

Commission Briefing Paper 3A-01

2006 C&P Findings: Highway and Bridge Finance

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Introduction

This paper is part of a series of briefing papers to be prepared for the National Surface Transportation Policy and Revenue Study Commission authorized in Section 1909 of SAFETEA-LU. The papers are intended to synthesize the state-of-the-practice consensus on the issues that are relevant to the Commission's charge outlined in Section 1909, and will serve as background material in developing the analyses to be presented in the final report of the Commission.

This paper presents information on past and current highway revenue sources at the Federal, State and local level, and the types of highway expenditures made by each level of government. Also included are discussions of highway expenditures on critical components of the highway system, including the Interstate System, the National Highway System (NHS), the Federal-aid Highway System, and other public roads.

Background and Key Findings

The information and findings presented in this paper are extracted from the 2006 *Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance* Report to Congress, and is based on data from 2004. Key findings include:

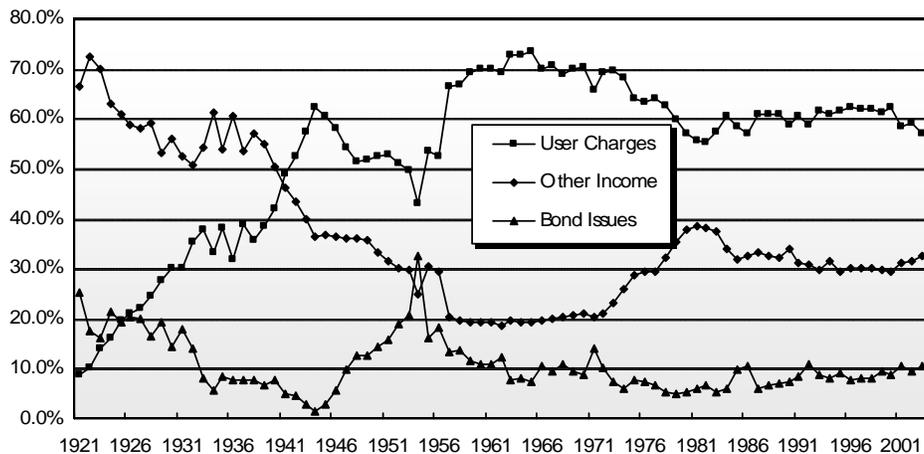
- All levels of government generated \$145.3 billion to be used for highways and bridges in 2004, an increase of 35.3% from the \$107.4 billion generated by all levels of government in 1997.
 - \$56 billion (38.3%) was generated from motor-fuel taxes;
 - \$24 billion (16.2%) was generated from general fund appropriations;
 - \$21 billion (15.8%) was generated from other revenue sources, such as property taxes and fees, lottery proceeds, interest income, and private contributions to State and local highway projects;
 - \$21 billion (14.3%) was generated from motor-vehicle taxes;
 - \$16 billion (10.9%) was generated from bond issue proceeds; and
 - \$7 billion (4.5%) was generated from the collection of tolls.
- Actual cash expenditures for highways and bridges totaled \$147.5 billion, of which \$33.1 billion (22.4%) was funded by the Federal government, \$72.9 billion (49.4%) by State governments; and \$41.5 billion (28.1%) by local governments.
- Of the \$147.5 billion in actual cash expenditures,
 - \$70.3 billion (47.6%) was used for capital improvements;
 - \$36.3 billion (24.6%) was spent on system maintenance and operations;

- \$14.3 billion (9.7%) was spent on highway patrol functions and safety programs;
 - \$12.7 billion (8.6%) was spent on administrative costs, such as planning and research;
 - \$8.0 billion (5.4%) was used for bond retirement; and
 - \$5.8 billion (3.9%) was used to pay interest on debt.
- Of the \$70.3 billion used for capital improvements by all levels of government,
 - \$36.4 billion (51.8%) was used for system rehabilitation;
 - \$14.7 billion (20.9%) was spent to construct new roads and bridges;
 - \$12.8 billion (18.3%) was spent to add lanes to existing roadways; and
 - \$6.4 billion (9.0%) was used on system enhancements, such as upgrades to traffic control facilities, safety enhancements and environmental enhancements.
 - Highway capital outlay totaled \$70.3 billion in 2004, of which \$30.8 billion (48.3%) was funded by the Federal government, \$22.5 billion (32.0%) by State governments; and \$17.0 billion (24.2%) by local governments.

