# CBO TESTIMONY

**Statement of**
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# Public Spending on Surface Transportation Infrastructure

**before the**
**Committee on the Budget**
**U.S. House of Representatives**

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Chairman Spratt, Congressman Ryan, and Members of the Committee, thank you for the invitation to discuss public spending on surface transportation infrastructure. The Congressional Budget Office (CBO) projects that the balance in the Highway Trust Fund will be exhausted at some point during fiscal year 2009. In addition, the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) expires at the end of that fiscal year. Consequently, the Congress will face important policy questions about how much to invest in surface transportation systems; how to apportion that spending among roads, rail, transit, and other modes of transportation; how best to finance that spending; and which levels of government are best positioned to make those decisions.

To shed light on those issues, my statement today describes recent trends in public spending for infrastructure at all levels, the role of Highway Trust Fund in accounting for such spending, and some options for financing future spending on transportation infrastructure.

In my testimony, I will make the following points:

- Spending on surface transportation infrastructure by all levels of government in 2004 was $191 billion (in 2006 dollars), or 1.5 percent of gross domestic product (GDP). The federal government provided about one-quarter of those funds, and states and localities provided the rest. Those funds were split about equally between spending for capital projects and operation and maintenance. Most of that spending was for roads.

- Federal outlays are directed almost entirely to capital projects and account for slightly less than one-half of all public spending on such projects. In contrast, state and local governments provide virtually all of the public spending to operate and maintain the surface transportation infrastructure.

- Most of the federal spending for infrastructure comes from excise taxes on gasoline and diesel fuel and other taxes that are credited to the Highway Trust Fund. In recent years, spending from the highway account of the trust fund has consistently exceeded its income. According to CBO's projections, if annual spending continues at its currently authorized levels (adjusted for inflation after 2009), the highway account of the trust fund will be exhausted at some point during fiscal year 2009; the mass transit account will have sufficient revenues to cover its expenditures until 2012.

- Over the 2009–2017 period, policymakers face a growing differential between expected revenues in the highway account and spending from that account that could occur if obligations continue at the levels authorized in SAFETEA-LU, adjusted for inflation. Eliminating that differential would require a cut in spending authority of 40 percent below projected levels during 2009 and about

20 percent annually thereafter through 2017; an increase in revenues of about 20 percent over the period; or some combination of the two approaches.

- The current system of generating revenues to fund surface transportation projects relies primarily on various excise taxes. Under current law, those taxes are not sufficient to pay for rising highway construction costs or to account for the external costs of pollution or congestion. To balance the trust fund's spending and revenues, tax rates could be increased or indexed. However, because the taxes are not linked to the use of specific roads, they do not provide signals to policymakers indicating which are most valuable to users.

- As an alternative to the current system, existing taxes could be replaced or supplemented with charges to users based on the costs that they impose on the system and the external costs of pollution and congestion. For example, tolls or fees based on mileage or vehicle weight may provide users a clearer signal of the costs that they impose on the system. Even so, such user charges by themselves may not be able to finance the entire highway system, and their administrative feasibility over a nationwide system of roads has not yet been demonstrated.

## Trends in Public Spending on Surface Transportation Infrastructure

The federal government and state and local governments devote substantial resources to building, operating, and maintaining the nation's surface transportation infrastructure. During 2004, which is the most recent year for which comprehensive data are available, total public spending on surface transportation infrastructure was $191 billion (measured in 2006 dollars), or 1.5 percent of GDP. Those figures include spending by federal, state, and local governments on roads, rail, mass transit, and water transportation. Since 1956, annual public spending on such infrastructure has ranged between 1.4 percent and 2.0 percent of GDP.[1]

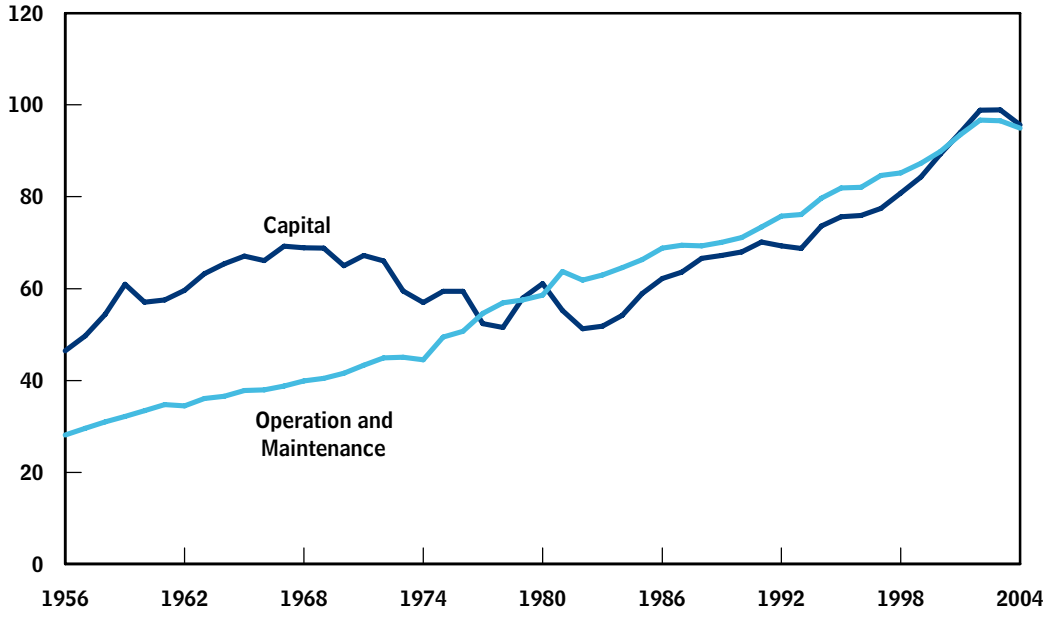
In 2004, about half of total public spending on surface transportation infrastructure went to capital projects, for example, building or rehabilitating physical infrastructure. The other half was spent on operating and maintaining that infrastructure. The shares of capital expenditures and operation and maintenance expenditures within the total have been fairly stable since the mid-1980s. Before then, capital expenditures usually exceeded spending on operation and maintenance (see

