



# The Future of Highway and Transit Finance

## *Steering Clear of the Breakdown Lane*

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In the past year, a convergence of events has brought transportation finance to the forefront of the critical issues facing the transportation community in the United States. The Executive Committee of the Transportation Research Board confirmed this by listing finance as one of nine *Critical Issues in Transportation* in January 2006.<sup>1</sup>

The protracted struggle to reauthorize federal highway and transit programs produced the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) in the summer of 2005. But the multiyear effort to pass the legislation often was stymied by a revenue stream that was—until the end—unable to stretch to meet the needs for political equity among the states.

The reauthorization therefore had to tap into additional sources to generate funds to bolster revenues. Those sources included user fees for gasohol, measures to reduce user fee evasion, and a reduction in balances in the Highway Trust Fund.

### **Realities and Ideals**

Despite these additions to the revenue stream, forecasts indicate that the Highway Trust Fund will be broke by 2009 or 2010 and therefore will be unable to maintain levels of funding in the next reauthorization cycle. “Broke” means that the monies avail-

able in the Trust Fund will be less than the amounts authorized by law for spending on highway and transit programs. If this occurs, expenditures will be limited to the amounts available in the Trust Fund, regardless of the amounts authorized by law.

With costs for construction continually increasing and with transportation needs that exceed the levels of investment in SAFETEA-LU, the prospect of an insolvent Trust Fund has created great concern about the future of highway and transit finance. To address this issue, Congress established two commissions to make recommendations on future financing.

The nation’s transportation needs are extensive, as documented in the U.S. Department of Transportation’s (DOT’s) 2004 report on the conditions and performance of U.S. highways, bridges, and transit systems. In the report, U.S. DOT estimates that all levels of government should be spending a combined \$143 billion per year to maintain and improve transportation systems. The actual spending in 2000, however, was only \$81 billion—a \$62 billion annual shortfall in investment.

An ideal transportation finance system would raise adequate revenues, be funded by users, and be politically acceptable. It would be easy to understand, inexpensive to administer, and equitable in a variety of ways; it would encourage efficient use of the system. The challenge is to formulate a system

<sup>1</sup> <http://onlinepubs.trb.org/onlinepubs/general/CriticalIssues06.pdf>.



Federal revenues from gasoline taxes are being eroded by the advent of vehicles with better gas mileage or powered by alternative fuels.

that holds all of these characteristics and that will serve the United States well in the decades ahead.

### Finance System Sources

Before exploring future options, a review of the current U.S. system of finance—at the federal, state, and local levels—is useful. The sources of revenue are many. Each source, however, varies in importance from state to state and from the state level to the federal level.

#### Gas Tax

The principal user fee is the so-called gas tax—the largest source of revenue for highways at the federal and the state levels. More than one-third of total U.S. revenue available for highway spending comes from federal and state gas taxes, as does almost 51 percent of the revenue deposited to the federal Highway Trust Fund. The gas tax or fuel tax properly should

be called user fees because the use of the transportation system is linked directly to payments by users.

The federal gas tax is 18.4 cents per gallon. The average state tax on gasoline is a little more than 20 cents per gallon.

In 1919 Oregon became the first state to enact a gas tax, and within 10 years all states had passed the tax. The states were the principal financiers of early highway construction.

The federal gas tax first was levied in 1932 as a source of general revenue—that is, the revenues were not bound explicitly for highway spending. Not until 1956 were the federal gas tax revenues dedicated for transportation. The Federal-Aid Highway Act and the Highway Revenue Act of 1956 established the Highway Trust Fund.

The federal gas tax rose from 1 cent per gallon in 1932 to 4 cents per gallon in 1960. The gas tax did not increase again until 1984, to 9 cents per gallon. One penny of the five-cent increase was placed in the Mass Transit Account of the Highway Trust Fund for capital projects. Of today's 18.4 cents-per-gallon gas tax, 15.44 cents is directed to the Highway Account and 2.86 cents is directed to the Mass Transit Account.