Historical Revenue Trends

Since the passage of the Federal-aid Highway Act of 1956 and the establishment of the Federal Highway Trust Fund (HTF), motor fuel and motor vehicle tax receipts have consistently provided a majority of the combined revenues raised for highway and bridge programs by all levels of government. However, that has not always been the case, from the early 1920s until the late 1930s, property taxes and bond issue proceeds served as the primary source of revenues for highways.

Figure 1. Highway Revenue Sources by Type, All Levels of Government, 1921 – 2004



Beginning in the early 1940s, both property taxes and bond issue proceeds became less significant sources of revenue with the collection of motor fuel and motor vehicle tax receipts. As a percentage of total highway revenue, bond issue proceeds have fluctuated over time, reaching an all-time high of 32.4 percent in 1954; since that time, combined highway and bridge programs have become less dependent on debt financing—their share of total highway revenue has not exceeded 11 percent since 1971. Property taxes reached an all-time low of 4.8 percent of

total highway revenue in 1999—climbing only slightly in 2004 to 5.1 percent of total highway revenues.

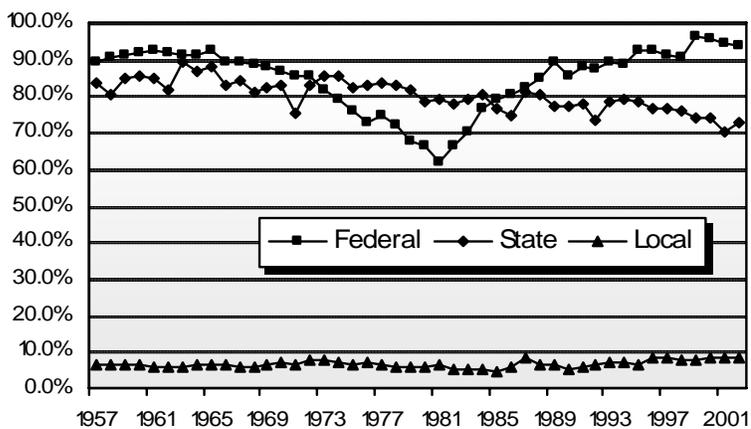
Highway-user charges¹ [as a share of total highway revenue] peaked at 73.5 percent in 1965 and dropped as low as to 55.2 percent in 1982. From 1982 to 2001, the percentage had rebounded and stabilized in a range of about 60 to 62 percent. Since 2001, it has been slightly below 60 percent, ranging from 57 to 59 percent.

Highway-user Revenue Trends, By Level of Government

Figure 2 identifies the percentage of highway revenue derived from user charges by each level of government since 1957.

Note that during the early years of the Highway Trust Fund, over 90 percent of highway revenues at the Federal level were derived from fuel and vehicle taxes. From 1959 to 1981, the Federal motor-fuel tax rate remained constant at 4¢ per gallon. Although Federal motor-fuel tax receipts increased during this period, albeit slightly, the percentage of highway revenue derived from user charges steadily declined, reaching a low of 61.6 percent in 1981. Hence, a rise in the percentage of Federal highway funding came from other sources during this period. For example, in 1981, \$2.6 billion of the \$8.8 billion in general fund revenues was attributable to the Federal government level, accounting for nearly 25.1 percent of total Federal highway funding. Since 1981, Federal motor-fuel taxes have increased significantly, and as a result, the portion of Federal highway revenue derived from highway-user charges has increased, reaching an all-time high of 96.4 percent in 1999. Since then, however, the share of Federal funding generated by highway-user charges have begun to decrease, dropping to 92.4 percent in 2004.