1. Additional detail on infrastructure spending is available in Congressional Budget Office, *Trends in Public Spending on Transportation and Water Infrastructure, 1956 to 2004* (August 2007). Supplemental data tables and a methodological appendix include data sources and definitions. The paper addresses public spending on surface transportation and other types of infrastructure: aviation, water resources (such as dams and levees), and water supply and wastewater treatment. Public spending on all transportation and water infrastructure in 2004 was $312 billion, in 2006 dollars.

**Figure 1.**

## Federal, State, and Local Spending for Surface Transportation Capital Investments and Operation and Maintenance, 1956 to 2004

(Billions of 2006 dollars)




Source: Congressional Budget Office.

Figure 1). Measured in 2006 dollars, spending for operation and maintenance has trended steadily upward over the past 50 years. Measured the same way, capital spending for surface transportation peaked in the late 1960s (in part because of the construction of the Interstate Highway System), declined through the early 1980s, and has grown steadily since then.

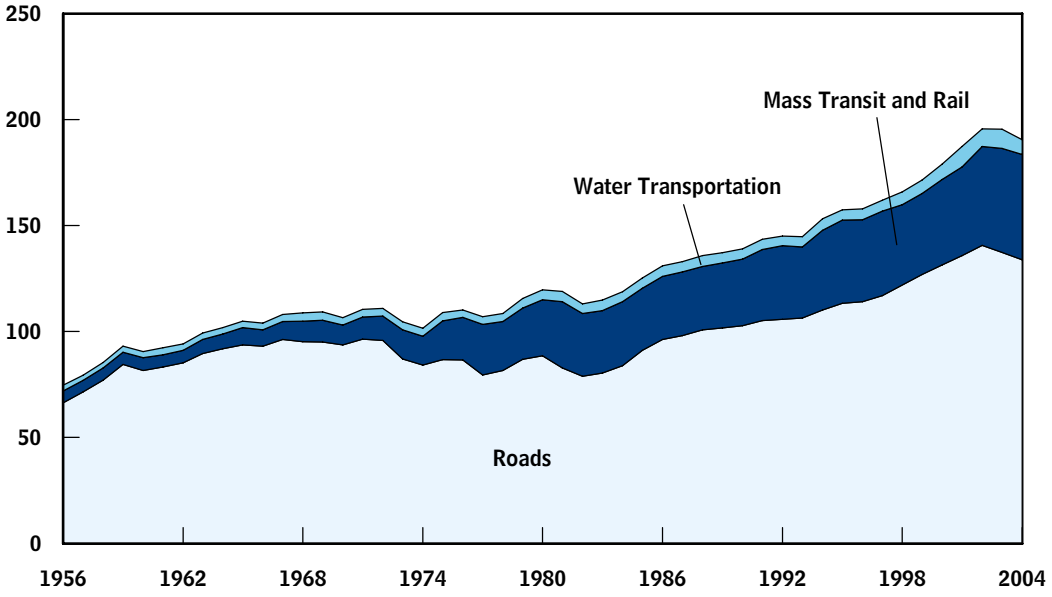
Spending priorities on surface transportation infrastructure vary by level of government. In 2004, federal outlays—almost entirely in the form of grants and loans to states and localities—principally funded capital projects; 92 cents of every federal dollar spent on such infrastructure was for capital projects rather than operation and maintenance. In contrast, the majority of state and local spending (64 percent) was allocated to operation and maintenance. The federal government provided almost one-half (46 percent) of total public funding for surface transportation capital projects, and states and localities accounted for virtually all (96 percent) of public spending to operate and maintain that infrastructure.[2]

2. State and local spending on operation and maintenance reflects in part conditions that the federal government places on grants and loan subsidies that it provides. Those funds often may not be used for those purposes.

**Figure 2.**

## Federal, State, and Local Spending on Surface Transportation Infrastructure, by Type, 1956 to 2004

(Billions of 2006 dollars)




Source: Congressional Budget Office.

Among types of surface transportation, roads account for the largest share of infrastructure spending by any level of government (see Figure 2). About 80 percent of capital spending on surface transportation infrastructure by the federal government and state and local governments (net of federal grants and loan subsidies) goes to roads. Roads also account for a large portion of spending to operate and maintain surface transportation infrastructure, though that share is considerably larger at the state and local levels than at the federal level (64 percent versus 30 percent, respectively).

Federal spending on surface transportation infrastructure in 2007 was about $50 billion.[3] The federal government supplied about one-quarter of all public funding for surface transportation infrastructure, with state and local governments providing the rest. That share has been roughly stable over the past several decades.

3. Those federal outlays for infrastructure do not include several types of financial support for infrastructure: first, the revenues forgone by the federal government through the tax exemptions on income from bonds issued by state and local governments to finance infrastructure and, second, sizable outlays by the Department of Homeland Security to protect infrastructure. See Congressional Budget Office, *Trends in Public Spending on Transportation and Water Infrastructure*.

In addition to government, private entities play a limited role in providing surface transportation infrastructure beyond simply supplying services under contract to a government agency. Such participation by the private sector, which is often referred to as public–private partnerships, has so far constituted only a relatively small amount of infrastructure funding. Under the Transportation Infrastructure Finance and Innovation Act (TIFIA) of 1998 (Public Law 105-178), the federal government has encouraged private investment to improve the nation's surface transportation system by providing direct loans at below-market rates and loan guarantees—at a cost of $240 million through 2006.