#### Federal User Fees

Although the gas tax is the largest contributor, the Highway Trust Fund has three other sources of revenue. Two come from taxes on other types of fuel—approximately 24 percent of Trust Fund revenues comes from a user fee on diesel fuel, and 16 percent comes from a user fee on gasohol. The third source comes from fees on tires, trucks, and other user charges, producing 9 percent of the Highway Trust Fund revenue.

The federal Trust Fund generates large amounts of revenue, distributes substantial funding to the states, and often is viewed as the most important source of funding for highways. Although the federal government is perceived as the largest source of highway revenue, it is not—approximately 21 percent of all revenue for highways comes from the federal government, 52 percent comes from state governments, and 27 percent comes from local governments.

#### State Mixes

State revenues come from a greater variety of sources than do the federal revenues. States derive revenues from tolls and from investment income—sources not in the federal mix—as well as from their own fuel taxes. In addition, states make more extensive use of general fund appropriations and of other taxes and fees than does the federal government. States also rely on bond issue proceeds for financing.

A Seattle, Washington, gas station circa 1931. After the neighboring state of Oregon levied the first state gas tax in 1919, every U.S. state and the District of Columbia followed suit within the next few years.



The mix of revenue sources varies considerably from state to state. Although the state gas tax is the largest source of revenue in many states, some states rely more heavily on other sources. Five states received more funds from bond proceeds than from the state gas tax in 2001, three states generated more money from a vehicle tax, and one state—Delaware—received more money from tolls than from any other source.

The gas tax rate varies tremendously among the 50 states. Georgia's tax is the lowest at 7.5 cents per gallon, and Rhode Island's is the highest, at 30 cents per gallon.

### Local Contributions

User fees are the predominant source of federal and state revenue but are minor contributors at the local government level. General fund appropriations make up almost one-half, and property taxes one-sixth, of local-level revenues. Bond issue proceeds, investment income, and other taxes and fees each exceed the user fees collected by local governments. Other sources include locally enacted retail sales taxes, tolls, property taxes, benefit assessment districts, and general fund revenues.

### Transit Financing

Federal grants for transit capital improvements are provided from the Mass Transit Account of the Highway Trust Fund. At the state level, many states spend some of their gas tax receipts on transit, but policies vary greatly. Ten states spend no gas tax receipts on mass transit; 19 states spend less than 1 percent on transit; and 4 states spend between 15 and 25 percent of their gas tax receipts on mass transit. Transit also receives local revenue from sales taxes, property taxes, general revenues, advertising, and fares.

### Recent Revenue Additions

To increase the revenue for the federal Highway Trust Fund, several suggestions were offered during the reauthorization debate. A few significant measures were adopted in the legislation.

◆ Until recently, 2.5 cents of the per-gallon gasohol user fee was diverted to the General Fund. This source of revenue—an estimated \$800 million per year—was captured for the Highway Trust Fund by the Foreign Sales Corporation—Extraterritorial Income Tax legislation enacted in October 2004.

◆ In addition, gasohol had been taxed at a rate that was 5.2 cents per gallon less than gasoline. The October 2004 law also included a provision to reimburse the Highway Trust Fund for those lost revenues, with monies from the General Fund. This added



PHOTO: TONY SAUNDERS

approximately \$1.5 billion per year in revenue.

◆ The October 2004 legislation changed the methods for collecting fuel taxes, in an attempt to reduce fuel tax evasion—that is, the nonpayment of fuel taxes. This added an estimated \$500 million to \$600 million of revenue per year.

◆ On September 30, 2003, the combined balance in the highway and transit accounts of the Highway Trust Fund was \$17.8 billion. Many analysts believed this balance was higher than necessary to meet obligations. The authorization levels and obligation limits in SAFETEA-LU, however, will draw the balance down. On September 30, 2005, the balance was approximately \$12.8 billion. Current estimates project that the Highway Trust Fund balance will approach zero in 2009 or 2010. In effect, an unused balance is being made available for funding highways and transit.