Figure 2. Percent of Highway Revenue Derived from User Charges, By Level of Government, 1957 – 2004



The share of State government highway funding contributed by highway-user charges has varied over time. In 1921, highway-user charges contributed a mere 35.8 percent to State government highway funding. Over the 20-year period from 1922 to 1942, the percentage increased significantly from 42.0 percent to 96.3 percent. Since peaking in 1942, the percentage of State government highway funding attributable to user charges has steadily decreased, as States grew

¹ Receipts from taxes levied on the purchase of motor fuel (i.e., gasoline, diesel fuel, special fuels (liquefied petroleum gas, liquefied natural gas, other special fuels), neat alcohol (85% alcohol), compressed natural gas, and gasohol); the sale of certain motor vehicles or components thereof (i.e., tires, trucks, and trailers); for use of heavy vehicles; and for the use of toll facilities.

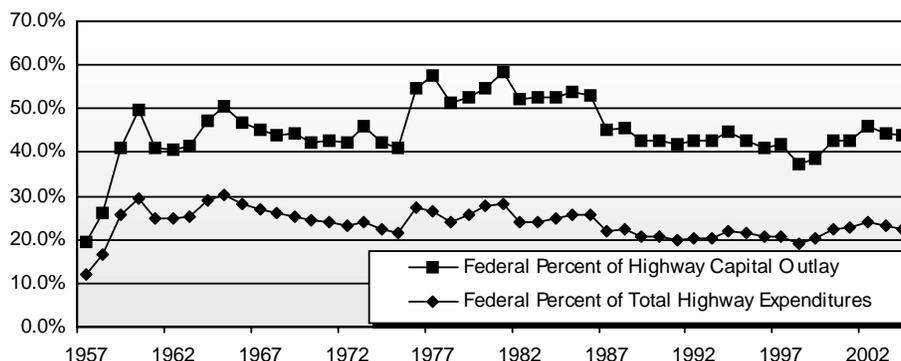
more reliant on debt financing as a means of increasing their revenue flow. Bond proceeds as a percentage of State government highway funding reached 14.3 percent in 2004.

On the local government level, highway-user charges have never been as significant a source of highway revenue as at the Federal or State levels; local governments have tended to support their highway programs through the collection of property taxes and bond issue proceeds. However, in recent years, the share of local government highway funding derived from highway-user charges has been slightly higher than it was historically, exceeding 8 percent each year from 2000 to 2002, before dropping to 7 percent in each of 2003 and 2004.

Federal Portion of Total Funding

Federal support for highways increased dramatically following the passage of the Federal-Aid Highway Act of 1956 and the establishment of the HTF. During the first five years of the HTF, 1957 to 1961, the Federal share of total highway expenditures increased dramatically, from 12.2 percent to 24.8 percent. The Federal share of total funding peaked in 1965 at 30.1 percent and since that time, has gradually declined, but remained above 20.0 percent until 1998, when it dropped to 19.0 percent.² As the increased obligation authority provided under TEA-21 began to translate into higher cash outlays, the Federal percentage of total funding rose steadily from 1998 to 2002 when it reached 24.1 percent; by 2004, this share has dropped to 22.4 percent.

Figure 3. Federal Percentage of Total Funding for Highways, 1921 – 2004



Traditionally, most Federal highway funding has been directed to capital improvements, rather than routine maintenance or operations. Capital improvements (outlays) consist of expenditures associated with highway improvements, including land acquisition and other right-of-way costs; preliminary and construction engineering; new construction, reconstruction, resurfacing, rehabilitation, and restoration costs of roadways, bridges, and other structures; and installation of traffic service facilities such as guardrails, fencing, signs, and signals. Thus the Federal portion of capital outlay is relatively higher than the Federal share of total highway expenditures.

In 1957, the Federal government funded 19.4 percent of total highway capital outlay. Since that time, the Federally funded portion of capital outlay by all levels of government increased

² The Transportation Equity Act for the 21st Century (TEA-21) was not enacted until late in Federal FY 1998, therefore, the increased funding levels provided by the legislation did not immediately translate into increased cash outlays during that year. Because the Federal-aid highway program is a multiple-year reimbursable program, the impact of increases in obligation levels phases in gradually over a number of years.

significantly, to above 40 percent in 1959 and peaking at 58.4 percent in 1981. From 1987 through 1997, the Federal share remained within a range of 41 to 46 percent. In 1998, this percentage fell to 37.1 percent, but has since gradually increased, rising to 46.1 percent in 2002. The share fell to 43.8 percent in 2004.