## Overview of the Highway Trust Fund

The federal government's surface transportation programs are financed mostly through the Highway Trust Fund (certain transit programs receive appropriations from the U.S. Treasury's general fund). Those surface transportation programs are administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration.[4]

The Highway Trust Fund is an accounting mechanism in the federal budget. The fund comprises two separate accounts, one for highways and one for mass transit. It records specific cash inflows (revenues from certain excise taxes on motor fuels and trucks) and cash outflows (spending on designated highway and mass transit programs). By far, the largest component of the trust fund is the Federal-Aid Highway program (see Table 1).

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

Such obligation limitations are customarily set in annual appropriation acts. The most recent authorization law governing spending from the trust fund—SAFETEA-LU—was enacted in 2005 and is due to expire at the end of 2009. The law provides specific amounts of contract authority over the 2005–2009 period and authorizes appropriations for certain programs that are not funded through contract authority. It also specifies annual obligation limitations, which may be superseded each year by limitations set in appropriation acts.

4. Other agencies within the Department of Transportation also receive funding from the Highway Trust Fund, including the Federal Motor Carriers Administration and the National Highway Transportation Safety Administration. In 2007, the Federal Motor Carriers Administration and the National Highway Transportation Safety Administration received a total of about 3 percent of the budgetary resources from the Highway Trust Fund.

**Table 1.**

## Major Components of the Highway Trust Fund, 2007

(Billions of dollars)

| | Estimated Receipts[a] | Budget Authority and Obligation Limitations[b] | Estimated Outlays |
|---|---|---|---|
| Highway Account | | | |
| Federal-Aid Highway program | n.a. | 39.8 | 33.7 |
| Motor carrier safety | n.a. | 0.5 | 0.5 |
| Highway traffic safety | n.a. | 0.8 | 0.6 |
| Other | n.a. | 0 | 0.2 |
| Subtotal | 34.1 | 41.1 | 35.0 |
| Mass Transit Account | | | |
| Discretionary grants | n.a. | 0 | 0.1 |
| Trust fund share of transit programs[c] | n.a. | 7.3 | 3.6 |
| Subtotal | 5.0 | 7.3 | 3.7 |
| Total, Highway Trust Fund | 39.1 | 48.3 | 38.6 |

Source: Congressional Budget Office.

Notes: n.a. = not applicable.

Numbers may not add up to totals because of rounding.

a. Receipts are deposited in the highway and mass transit accounts but are not earmarked for specific components.

b. Obligation limitations enacted in appropriation acts limit the amount of budget authority available to most Highway Trust Fund programs. The amounts in this column are the sum of obligation limitations and budget authority that is not subject to any such limitation.

c. Includes only outlays from 2007 funds. Outlays from previous years' funding were recorded in those years as transfers to other budget accounts.

The largest source of revenues credited to the Highway Trust Fund is the tax of 18.3 cents per gallon on gasoline and gasohol. Under current law, such taxes are scheduled to expire in 2011. The gas and gasohol tax currently produces about two-thirds of the fund's total revenues (see Table 2). The second largest source is the levy of 24.3 cents per gallon on diesel, which accounts for about one-quarter of the revenues. Thus, taxes on motor fuels generate about 90 percent of the trust fund's total revenues. The rest come from a retail sales tax on certain trucks, a tax on the use of certain heavy vehicles, and a tax on truck tires. About 2.8 cents per gallon of all fuel taxes credited to the Highway Trust Fund is dedicated to the mass transit account, or about 13 percent of all trust fund revenues. That account received about $4.9 billion in 2006.

### History of the Highway Trust Fund's Revenues and Spending

The Highway Trust Fund was established in 1956. Since then, there have been several notable changes to the program, including the addition of an account dedicated to transit programs in 1983. Since 1983, many further changes have been

**Table 2.**

## Estimated Highway Trust Fund Revenues, 2006

(Billions of dollars)

| Revenue Source | Total | Highway Account | Mass Transit Account | Percentage of Total Trust Fund Revenues |
|---|---|---|---|---|
| Gasoline Tax | 24.9 | 21.0 | 3.9 | 64 |
| Diesel Tax | 9.6 | 8.5 | 1.1 | 25 |
| Tax on Trucks and Trailers | 3.6 | 3.6 | 0 | 9 |
| Use Tax on Certain Vehicles | 1.1 | 1.1 | 0 | 3 |
| Truck Tire Tax | 0.5 | 0.5 | 0 | 1 |
| Refunds[a] | -0.9 | -0.8 | -0.1 | -2 |
| **Total** | **38.8** | **33.9** | **4.9** | **100** |

Source: Congressional Budget Office.

a. Section 9503(c) of the Internal Revenue Code provides for refunds from the Highway Trust Fund to be paid out for fuel used for certain nontaxable purposes. Those include, but are not limited to, vehicles operated by state and local governments, certain nonhighway vehicles, local transit systems, and vehicles used on farms.

made to the highway program, to the taxes dedicated to the Highway Trust Fund, and to trust fund operations. One of the most significant changes occurred in the Taxpayer Relief Act of 1997, which increased amounts deposited into the trust fund by 4.3 cents per gallon of gasoline sold, in addition to the 14.0 cents per gallon previously allocated to the fund.[5]

Over the past 15 years, spending for programs funded through the Highway Trust Fund has increased as a share of nondefense spending. Over the 1992–1996 period, spending from the trust fund was about 1.8 percent of nondefense spending; over the past five years, it has increased to 2.1 percent (see Table 3). When considered as a percentage of GDP, spending from the trust fund has also increased.