◆ Before the Transportation Equity Act for the 21st Century, enacted in 1998, the Highway Trust Fund had earned interest on its balance. The Highway Trust Fund is now the only federal government trust fund that does not receive credit for interest earned. SAFETEA-LU did not incorporate proposals to remedy this and add earned interest as revenue to the fund. With the balance in the Highway Trust Fund falling to near zero by 2009, the interest generated would be small.

In addition, SAFETEA-LU increased the opportunities for alternative financing. The legislation allows private-activity bonds to be issued for selected highway facilities and surface freight transfer facilities. These bonds are tax-exempt and are issued by—

The Highway Trust Fund supports transit capital improvements; New York City's Staten Island Ferry has received funds to rehabilitate terminals and purchase new vessels.



With the increased availability of fuel-efficient hybrid technology (*above*), alternative and equitable means of taxing roadway users may have to be considered—if only to prepare for the time that the current revenue system begins to fail.

or on behalf of—a local or state government to provide special financing for qualified projects. Most often the financing is for projects of a private user, and the government generally does not pledge its credit. Up to \$15 billion in private-activity bonds may be issued. In October 2006, Texas became the first state to receive federal approval to use private activity bonds under SAFETEA-LU.

The reauthorization also improved and expanded the eligibility under the Transportation Infrastructure Finance and Innovation Act (TIFIA). The state infrastructure bank provisions in TIFIA, for example, were extended to all states.

### Threats to the Fuel Tax

The fuel tax—that is, the combined user fees for gasoline, diesel, and gasohol—has many advantages as a revenue source for highways. Administration is easy and inexpensive, and evasion is infrequent. The fee is collected in small amounts, spread out over time, and therefore is less burdensome to the public.

There is no clamor to abolish or reduce the tax, which is relatively equitable—the amount of tax paid is generally in proportion to the mileage driven on the highway system, to the weight of the vehicle, and thus, to the damage imposed on the roadways. The fuel tax clearly links the use of roads to the financing of road construction and maintenance.

For all of these reasons, the fuel tax has been a principal source of revenue for many decades. Yet despite these many advantages, the fuel tax has shortcomings that are potential threats to revenues and to the Trust Fund:

- ◆ Inflation has ravaged fuel tax revenue in the past. During the 1970s, inflation reduced the buying

power of fuel tax revenue by approximately 50 percent. A possible remedy is to index the fuel tax to inflation.

- ◆ Continuing improvements in vehicle fuel economy will reduce the consumption of gasoline, diesel fuel, and gasohol. For example, vehicle manufacturers recently have made significant improvements in the fuel efficiency of sport utility vehicles.

- ◆ The growing use of alternative fuels, hybrid vehicles, and electric vehicles also will reduce the consumption of traditional fuels. The magnitude of this effect and how quickly it will become significant, however, is uncertain.

- ◆ Electricity, natural gas, and hydrogen are gaining use as motive energy sources. These fuels are distributed outside of the established fuel distribution and taxation channels, which poses a challenge for revenue collection.

- ◆ The wide variation in fuel efficiency among similar-sized vehicles raises questions about the equity of fuel taxes.

- ◆ Over the long term, the supply of traditional fuel sources will decline, influencing a trend away from gasoline and diesel and toward other sources of energy.

### Countdown to Failure?

Fuel taxes account for 91 percent of the federal Highway Trust Fund revenue. The potential threats to fuel tax revenues suggest that the effectiveness of the current revenue-producing system will degrade with time. How long will the current revenue system continue to work, and when will it begin to fail?