Current Revenue Sources

In 2004, actual cash expenditures for highways and bridges totaled \$147.5 billion, with \$145.3 billion having been generated by all levels of government and \$2.2 billion drawn from reserves by various governmental units (\$2.2 billion from Federal reserves and less than \$50 million each from State and local reserves) to be used for highways and bridges.

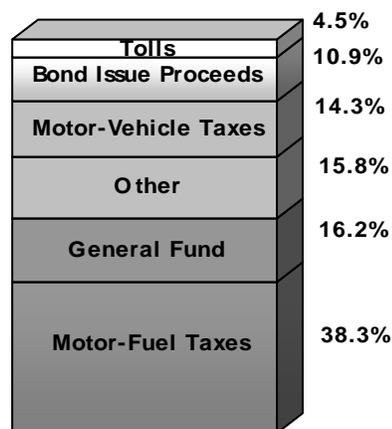
Of the \$145.3 billion generated for highways and bridges, \$83.0 billion (57.1 percent) was attributable to highway-user charges, such as motor-fuel taxes, motor-vehicle taxes and fees, and tolls. The remaining \$62.3 billion (42.9 percent) came from a number of sources, including property taxes and assessments, other dedicated taxes, general funds, bond issues, investment income, and other miscellaneous sources.

Highway-user charges differ widely among the different levels of government. In 2004, highway-user charges accounted for 92.4 percent of highway revenue at the Federal level, 70.8 percent at the State level, and only 6.9 percent at the local government level.

On the Federal level, the portion of highway revenue not derived from highway-user charges (7.6 percent in 2004) came from general fund appropriations, timber sales, lease of Federal lands, oil and mineral royalties, and motor carrier fines and penalties. The 29.2 percent of highway revenue not derived from highway-user charges (in 2004) on the State level came from bond issue proceeds (14.3%), with the remaining 14.9 percent generated from general fund appropriations, other State taxes and fees, investment income and other miscellaneous revenue sources.

As previously stated, highway-user charges have never been as significant a source of highway revenue at the local government level as at the Federal or State levels. Since most local governments are not permitted to impose motor-fuel and motor-vehicle taxes or cap those they do impose very low, the majority (68.3 percent in 2004) of local highway funding is derived from local general funds, property taxes, and other taxes and fees. Local governments also rely on bond issue proceeds and miscellaneous receipts for highway funding, 13.0 percent and 11.9 percent in 2004, respectively.

Figure 4. Percent of Highway Revenue Derived from Different Sources, 2004



Total Revenue Generated: \$145.3 billion

Highway Expenditures

Current highway expenditures can be divided into two broad categories: capital (defined earlier) and non-capital. Non-capital highway expenditures include maintenance of highways³, highway and traffic services⁴, administration, highway law enforcement, highway safety, and interest on debt. Bond retirement is not classified as part of current expenditures, but it is included in the figures cited for total highway expenditures in this paper.

As previously stated, in 2004, total expenditures for highways and bridges equaled \$147.5 billion. Table 1 identifies the portion of this total funded by each level of government. The “Federal,” “State,” and “Local” columns in this table indicate which level of government made the direct expenditures, while the “*Funded by...*” rows indicates the level of government that provided the funding for those expenditures. (Note that all amounts cited as “expenditures,” “spending,” or “outlays” in this paper represent cash expenditures rather than authorizations or obligations.)