Spending from the trust fund started increasing rapidly in 1999, resulting from changes enacted in the Transportation Equity Act for the 21st Century (TEA-21), which provided budget authority and contract authority of $218 billion over the 1998–2003 period (an average of $36.3 billion per year). Consequently, annual outlays rose by 40 percent from 1999 to 2003. SAFETEA-LU, which provided contract authority of $286 billion (an average of $57.2 billion per year) over the 2005–2009 period, represented a further significant increase in funding over previous authorizations.

5. The total gas tax is 18.4 cents per gallon. Of that, 18.3 cents is deposited in the Highway Trust Fund, and 0.1 cents goes to the Leaking Underground Storage Trust Fund. (The 1993 Omnibus Budget and Reconciliation Act increased the gas tax by 4.3 cents; the added receipts were not initially deposited into the trust fund, but into the general fund of the Treasury.)

**Table 3.**

## Spending from the Highway Trust Fund over Selected Periods, 1992 to 2006

(Billions of dollars)

| | 1992-1996 | 1997-2001 | 2002-2006 |
|---|---|---|---|
| Average Spending from the Highway Trust Fund | 21.6 | 28.9 | 38.9 |
| As a percentage of nondefense spending | 1.80 | 2.00 | 2.10 |
| As a percentage of gross domestic product | 0.31 | 0.32 | 0.34 |
| **Memorandum:** | | | |
| Average Nondefense Spending | 1,184 | 1,439 | 1,873 |
| Average Gross Domestic Product | 6,959 | 9,141 | 11,606 |

Source: Congressional Budget Office.

Balances in the highway account were steady during the 1980s and the first half of the 1990s, in the vicinity of $10 billion. Receipts substantially exceeded outlays from 1996 to 2000, and the unexpended balance in the highway account (sometimes called the cash balance) grew from $10 billion in 1995 to a peak of about $23 billion in 2000 (see Figure 3). Revenues fell sharply in 2001, but have increased steadily since then—at an average rate of about 3.4 percent per year through 2007.[6] Nevertheless, spending, boosted by TEA-21, has generally exceeded revenues since 2001. As a result, unspent balances in the highway account declined to about $8.0 billion by the end of 2007. In general, balances in the mass transit account also have been falling since 2000, although at a slower rate than those in the highway account. At the end of 2007, the balance in the mass transit account totaled about $7.9 billion.

### Appropriations from the General Fund for Transit Programs and Emergency Relief

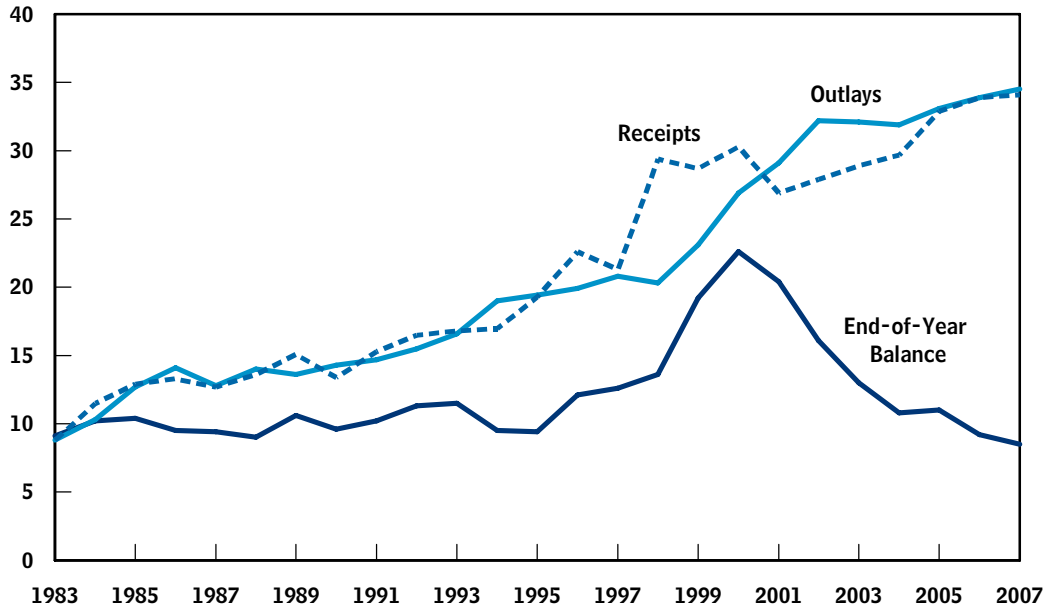
A portion of transit spending is appropriated from the general fund. From 1998 (and the enactment of TEA-21) to 2006, transit programs have received about $18 billion in general fund appropriations, or about $2 billion per year. (Such general fund appropriations totaled about 30 percent of the contract authority for transit programs over the same time period.) By far, the largest component of such appropriations is the Capital Investment Grants (CIG) program, which accounted for about $10 billion of that spending over the 1998–2006 period. The CIG program provides capital assistance for certain programs to create, expand, or modernize certain rail, bus, and ferry facilities. The second largest component of such

6. Revenues recorded to the Highway Trust Fund were especially strong in 2005, following changes in the tax treatment of certain fuels. The American Jobs Creation Act of 2004 modified the subsidy for ethanol production by establishing a tax credit paid from the Treasury's general fund. That credit replaced a lower tax rate for gasoline containing ethanol. The law also included other provisions to increase revenues to the Highway Trust Fund.

**Figure 3.**

## Receipts, Outlays, and Balances of the Highway Account, 1983 to 2007

(Billions of dollars)




Source: Congressional Budget Office.

appropriations—about $7 billion—was a program of formula grants for transit operations that has been funded through the Highway Trust Fund since 2005. Appropriations from the general fund also pay for research programs and administrative expenses of transit programs.