TRB Special Report 285, *The Fuel Tax and Alternatives for Transportation Funding*, concludes that fuel taxes can remain the primary funding source for the nation's highways for at least another decade. Other opinions are mixed, and the potential impacts are unclear. The penetration of new technologies into the marketplace is difficult to predict. A study for Oregon DOT projected that if all light vehicles sold in 2017 have a high miles-per-gallon efficiency, the state gas tax revenue will fall by 27 percent.

The consensus is to follow the issue carefully and to prepare for the time that the current revenue system begins to fail.

### Commissions at Work

In the reauthorization debate, Congress recognized the need to address the issue of highway and transit finance and established two commissions to make recommendations on financing:

- ◆ The National Surface Transportation Policy and Revenue Study Commission will study long-

term alternatives to replace or supplement the fuel tax and fund the needs of the surface transportation system for at least 30 years. The commission, which held its first meeting on May 26, 2006, will recommend actions to develop alternative revenue sources for the Highway Trust Fund. The final report is due by July 1, 2007.<sup>2</sup> Authorized in Section 1909 of SAFETEA-LU, the commission originated in the House version of the bill.

◆ The **National Surface Transportation Infrastructure Financing Commission** was authorized to study the adequacy of Highway Trust Fund revenues for future highway and transit needs. The commission will consider alternative approaches to generating revenues for the fund and will recommend policies to achieve revenues to meet future needs. The report is due within two years after the commission's first meeting—but as of mid-October 2006, the commission had not been appointed. SAFETEA-LU Section 11142 authorized the commission, originally proposed in the Senate version of the bill.

## Options to Consider

For the purposes of dialogue and debate—and for the discussions of the congressionally designated commissions—all options for additional revenue sources should be under consideration. The dialogue and debate will determine which sources best meet the characteristics of an ideal transportation finance system, including political acceptability.

### *At the Federal Level*

Potential additional revenue sources at the federal level include the following:

◆ An alternative means of taxing highly fuel-efficient hybrid vehicles—for example, through an annual tax or a mileage-based tax—could be developed.

◆ Alternative fuels could be taxed at a per-mile-traveled rate equivalent to that of the current gas tax. Although federal taxes currently apply to liquefied petroleum gas, liquefied natural gas, and compressed natural gas, no taxes apply to hydrogen or electricity.

◆ Because tracking and taxing electricity for road use is difficult, a revenue system based on vehicle-miles traveled (VMT) is a more practical solution for electric vehicles.

◆ With the rapid advance of hydrogen fuel cell technology, a significant percentage of new cars may run on fuel cells within 10 years. A new fueling infrastructure for hydrogen will be necessary. Legislation

would need to be passed to tax hydrogen as a fuel, and the new fueling infrastructure would require a mechanism for taxation.

◆ Index motor fuel taxes to inflation. In 2003 Congress considered a proposal to index motor fuel taxes retroactively to 1993, which would have increased the gas tax in 2004 by 5.45 cents—from 18.4 cents per gallon to 23.85 cents per gallon. Prospective indexing would increase the gas tax by an additional 2.76 cents per gallon by 2009. Although this proposal would have generated considerable additional revenue—\$70 to \$75 billion over 6 years—it did not attract sufficient political support to be included in SAFETEA-LU.

### *At the State Level*

At the state level, potential additional revenue sources include the following:

◆ A VMT tax would ensure that transportation revenues grow along with the projected continued growth in VMT. Oregon has considered gradual implementation of a VMT tax over a 20-year period. All new vehicles would be outfitted with a tamper-proof electronic odometer to determine VMT. Owners would receive a rebate for gasoline taxes paid at the pump. The VMT tax could be paid in small increments—for example, at each refueling—or annually at the safety or emissions inspection. The self-reporting of odometer readings would have the lowest administrative cost but would create the greatest potential for evasion. If a VMT tax completely replaced a gas tax, a tax of 1 cent per vehicle-mile for light vehicles would generate as much revenue as a state gas tax of 20 cents per gallon. Nonetheless, a VMT tax is complicated and costly to collect—an accurate way to determine VMT is essential.

