied by the amount of tax-exempt bonds outstanding each year (in this example), and then multiplied by the investors' average marginal tax rate.

Direct Federal Loans

In order to have our direct loan example reflect the financing packages typical of current TIFIA projects, we used data from FHWA's June 2002 Report to Congress⁴ to determine what shares of total project expenditures were financed by TIFIA direct loans, federal grants, bonds issued by state or local governments or by special purpose entities, private investment, and other sources. We assumed that the \$10 billion of expenditures in our example was financed by these various sources in roughly the same proportions as they are used, on average, in current TIFIA projects. We estimated the federal and nonfederal costs of the grants and bond financing components in the same manner as we did for the grants and tax-exempt bond examples above. To compute the federal cost of the direct loan component, we multiplied the dollar amount of the direct loan in our example by the average amount of federal subsidy per dollar of TIFIA loans, as reported in the TIFIA report. In the results presented in figure 1, this portion of the federal cost amounted to \$130

⁴U.S. Department of Transportation, *TIFIA Report to Congress*, June 2002.

million. The nonfederal costs of the loan component consist of the loan repayments and interest payments to the federal government. We assumed that the term of the loan was 30 years and that the interest rate was set equal to the federal cost of funds, which is TIFIA's policy. The private investment (other than through bonds), which accounted for less than one percent of the spending, and the "other" sources, which accounted for about three percent of the spending, were treated as money spend immediately on the project.

Sensitivity Analysis

A number of factors—including general interest rate levels, the terms of the bonds or loans, the individual risks of the projects being financed—affect the relative costs of the various alternatives. For this reason, we examined multiple scenarios for each alternative. In particular, current interest rates are relatively low by historical standards. In our alternative scenarios we used higher interest rates, typical of those in the early 1990s. At higher interest rates, the combined costs of the alternatives that involve bond financing would be higher, while the costs of grants would remain the same. If we had used bonds with 20-year terms, instead of 30-year terms in the examples, the costs of the three alternatives that involve bond financing would be lower, but they would still be greater than the costs of grants.

Appendix II: States' Use of Innovative Financing Tools

State Infrastructure Banks

One of the earliest techniques tested to fund transportation infrastructure was revolving loan funds. Prior to 1995, Federal law did not permit states to allocate federal highway funds to capitalize revolving loan funds. However, in the early 1990s, transportation officials began to explore the possibility of adding revolving loan fund capitalization to the list of eligible uses for certain federal transportation funds. Under such a proposal, federal funding is used to “capitalize” or provide seed money for the revolving fund. Then money from the revolving fund would be loaned out to projects, repaid, and recycled back into the revolving fund, and subsequently reinvested in the transportation system through additional loans. In 1995, the federally capitalized transportation revolving loan fund concept took shape as the State Infrastructure Bank (SIB) pilot program, authorized under Section 350 of the NHS Act. This pilot program was originally available only to a maximum of 10 states, but then was expanded under the 1997 U.S. DOT Appropriations Act, which appropriated \$150 million in federal general funds for SIB capitalization. TEA-21 established a new SIB pilot program, but limited participation to four states—California, Florida, Missouri, and Rhode Island. Texas subsequently obtained authorization under TEA-21. These states may enter into cooperative agreements with the U.S. DOT to capitalize their banks with federal-aid funds authorized in TEA-21 for fiscal years 1998 through 2003. Of the states currently authorized, only Florida and Missouri have capitalized their SIBs with TEA-21 funds.

Table 1: State's use of SIBs

State	Number of agreements	Loan agreement amount (\$ 000)	Disbursements to date (\$ 000)
Alabama			
Alaska	1	\$2,737	\$2,737
Arizona	37	\$424,287	\$216,104
Arkansas	1	\$31	\$31
California			
Colorado	2	\$400	\$400
Connecticut			
Delaware	1	\$6,000	\$6,000
D.C.			
Florida	32	\$465,000	\$98,600
Georgia			
Hawaii			
Idaho			
Illinois			
Indiana	1	\$3,000	\$1,122

State	Number of agreements	Loan agreement amount (\$ 000)	Disbursements to date (\$ 000)
Iowa	2	\$2,874	\$2,874
Kansas			
Kentucky			
Louisiana			
Maine	23	\$1,758	\$1,478
Maryland			
Massachusetts			
Michigan	23	\$17,034	\$13,033
Minnesota	15	\$95,719	\$41,000
Mississippi			
Missouri	11	\$73,251	\$67,801
Montana			
Nebraska	1	\$3,360	\$3,360
Nevada			
New Hampshire			
New Jersey			
New Mexico	1	\$541	\$541
New York	2	\$12,000	\$12,000
North Carolina	1	\$1,575	\$1,575
North Dakota	2	\$3,565	\$1,565
Ohio	39	\$141,231	\$116,422
Oklahoma			
Oregon	12	\$17,471	\$17,471
Pennsylvania	23	\$17,403	\$17,403
Puerto Rico	1	\$15,000	\$15,000
Rhode Island	1	\$1,311	\$1,311
South Carolina	6	\$2,382,000	\$1,124,000
South Dakota	1	\$11,740	\$11,740
Tennessee	1	\$1,875	\$1,875
Texas	37	\$252,013	\$225,461
Utah	1	\$2,888	\$2,888
Vermont	3	\$1,023	\$1,000
Virginia	1	\$18,000	\$18,000
Washington	1	\$700	\$385
West Virginia			
Wisconsin	3	\$1,814	\$1,814
Wyoming	8	\$77,977	\$42,441
Total	294	\$4,055,578	\$2,067,432

Source: FHWA, June 2002

Transportation
Infrastructure Finance and
Innovation Act (TIFIA)
credit assistance

As part of TEA-21, Congress authorized the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA) to provide credit assistance, in the form of direct loans, loan guarantees, and standby lines of credit to projects of national significance. The TIFIA legislation authorized \$10.6 billion in credit assistance and \$530 million in subsidy cost to cover the expected long-term cost to the government for providing credit assistance. TIFIA credit assistance is available to highway, transit, passenger rail and multi-modal project, as well as projects involving installation of intelligent transportation systems (ITS).