Since 2005, certain appropriations for FHWA's Emergency Relief program have come from the general fund. That program provides for the reconstruction of certain highways and bridges that have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause. Annually, $100 million is set aside in the Highway Trust Fund for such programs. Before 2005, additional budget authority was appropriated from the trust fund as needed. From 1999 to 2004, such appropriations totaled more than $3 billion. However, starting in 2005, the Congress has appropriated additional money for emergency relief from the general fund: about $4.3 billion since that year.

## Projections of the Highway Trust Fund's Revenues and Spending

The status of the Highway Trust Fund is generally assessed by projecting the balances in it, which indicate whether the expected revenues will be sufficient to cover the anticipated spending. Those balances represent the cumulative differ-

ence between revenues and outlays over the life of the fund and indicate how much the fund has available, at any particular time, to meet its current and future obligations.

### The Highway Trust Fund's Balances

CBO has estimated the trust fund's future balances by projecting revenues and outlays independently of each other because they have different bases. Revenues depend on the collection of various taxes, and outlays depend on the obligation limitations set in appropriation acts as well as the timing of spending for obligations that have been made in prior years. For those projections, CBO assumes that policymakers will continue to control spending through such limitations. Further, for the purpose of these estimates, the agency assumes that appropriation acts will set obligation limitations equal to the amounts specified in SAFETEA-LU plus any adjustments for what is termed revenue-aligned budget authority (RABA), a funding mechanism contained in the 2005 law that is designed to strengthen the relationship between the highway account's revenues and spending.[7]

### Projections of Highway Trust Fund Revenues

If the current taxes are extended beyond their 2011 expiration date, revenues credited to the Highway Trust Fund will rise at an average annual rate of about 2 percent per year over the coming decade, CBO projects. Total trust fund revenues will grow from about $39 billion in 2006 to about $40 billion in 2009—at a slower rate than nominal GDP, which CBO expects to rise at an average annual rate of 4.6 percent over the next 10 years. (In large part, the difference exists because fuel tax collections depend on the quantity of fuel consumed rather than on the price of gasoline.) As a result, trust fund revenues are projected to decline from 0.25 percent of GDP in 2007 to 0.19 percent of GDP in 2017 if the current taxes are extended.

### Projections of Highway Trust Fund Outlays

CBO bases its estimates of trust fund outlays primarily on historical spending patterns, which reflect states' multiyear projects to plan and build roads, bridges, and other transportation infrastructure. In the case of the fund's highway account, most of the obligations involve capital projects on which money is spent over a number of years. For example, the Federal-Aid Highway program typically spends about 27 percent of its budgetary resources in the year they are made available for spending and the rest over the next several years. Most of the highway programs' exist-

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7. That assumption differs from the one underlying CBO's baseline budget projections, which are governed by the rules set forth in the Balanced Budget and Emergency Deficit Control Act. In its most recent baseline, CBO projected highway spending over the next decade by assuming that the budget authority and obligation limitations in future years would equal those enacted in the 2007 appropriation act for the Department of Transportation, adjusted for inflation. With that projection method, baseline funding levels for highways are lower than the levels specified in SAFETEA-LU.

ing obligations will therefore be met using future tax revenues because those obligations far exceed the amounts now in the account. At the end of fiscal year 2007, the balance of the highway account stood at $8.0 billion, whereas the outstanding obligations of highway programs totaled about $45 billion.

If lawmakers set obligation limitations at the amounts authorized in SAFETEA-LU and add RABA adjustments (as estimated by CBO), outlays from the trust fund's highway account will gradually increase from about $35.0 billion in 2007 to about $42 billion in 2009, CBO estimates, if amounts in the trust fund are sufficient. Those outlays would exceed revenues by $5 billion in 2008 and more than $6 billion in 2009. In addition, CBO anticipates that about $2 billion from the highway account will be transferred to the mass transit account over that period.[8] By CBO's estimates, balances in the highway account will be exhausted during fiscal year 2009, falling short of amounts needed to meet estimated obligations coming due in that year by $4 billion to $5 billion, or about 10 percent of the projected spending.

For projections of outlays after 2009, CBO assumes that SAFETEA-LU spending levels grow at the rate of inflation, a practice consistent with the agency's usual procedures for baseline projections. Under that assumption, the differential between revenues and projected outlays would be larger in 2010 and beyond (see Figure 4). Under an assumption that revenues remain at projected levels through 2017, outlays from the highway account, if unconstrained, would exceed revenues by a total of about $67 billion (or 17 percent) over the 2009–2017 period.

Under SAFETEA-LU and including transfers from the highway account, the obligation limit for mass transit would grow from $8.3 billion in 2007 to $9.4 billion in 2009. By CBO's estimates, outlays would exceed revenues by about $500 million in 2008 and by almost $2 billion in 2009. With obligation limits adjusted for inflation after 2009, the mass transit account would have sufficient resources to meet estimated spending until 2012, according to CBO's estimates. Subsequently, CBO estimates, projected spending from the transit account would exceed estimated receipts by $3 billion to $4 billion a year.

CBO's projections of the rate of spending from the trust fund are based on historical averages, but those rates might vary from year to year in accordance with factors such as states' construction schedules and plans. Also, changes in oil prices, the economy, and the fuel efficiency of vehicles can all cause future revenues to differ from CBO's projections. Small deviations from those projections would not significantly affect the future status of the Highway Trust Fund and the expected imbalance between obligations and resources.