◆ A weight-distance tax, supported by automation and feasible with intelligent transportation system technologies, could apply to all classes of vehicles.

◆ The use of bond proceeds could increase. Approximately 14 percent of state-generated highway revenues nationwide derives from bonds. Some states have used this strategy aggressively—in 2001 six states each allocated more than 50 percent of gas tax receipts to pay bond debt.

◆ Several states have preceded the federal government in indexing the gas tax to the rate of inflation. About a dozen states currently index the gas tax, which prevents erosion of the purchasing power for highway and transit improvements.

◆ Tolling on new facilities, in selected circumstances, could be considered. Although federal law would permit up to three states to impose tolls on existing free Interstate facilities and apply the funds

<sup>2</sup> As of October 2006, the Senate—but not the House of Representatives—had passed legislation to extend the final report deadline to December 31, 2007.

Fastrak carpool lanes on Interstate 15, San Diego County, California.



PHOTO: AA ROADS.COM (ALEX NITZMAN, ANDY FIELD)

for reconstruction, no state has found this politically possible.

◆ Vehicle sales taxes are another possible source of revenue.

◆ Value pricing—also known as congestion pricing—levies tolls for road use that vary according to the level of congestion, so that relatively higher prices apply to travel during peak periods. The revenues from value pricing could fund improvements in transportation facilities or services.

### Additional Proposals

#### **Bonding**

Increases in user fees have not been possible in the recent political environment. Bonding therefore has

advanced as a proposal to finance highways and transit. Although state governments have made significant use of bonding for transportation projects, the federal government has not. The authorization of up to \$15 billion in private-activity bonds in SAFETEA-LU was one step toward the use of bonding.

A few years ago, another bonding proposal was widely circulated—to sell \$80 billion of tax-credit bonds to finance highway and transit improvements. Under the tax-credit bond approach, Congress would authorize a state to issue 20- to 30-year tax-credit bonds. In contrast to conventional bonds, which pay interest annually in cash, tax-credit bonds would pay investors in credits against federal income tax liability.

The federal government, the states, and transit recipients would not be liable for repaying the bonds' principal. Instead, when the bonds are issued, a portion of the proceeds would be set aside in a sinking fund and would be invested in U.S. Treasury notes or other high-grade investments, which at maturity would be sufficient to repay the bond principal. The issuer would invest the rest of the bond proceeds in a highway or transit project.

Of the \$80 billion from the sale of tax-credit bonds, \$20 billion would go to a sinking fund to pay off the bonds in 30 years. In the best scenario, the remaining \$60 billion would finance highway and transit programs. The Trust Fund, however, could be required to reimburse the Treasury for the revenues lost from the tax credits. In this scenario, the Trust Fund would pay the Treasury approximately \$20 billion over 10 years, and only \$40 billion would be available for highway and transit

Florida's SunPass transponder mounted on an automobile windshield. New technologies may be needed to track and charge for highway use.



PHOTO: AA ROADS.COM (ALEX NITZMAN, ANDY FIELD)

programs. The proposal encountered opposition from the Department of the Treasury in 2004.

Although some states have used conventional bonds widely, some policy makers do not believe that conventional bonds should be used to support basic highway and transit programs. Bonding incurs interest, so that the gas taxes of future generations are paying off bonds instead of building new projects. Bonding cannot be sustained indefinitely. Some policy makers believe that basic highway and transit programs should continue to be supported by pay-as-you-go user fees.

### **Tolls**

The first toll facility in the United States was a bridge in Newbury, Massachusetts, in 1656. The first toll road, established in 1785, was Virginia's Little River Turnpike, which ran for more than 60 miles from Alexandria to the Blue Ridge Mountains.

In the 20th century, tolls were used to finance high-cost projects, such as major bridges and tunnels, which would have been unaffordable otherwise. In the 1940s and 1950s, before the federal Highway Trust Fund, tolls were the only feasible way to fund several long-distance intercity roads.