The TIFIA statute sets forth a number of prerequisites for participation in the TIFIA program. The project costs must be reasonably expected to total at least \$100 million, or alternatively, at least 50 percent of the state's annual apportionment of federal-aid highway funds, whichever is less. For projects involving ITS, eligible project costs must be expected to total at least \$30 million. Projects must be listed on the state's transportation improvement program, have a dedicated revenue source for repayment, and must receive an investment grade rating for their senior debt. Finally, TIFIA assistance cannot exceed 33 percent of the project costs and the final maturity date of any TIFIA credit assistance cannot exceed 35 years after the project's substantial completion date.

Table 2: State's use of TIFIA credit assistance

State	Project name	Project description	Project cost (\$ millions)	Instrument type	Credit amount (\$ millions)	Primary revenue pledge
California	SR 125 Toll Road – 1999	Highway/ Bridge Construct-ion of 11 mi 4-lane toll road in San Diego	\$455	Direct loan	\$94.000	User
				Line of credit	\$33.000	Charges
	San Francisco-Oakland Bay Bridge - 2002	Replacement of SF-Oakland Bay Bridge east span	\$3,305	Direct loan	\$450.000	Toll surcharge
D.C.	Washington Metro – 1999	Transit capital improvement program	\$2,324	Guarantee	\$600.000	Other
Florida	Miami Intermodal Center – 1999	Multi-modal center for Miami Intern'l Airport, including car rental garage, intermodal center, people mover, and roadways.	\$1,349	Direct loan	\$269.076	Tax revenue
				Direct loan	\$163.676	User charges
Nevada	Reno Rail Corridor	Intermodal	\$280	Direct loan	\$73.500	Other
New York	Farley Penn Station – 1999	Intermodal	\$800	Direct loan	\$140.000	Other
				Line of credit	\$20.000	Other
	Staten Island Ferries - 2000	Transit	\$482	Direct loan	\$159.068	Other
Puerto Rico	Tren Urbano - 1999	Transit rail line	\$1,676	Direct loan	\$300.000	Tax revenues
South Carolina	Cooper River Bridge – 2000	Replace double bridges over the Cooper River, connecting Charleston and Mt. Pleasant	\$668	Direct loan	\$215.000	Other
Texas	Central Texas Turnpike – 2001	Construct 120+ mi. toll facilities to ease I-35 congestion	\$3,220	Direct loan	\$917.000	User charges
Washington	Tacoma Narrows Bridge – 2000	Construct new parallel bridge, toll plaza, and approach roadways.	\$835	Direct loan Line of credit	\$240.000 \$30.000	User charges (both)
Total			\$15,393			

Source: FHWA, June 2002.

Grant Anticipation Revenue Vehicles (GARVEEs)

Grant anticipation revenue vehicles (GARVEEs) are another tool states can use to finance highway infrastructure projects. GARVEE bonds are any bond or note repayable with future federal-aid highway funds. The NHS Act and TEA-21 brought about changes that enabled states to use federal-aid highway apportionments to pay debt service and other bond-related expenses and strengthened the predictability of states' federal-aid allocation. While GARVEEs do not generate new revenue, the new eligibility of bond-related costs for federal-aid reimbursement provides states with one more option for repaying debt service. Candidate projects are typically large enough to merit borrowing rather than pay-as-you-go grant funding; do not have access to a revenue stream (such as local taxes or tolls) or other forms of repayment (state appropriations); and have support from the state's DOT to reserve a portion of future year federal-aid highway funds to fund debt service. In some cases, states may elect to pledge other sources of revenue, such as state fuel tax revenue, as a backstop in the event that future federal-aid highway funds are not available.

Table 3: State's use of GARVEE bonds

State	Date of issuance	Face amount of issue	Projects	Backstop financing
Alabama	Apr-02	\$200 million	County Bridge Program	All federal construction reimbursements. Also insured.
Arizona	Jun-00 May-01	\$39.4 million \$142.9 million	Maricopa freeway projects	Certain sub-account transfers
Arkansas	Mar-00 Jul-01	\$175 million \$185 million	Interstate highways	Full faith and credit of state, plus state motor fuel taxes
Colorado	May 00 Apr-01 Jun-02	\$537 million \$506.4 million \$208.3 million	Any project financed wholly or in part by Federal funds	Federal highway funds as allocated annually by CDOT; other state funds
New Mexico	Sep-98 Feb-01	\$100.2 million \$18.5 million	New Mexico SR 44	No backstop; bond insurance obtained
Ohio	May-98 Sep-01 Aug-99	\$70 million \$20 million \$100 million	Spring-Sandusky project and Maumee River Bridge Improvements	Moral obligation pledge to use state gas tax funds and seek general fund appropriations in the event of federal shortfall
Total		\$2,301.7 million		

Source: FHWA, June 2002