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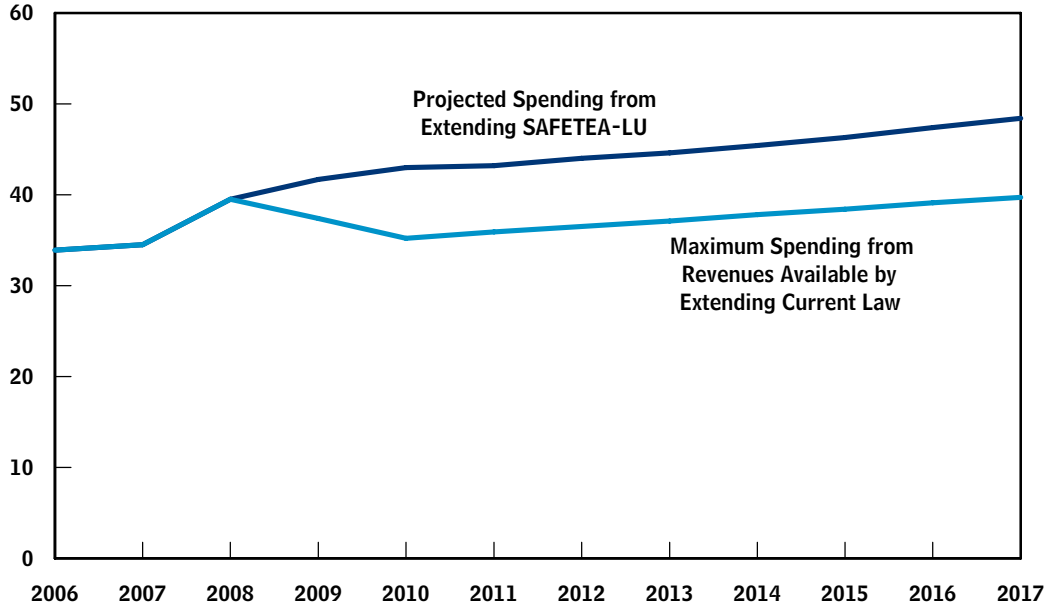
8. Under SAFETEA-LU, states are allowed to use some of their highway funds for transit projects; funds are transferred from the highway account to the transit account when states choose to use such flexibility.

**Figure 4.**

## Projected Spending from Extending SAFETEA-LU Compared with the Maximum Spending That Could Be Sustained from Revenues Credited to the Highway Account of the Highway Trust Fund

(Billions of dollars)




Source: Congressional Budget Office.

Note: Projections in the figure assume that spending authority under the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) grows at the rate of inflation after 2009; the estimated maximum spending from the highway account reflects what could be sustained by projected revenues.

## Options to Address the Differential in the Highway Account Between Expected Revenues and Projected Spending

If the balances in the highway account fell to zero, the Administration would have to take some action to constrain spending because the trust fund is not authorized to borrow money or to incur negative balances.

### Possible Actions by the Administration

Without a change to current law, CBO anticipates that by 2009 the Administration will need to act to remedy the imbalance between revenues and outlays in the trust fund—probably by constraining the use of contract authority. Although the Administration has not yet stated how it will address that eventuality, a variety of

options exist. The Department of Transportation may have to suspend the current practice of immediately reimbursing states for spending on highway programs and, instead, require states to wait for reimbursement until additional receipts are credited to the trust fund. At that time, the Administration may choose to reimburse states on a "first-in, first-out" basis. The Administration could also use the Emergency Relief program as a model and divide the available funds among all states requesting reimbursement, or it could develop another way to allocate the resources in the trust fund.

## Legislative Options to Reduce the Difference Between Revenues and Spending

To balance revenues and spending, lawmakers could reduce future obligation limitations and budget authority below the levels assumed in CBO's projections, increase revenues to accommodate future spending levels, or pursue a combination of the two. The examples below provide some of many alternatives available to the Congress.

**Reducing Outlays.** One option available to lawmakers is to reduce federal spending on highway programs. To do so, the Congress would need to cut the obligation limitations that control spending on those programs. For example, to constrain outlays to the revenues available in 2009, lawmakers would need to reduce the obligation limitation for that year in SAFETEA-LU by about $16 billion—roughly a 40 percent decrease. Subsequently, relative to obligation limitations growing at the rate of inflation, cuts in those limitations would need to average about $9 billion annually from 2010 through 2017, for a total of $79 billion over the 2009–2017 period—a reduction of about 20 percent.[9]

**Increasing Revenues.** To maintain spending on highway programs at SAFETEA-LU levels, the Congress could choose to raise additional revenues through an increase in the gas tax or through other mechanisms. According to estimates from the Joint Committee on Taxation, a one-cent increase in the gas tax, effective October 1, 2008, would raise slightly less than $2 billion for the trust fund annually over the next 10 years.[10] About 87 percent of those funds accrue to the highway account.

CBO estimates that receipts to the highway account in 2009 will total $35.3 billion. To cover all obligations that will probably come due that year if they continue at SAFETEA-LU levels, revenues credited to that account would have to increase

9. Because the spending that is estimated to occur each year is only partly from new spending authority, that authority would need to be reduced substantially in 2009 to ensure a sufficient reduction in spending in that year.

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

by between $4 billion and $5 billion. A gas tax increase of about 3 cents per gallon of fuel sold would raise that amount for the highway account and about $600 million for the transit account.

Over the 2010–2017 period, with increases in obligation rates assumed to reflect inflation, revenues credited to the highway account would have to be about 20 percent, or $8 billion, above current projections for each year, to meet obligations that would become due in each year. To generate such a sum for the highway account, revenues would need to increase by about $9 billion per year, requiring an increase in the gas tax of about 5 cents per gallon, effective October 1, 2010.[11] Resulting increases in revenues to the mass transit account, about $1 billion per year, would maintain positive balances in that fund until 2014.