The number of new toll facilities declined during the 1970s and 1980s. Only in the 1990s, when demand continued to grow and highway needs outstripped financial resources, did the number of toll facilities increase. The trend has continued into the first decade of the 21st century, and some new facilities have been constructed in areas where the travel demand would generate sufficient toll revenues. Successive reauthorizations, including SAFETEA-LU, have increased the flexibility for financing with tolls.

The traditional pay-as-you-go user fee system allows revenues to be collected for driving throughout the roadway network and allows those revenues to be spent throughout the roadway network. In contrast, tolling is a corridor-specific—or facility-specific—strategy. A public objection is that tolls require users to pay twice, through a gas tax and through a toll, for the opportunity to travel on a roadway.

### **HOT Lanes**

Even those who object to tolling may agree that in special circumstances tolling may be a good policy. One example is the high-occupancy toll (HOT) lane, which gained expanded authorization in SAFETEA-LU.

HOT lanes are a form of value pricing. Essentially a means of managing congestion, value pricing uses a toll that becomes a source of revenue to enhance

PHOTO: MINNESOTA DEPARTMENT OF TRANSPORTATION



Rates are posted on Minnesota's MnPass HOT lane system; fees vary according to real-time traffic levels.

urban mobility. HOT lanes usually take advantage of unused capacity on high-occupancy vehicle (HOV) lanes. High-occupancy vehicles continue to use the HOV lane, but single-occupant vehicles also can use the lane for a fee. The toll is collected electronically, and the charge is high enough to ensure that the increase in users does not reduce the travel speed in the HOT lane. Single-occupant vehicles that pay the toll are rewarded with better travel times, reduced delays, and greater reliability in travel time.

Facilities in California's Orange County, San Diego, Houston, Minneapolis, Denver, and Salt Lake City have shown that HOT lanes work.

### **Import Revenues**

The National Chamber Foundation of the U.S. Chamber of Commerce has proposed that 10 percent of customs import revenues be dedicated to port and intermodal freight projects. This investment would facilitate international commerce.

### **Toll Facility Leases**

Major sales of the operating rights for toll road facilities have provided huge infusions of cash to state and local governments.

◆ The Indiana Toll Road has been leased for 75 years for a lump sum of \$3.8 billion. Indiana will use the proceeds to fund transportation improvements throughout the state.

◆ The Chicago Skyway was leased for 99 years for \$1.82 billion.

New Jersey Turnpike Authority has rebuilt several major toll plazas with improved accommodations for electronic toll collection.



PHOTO: AA ROADS.COM (ALEX NITZMAN, ANDY FIELD)

This form of financing can deliver large amounts of cash but is available only to states and jurisdictions with toll facilities that generate revenues high enough to be an attractive investment for a private operator.

### Research and Revenues

Transportation needs are great, and sources of revenue must be found to meet those needs. But increasing revenue is not the only solution.

Another way to satisfy the imbalance between revenues and needs is to use the available revenues more effectively. To design and build a pavement that will last 20 years instead of 10, to build bridges that require less maintenance, and to develop less expensive construction techniques are ways to accomplish more with the available revenue.

Investments in research can lead to these outcomes, which are the equivalent of finding additional revenue. Wise investments in research will help to bridge the gap between transportation infrastructure needs and the available resources. Similarly, investments in operations and management and in the use of intelligent transportation systems can allow a more effective use of facilities and can avoid or defer more expensive infrastructure improvements.

### Caution and Preparedness

External changes have affected gas tax revenues dramatically in recent decades. For example, the average fleet fuel economy for light-duty vehicles today is approximately double what it was 30 years ago. As

a result of the improvement in fuel economy, today's gas tax revenue is considerably lower.

Similar external forces may pose threats to highway and transit revenues at the state and federal levels. Past experience raises caution. The transportation community must be well prepared and must identify suitable alternative ways to produce revenues as external conditions change.

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