Table 1. Direct Expenditures for Highways, By Type and Level of Government, 2004

<i>(Billions of Dollars)</i>	Federal	State	Local	Total	Percent
Capital Outlay	\$1.2	\$50.9	\$18.2	\$70.3	47.6%
<i>Funded by Federal Government*</i>	<i>1.2</i>	<i>28.4</i>	<i>1.2</i>	<i>30.8</i>	<i>20.9%</i>
<i>Funded by State or Local Gov't*</i>	<i>0.0</i>	<i>22.5</i>	<i>17.0</i>	<i>39.5</i>	<i>26.8%</i>
Non-Capital Expenditures					
Maintenance	0.2	9.8	17.4	27.3	18.5%
Highway and Traffic Services	0.0	4.7	4.3	9.0	6.1%
Administration	2.1	6.6	4.1	12.7	8.6%
Highway Patrol and Safety	0.0	7.4	6.9	14.3	9.7%
Interest on Debt	0.0	4.0	1.9	5.8	3.9%
Subtotal	\$2.3	\$32.5	\$34.4	\$69.2	46.9%
Total, Current Expenditures	\$3.5	\$83.4	\$52.6	\$139.5	94.6%
Bond Retirement	\$0.0	\$4.7	\$3.3	\$8.0	5.4%
Total, All Expenditures	\$3.5	\$88.0	\$56.0	\$147.5	100.0%

Of the \$147.5 billion in total expenditures spent by all levels of government for highways and bridges, \$70.3 billion (47.6 percent) went towards capital outlay, \$69.2 billion (46.9 percent) went towards non-capital expenditures, while the remaining \$8.0 billion (5.4 percent) went for bond redemption. The Federal government also transferred \$28.4 billion and \$1.2 billion, respectively to State and local governments for use on capital expenditures.

State governments combined \$28.4 billion of Federal funds with \$57.9 billion of State funds and \$1.7 billion of local funds to make direct expenditures of \$88.0 billion. Local governments combined \$1.2 billion of Federal funds with \$15.0 billion of State funds and \$39.8 billion of local funds to make direct expenditures of \$56.0 billion.

³ Routine and regular expenditures required to keep the highway surface, shoulders, roadsides, structures, and traffic control devices in usable condition, including spot patching; crack sealing of roadways and bridge decks; and the maintenance and repair of highway utilities and safety devices such as route markers, signs, guardrails, fence, signals, and highway lighting.

⁴ Activities designed to improve the operation and appearance of the roadway (e.g., operation of traffic control systems, snow and ice removal, highway beautification, litter pickup, mowing, toll collection, and air quality monitoring).

In 2004, all levels of government spent \$69.2 billion on non-capital expenditures. As shown in Table 1, non-capital expenditures were funded primarily by State and local governments (direct Federal spending on maintenance, administration, and research amounted to only \$2.3 billion).

Non-Capital Expenditures

In 2004, all levels of government spent \$69.2 billion on non-capital expenditures. As shown in Table 1, non-capital expenditures were funded primarily by State and local governments (direct Federal spending on maintenance, administration, and research amounted to only \$2.3 billion).

In 2004, spending by local governments on non-capital expenditures exceeded spending by State governments on non-capital expenditures, with local governments spending \$34.4 billion and State governments spending \$32.5 billion. State spending exceeded local spending in all but one area, maintenance, where local expenditures totaled \$17.4 billion—63.5 percent of the \$27.3 billion spent by all levels of government on maintenance.

Capital Outlay

As shown in Table 1, all levels of government combined spent \$70.3 billion on capital outlay in 2004 (47.6 percent of total highway expenditures). Of this amount, \$30.8 billion (43.8 percent) was funded by the Federal government, with \$1.2 billion having been spent directly on capital outlay and the remaining \$29.6 billion having been transferred to State and local governments in the form of grants for use on capital outlay. In 2004, State governments spent \$50.9 billion on capital expenditures, with \$22.5 billion having been generated through State or local revenue mechanisms and \$28.4 billion in grants from the Federal government. On the local level, \$18.2 billion was spent on capital outlay, with \$17.2 billion having been generated through State or local revenue mechanisms and \$1.2 billion in grants from the Federal government.