**A Combination of Reducing Outlays and Increasing Revenues.** Lawmakers could also choose to both reduce spending and increase revenues. For example, if the Congress chose to decrease spending from the highway account by 10 percent (relative to SAFETEA-LU levels inflated)—about $40 billion—over the 2009–2017 period, revenues would also have to increase by about 10 percent compared with the level in CBO's projections. Of that increase, under current law about $34 billion would be credited to the highway account and $5 billion to the mass transit account. A gas tax increase of about 2.5 cents per gallon of fuel sold, beginning in 2009, would generate such a revenue stream.

## Future Funding of Transportation Infrastructure

By many indications, the nation's surface transportation system will require substantial investments in coming decades. The number of vehicle-miles traveled has been growing by about 2 percent a year, and trucks are carrying increasing amounts of freight. As a result, congestion is growing; the Department of Transportation projects that traffic on a substantial percentage of the Interstate Highway System will exceed its capacity by 2020. The department recently estimated that $78.8 billion per year (in 2004 dollars) will be needed over the next 20 years to maintain the nation's highway system in its current condition, and another $15.8 billion will be needed to maintain transit systems in their current condition.

Empirical research indicates that, as a whole, public investment in transportation infrastructure makes a positive contribution to the economy, but determining the appropriate level of government spending on that infrastructure is difficult. For example, identifying the amount of spending necessary is difficult at the aggregate level because individual infrastructure projects have varying costs and benefits depending upon their age, type of construction, intensity of use, and other factors. Economic returns from infrastructure will also vary significantly among projects because those returns depend upon a number of factors, including the amount of

11. All revenue estimates are provided by the Joint Committee on Taxation.

infrastructure already in place. For example, analysts have found that the initial construction of the Interstate Highway System from the late-1950s through early-1970s increased the productivity of those industries relying on the nation's roadways to acquire materials and distribute their products. Subsequent investments to expand or rehabilitate the nation's roads have apparently had a much smaller economic impact, although they provide other important benefits—such as ensuring the safety and reliability of existing infrastructure—that are probably not fully captured by estimates of purely economic returns.

In assessing the future status of the Highway Trust Fund and what actions might be necessary to ensure a balance between its income and spending, it is useful to address the broader questions of what total spending ought to be and what role the federal government ought to play in financing that spending. Some of the relevant questions include:

- Are the funds that the federal government is currently collecting and spending for surface transportation programs going to their best uses? Could the potential imbalance between the trust fund's revenues and spending be remedied, at least in part, by better targeting spending to its most productive uses? If so, what rules or procedures would be most effective in that regard?

- If more money is raised from transportation-related taxes, what steps ought to be taken to ensure that those funds are used to meet the highest-priority needs?

- What is the appropriate role for the federal government in the financing of transportation infrastructure? If more money is needed, should the federal government raise taxes to collect it, or should states, which ultimately determine how most of the funds are spent, bear the responsibility for imposing and collecting the necessary taxes or fees? If the federal government collects the money, how much flexibility should states have in determining how to spend the federal dollars?

- To what extent does federal funding substitute for spending that would otherwise be undertaken by other levels of government?

- What is the appropriate role for the private sector in the financing of transportation infrastructure? Should the federal government facilitate a greater private-sector role, and if so, how?

The answers to those questions are not necessarily clear or straightforward, but they are relevant in determining funding and financing strategies for the surface transportation system.

# Financing Transportation Infrastructure

In assessing ways to finance transportation spending—whether at the federal level or at the state and local levels—it is useful to consider not only how much various financing approaches might raise but also what kinds of incentives they provide to users of the transportation system. There is a strong rationale for charging users for the costs of transportation infrastructure because they reap substantial benefits that the system provides. Designing and implementing a financing system that charges users of transportation infrastructure for the costs that they impose on the system can encourage efficient use of existing roads, rails, and other transportation infrastructure. It can also help in identifying needs and paying for the construction of new infrastructure in the right places at the right time. The charges users pay for the costs that they impose on the system provide a measure of the value of investment in increased capacity.

## The Current System

Under the current system, receipts from various excise taxes, most notably those on the sale of gasoline, diesel, and other motor fuels, are collected and credited to the Highway Trust Fund. The Congress determines how much money each state receives from the fund. Most of that determination reflects existing apportionment formulas provided in law, but some spending is based on specific allocations to states in legislation. The formulas determine which types of projects are undertaken, but each state determines which specific projects to undertake. The federal government then reimburses states from the Highway Trust Fund for the federal share of those projects.

The current system for funding bridges and roads collects the funds used for that infrastructure from users of the system, though not always in proportion to the costs they impose on the system. The fuel taxes, which CBO estimates funded about 90 percent of federal highway spending in 2006, are partially related to the wear and tear that driving inflicts on roads, bridges, and other transportation infrastructure. For example, vehicles that travel farther burn more fuel and pay more in taxes. Heavier vehicles that do more damage to pavement and bridges also burn more fuel and pay more in taxes, but probably not in proportion to the damage they cause. For example, a heavily loaded truck uses somewhat more fuel and pays somewhat more in taxes than a comparatively light automobile but does much greater damage to pavement and bridges. However, the current system is also demonstrably workable. Collection costs are low, and evading the taxes is difficult.

The long-run economic viability of the existing financing system is in question, however. Existing taxes on gasoline, diesel fuel, and ethanol are a fixed number of cents per gallon and thus do not increase with inflation. However, construction costs continue to rise. The Federal Highway Administration's Composite Bid Price Index, which measures contract prices for goods and services commonly used in highway construction, increased by 74 percent since the enactment of TEA-21 in

1998.[12] That average annual increase is over 7 percent, which is well above other broader measures of inflation, such as the change in the Consumer Price Index. The increase in construction prices contributes to the long-term decline in the purchasing power of revenues accruing to the Highway Trust Fund. For example, the 2006 revenues credited to the highway account are 47 percent more than the 1998 revenues in dollar terms, but those revenues provide about 15 percent less in purchasing power for highway construction. Policymakers could choose to restore the Highway Trust Fund's purchasing power by indexing fuel taxes to account for inflation. But even so, increased fuel efficiency, hybrid vehicles, or alternative fuels could serve to limit the trust fund's receipts in the future.

In addition, current taxes do not account for the costs of pollution and congestion caused by driving. For example, a driver on a congested road uses a little more fuel and pays a little more in taxes than he or she would driving on an uncongested road but imposes much greater costs on other drivers in terms of delay.

### Alternatives Based on Charges to Users of Transportation Infrastructure

The federal government, as well as states and localities, could choose to replace or supplement existing fuel taxes with taxes or user fees intended to both recover more of the costs imposed by users of transportation infrastructure and to charge specific users fees that are more directly in line with the costs of their use. A number of such fees already exist in the current financing system at the state and local levels. Widespread use of some such systems may not be practical in the short term, but they might be worth considering over the longer term, particularly if technological developments continue to make them more feasible.

*Mileage-based road use fees* charge users specifically for road use. Because such fees can vary by location, vehicle type, and time of day, they have the capability to closely match the actual costs imposed by specific users. One form of such fees that are already commonly used on major highway facilities, tolls can be economically efficient because they can vary by vehicle type and therefore can reflect the costs imposed by various classes of vehicles. Many tolls vary by time of day and therefore can reflect the congestion costs imposed on other users. It has long been recognized that tolls that reflect the costs users impose on the system provide a measure of the value of investment in increased capacity.[13] However, the administrative costs of collecting some tolls could be higher than the administrative costs of collecting current motor fuel taxes. Moreover, because tolls currently apply only to some major roads, relying solely on tolls from those roads would not be efficient, equitable, or adequate to pay for the entire highway system.

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12. Federal Highway Administration, *Price Trends for Highway Construction*, Fourth Quarter, 2006.

13. See William S. Vickery, "Congestion Theory and Transport Investment," *American Economic Review*, vol. 59, no. 2, (May 1969), pp. 259–260.

In response to concerns about the long-term viability of fuel taxes, some states are currently studying the feasibility of mileage-based user fees that apply to all roads, not just major highways. For example, Oregon recently conducted a one-year experiment in which drivers paid a mileage-based fee instead of fuel taxes when they filled up at the gas station. The fee was intended to replace the fuel tax as the primary source of revenues for the state's roads, as well as incorporating congestion pricing based on both location and time of travel. In addition, the state of Washington recently evaluated a system using global positioning system (GPS) technology in vehicles. Drivers were charged different prices per mile depending on both the location and time of travel, thereby incorporating congestion pricing. Expanded use of such systems would overcome some of the practical difficulties of collecting tolls over a broad system of roads but would require addressing other considerations—for example, many cars do not yet have GPS systems—and resolving varied privacy concerns about the government having access to data about who was driving when and where.

Generalized mileage-based fees for the use of roads have several attractive characteristics. Because the fees can vary by vehicle type, time of day, and location, they have the capability to closely match the actual costs that users impose on the system. The fees are equitable for the various classes of users because revenues are raised in proportion to the costs imposed. They send price signals to drivers about the costs that they impose on the system, thus helping to reduce demand, and to transportation planners about the value of adding capacity, thus promoting long-run efficiency. However, while increasing use of electronic monitoring and payment systems has reduced transactions costs, there are still unresolved questions about the degree to which generalized mileage-based road-use charges are technically and administratively feasible when applied to large, complex road systems.

*Weight-distance fees* charge vehicles based on their weight and configuration of axles and annual miles traveled. Those user fees can be economically efficient at recovering infrastructure costs because vehicles pay in direct proportion to the estimated wear and tear they cause on infrastructure. Consequently, different classes of vehicles are treated equitably. However, weight-distance fees do not reflect congestion costs. A heavy vehicle currently pays the same weight-distance fee whether it travels on a congested road or an uncongested road. Furthermore, weight-distance fees may be more difficult to administer and easier to evade than charges under the current system. While 11 states had weight-distance fees in 1989, today only four states (Kentucky, New Mexico, New York, and Oregon) have them.

*Congestion fees* charge drivers for the delay that their choice to drive imposes on other drivers. Such fees are higher in times or places with heavy traffic, lower in times or places with light traffic. They are already used at a variety of highways, bridges, and tunnels throughout the United States.[14] For example, on State Route 91 in Orange County, California, congestion fees vary hour to hour in order to

maintain a free flow of traffic in the priced lanes. The fees promote efficient use of existing infrastructure by allocating it those who value it most (namely, those most willing to pay the charge). They are also efficient at reducing congestion costs because each vehicle pays for the delay caused to other users. To the extent that some drivers choose to use other modes or routes or to travel at less congested times of the day rather than pay the fee, congestion is reduced. Congestion fees also send price signals about the need to add capacity, thus promoting long-run efficiency. Electronic technology makes the fees inexpensive to administer on the largest, most congested roads. In many recent applications of congestion pricing, such as I-394 outside Minneapolis, Minnesota, overhead sensors read electronic transponders in vehicles, eliminating the need for drivers to stop or even slow down. Moreover, London and Stockholm have successfully imposed charges on driving in the center of those cities to reduce congestion.

Congestion fees have some drawbacks. It may not be equitable to have users of congested roads pay some or all of the cost of the road system while users of uncongested roads pay little or none. In addition, charging high tolls could raise concerns about the impact on low-income users. Last, the administrative feasibility of congestion fees in a broad variety of applications found throughout the highway system is not yet clear.

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14. For a list of current and planned congestion-pricing projects, see Federal Highway Administration, Office of Transportation Management, *Value Pricing Project Quarterly Reports,* available at http://ops.fhwa.dot.gov/tolling_pricing/value_pricing/quarterlyreport/index.htm.