Capital Outlay by Improvement Type

In 2004, all levels of government spent about \$36.4 billion on system rehabilitation (51.8 percent of total capital outlay). For purposes of this paper, system rehabilitation activities include capital improvements on existing roads and bridges that are designed to preserve the existing pavement and bridge infrastructure, but do not include routine maintenance. About \$14.7 billion (20.9 percent of total capital outlay) was spent on the construction of new roads and bridges in 2004. An additional \$12.8 billion (18.3 percent) is estimated to have been used to add lanes to existing roads. Another \$6.4 billion (9.0 percent) was spent on system enhancement, including safety enhancements, traffic operations improvements, and environmental enhancements.

Over time, the share of capital outlay devoted to these major categories has varied. The overall share of highway capital outlay going toward system rehabilitation increased significantly from 47.6 percent in 1997 to 51.8 percent in 2004. Between 1997 and 2004, the share devoted to system enhancements also increased from 8.0 percent to 9.0 percent. Expenditures for new roads and bridges relative to other improvement expenditures increased from 15.6 percent in 1997 to 20.9 percent in 2004. Other system expansion decreased significantly as a share of total capital outlay, dropping from 28.8 percent in 1997 to 18.3 percent in 2004.

Capital Outlay on the National Highway System (NHS) and the Interstate System

In 2004, all levels of government spent \$34.6 billion for capital improvements on NHS highways and bridges, which accounted for 49.2 percent of the \$70.3 billion in total capital investments on all roads. As a percentage of total capital spending on the NHS, system rehabilitation expenditures constituted 42.7 percent, system expansion 49.3 percent, and system enhancements 8.0 percent.

Approximately \$12.3 billion was spent by all levels of government on NHS rural arterials and collectors in 2004, and another \$22.3 billion was spent on urban arterials and collectors on the NHS. Reported State government spending on NHS routes functionally classified as rural local or urban local was negligible in the year 2004.

Of the total \$34.6 billion spent by all levels of government for the capital improvements to the NHS in 2004, \$15.5 billion (approximately 45.0 percent) was used on the Interstate component of the NHS; this amount constituted 22.0 percent of the \$70.3 billion of capital outlay on all functional classes. System rehabilitation expenditures constituted 51.3 percent of total capital spending on Interstates, system expansion 41.4 percent, and system enhancement 7.3 percent.

Innovative Finance

Innovative finance includes a number of techniques initiatives undertaken in recent years to accelerate surface transportation project development and expand the base of available resources by (1) removing barriers to private investment; (2) encouraging the use of new revenue streams, particularly tolls; and (3) reducing financing costs, thus freeing up savings for transportation system investment. These financing initiatives and techniques, which are commonly used in the private sector, are relatively new to Federally-aided transportation funding and are beginning to play an increasingly important role in supplementing the more traditional financing mechanisms used to fund and support the current surface transportation system. For statistical reporting purposes, State governments are instructed to include contributions from private developers as part of their miscellaneous receipts for highways. **Therefore, it is important to recognize that the revenue sources discussed in the following sections overlap those presented earlier.**

Public-Private Partnerships (PPPs)

In recent years there has been renewed interest in private sector involvement in highway construction programs as highway budgets have been stretched, prompting States to look to the private sector as a potential source of highway and transit funding. A variety of institutional models are being used including (1) concessions for the long-term operation and maintenance of individual facilities or entire highway systems; (2) purely private sector highway design, construction, financing, and operation; and (3) public-private partnerships to design, construct, and operate major new highway systems.

In the last few years, the U.S. Department of Transportation (DOT) has undertaken a number of initiatives to help remove barriers and increase the role of the private sector in highway construction, operation, and maintenance. These initiatives include outreach workshops to facilitate knowledge exchange between State governments and the private sector; case studies on how States and local governments have overcome institutional barriers to PPP implementation; and the development and launch of the PPP Web site that contains links to many PPP resources,

both domestic and international. In December 2004, the USDOT issued a *Report to Congress on Public-Private Partnerships*, a source of information on the value that these types of partnerships can add to our nation's transportation system. The report included quantifiable cost and time savings, as well as anecdotal evidence suggesting that quality and innovation increase by involving the private sector in the early stages of a project. The FHWA also published the *Manual for Using Public-Private Partnerships on Highway Projects*, intended to provide a one-stop resource for States interested in pursuing PPPs.

Credit Assistance

Federal credit assistance for transportation projects takes various forms (e.g., loans, loan guarantees, and credit enhancement) and can provide project sponsors⁵ the necessary capital to advance a project while also providing an efficient means of utilizing scarce Federal budget authority. Credit enhancement includes standby lines of credit, make Federal funds available on a contingency basis, reducing the risk to investors and allowing project sponsors to borrow at lower interest rates. Two of the most significant Federal credit assistance programs, introduced in recent years are the Transportation Infrastructure and Finance Innovation Act (TIFIA) and the State Infrastructure Bank (SIB) program.

The TIFIA program, created under TEA-21, reauthorized under SAFETEA-LU, and administered by USDOT offers eligible applicants the opportunity to compete for secured (direct) loans, loan guarantees, and standby lines of credit for up to one-third of the cost of construction for nationally and regionally significant projects. Borrowers must have an associated revenue stream, such as tolls or local sales taxes that can be used to repay the debt issued for the project. Through July 2006, the 12 projects receiving commitments of TIFIA credit assistance represented more than \$13.2 billion of infrastructure investment in the United States. The 13 credit agreements (one project has multiple agreements) executed or under negotiation amounted to almost \$3.2 billion in Federal credit assistance at a budget cost of less than \$190 million in contract authority. Borrowers have drawn about 20 percent of the TIFIA proceeds made available through these agreements. Since June 2002, five borrowers have retired their TIFIA loans, either by early repayment or by refinancing the loan prior to draws. To date, no TIFIA borrower has defaulted on a loan repayment.

The State Infrastructure Bank Pilot Program provides increased financial flexibility for infrastructure projects by offering direct loans and loan guarantees [to public and private sponsors of Title 23 highway construction projects or Title 49 transit capital projects] that are capitalized with Federal and State funds. Each SIB operates as a revolving fund, financing a wide variety of surface transportation projects and as loans are repaid, additional funds become available to new loan applicants. As of June 2005, \$5.1 billion in loan agreements had been made by 33 States, of which \$3.7 billion had been disbursed for 457 loan agreements. Twenty-one States had signed SIB cooperative agreements with the Federal Transit Administration (FTA), and eight States had executed public transit SIB loans assisting \$318.7 million in projects. Of the \$5.1 billion in loan agreements, total SIB public transit loan activity was equal to \$94.5 million. Many of the loans have assisted communities with local project match

⁵ These projects may often involve partnerships between the public and private sectors.

requirements, enabling local governments to accelerate the implementation of transportation infrastructure and services that might otherwise have been postponed.

SAFETEA-LU authorized \$15 billion in tax-exempt private activity bonds for surface transportation projects and rail-truck transfer facilities. These bonds allow private entities to receive the benefit of tax-exempt financing for highway projects and freight transfer facilities. A number of States are interested in applying for an allocation of these funds. As of December 2006, about \$1.9 billion had been allotted for a highway concession in Texas.

Debt Financing

The complexity, cost, and lengthy design and construction periods associated with transportation projects, have often led highway project sponsors to finance their projects by issuing bonds that would traditionally be repaid over several years from revenues generated by State and local taxes or highway user fees. However, in recent years, debt instruments backed by anticipated future Federal apportionments called Grant Anticipation Revenue Vehicles (GARVEEs) have become an attractive financing mechanism to bridge funding gaps and accelerate the construction of major transportation projects.

GARVEEs have become facilitators in the creation of public-private partnerships, as they expand access to capital markets, supplement general revenue bonds, and provide immediate and reliable sources of funding, making large projects possible and allowing construction to begin more quick. This helps to attract greater private sector involvement because of the GARVEE's ability to yield immediate influxes of up-front capital for major highway projects in the form of bond proceeds at tax-exempt rates. A GARVEE bond is authorized to receive Federal reimbursement of debt service (principal and interest), underwriting fees, bond insurance, and other costs incidental to financing a project. As of May 2006, the amount of GARVEE debt issued nationally had reached about \$5 billion. As of December 2005, transit grant anticipation debt had exceeded \$3.5 billion.