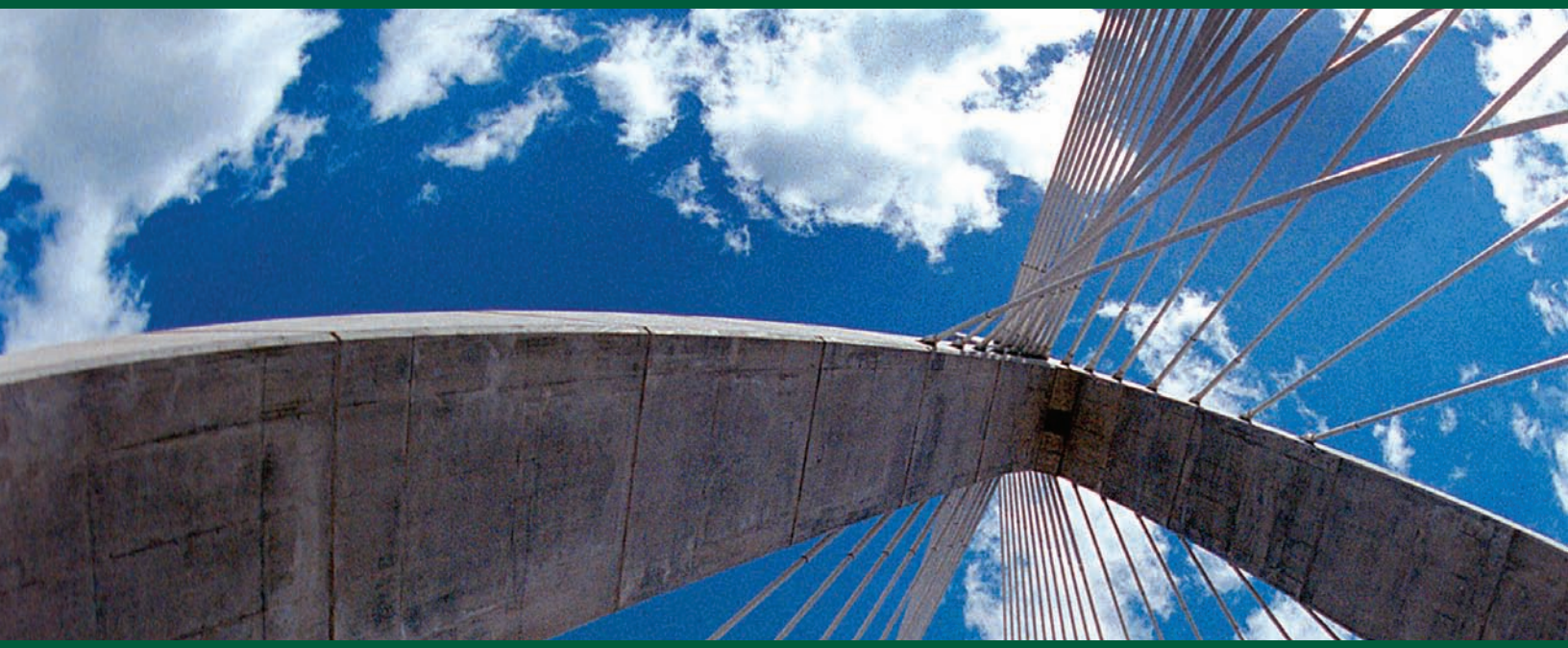
TRANSPORTATION INVEST IN OUR FUTURE








REVENUE SOURCES TO FUND TRANSPORTATION NEEDS

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

APRIL 2007

INTRODUCTION

Congress directed the National Surface Transportation Policy and Revenue Study Commission to conduct a comprehensive study of the needs of America's surface transportation system and sources of revenue to fund them over at least the next 30 years.

This report by the American Association of State Highway and Transportation Officials was developed to assist the Commission in their analysis. It supplements two earlier reports, Future Needs of the U.S. Transportation System and Surface Transportation Policy Recommendations. Three additional studies are in preparation, America's Freight Challenge, A Conceptual Plan to Ensure That the Surface Transportation System Will Continue to Serve the Needs of the United States; and A Performance-Based, Results-Driven National Surface Transportation Program.

Revenue Report Outline

This report addresses:

- Three questions which frame the background for the revenue options to be considered, and a needs assessment summary;
- The revenue crisis Congress will have to address in 2009;
- Short-term federal revenue options for the Highway Trust Fund;
- Short-term federal revenue options outside the Highway Trust Fund;
- State and local government revenue options, and
- Long-term federal revenue options.

AASHTO is continuing its work on long-range funding issues confronting the nation's transportation system, and will provide additional information to the Commission in the fall.

AASHTO's analysis shows that the "need to find alternatives to replace or supplement the fuel tax as the principal revenue source to support the Highway Trust Fund," has turned out to be less of an immediate concern than expected.

Two other problems appear to be more immediate and more substantial than expected.

First, the Highway Trust Fund may become insolvent by FY 2009 or FY2010, and a drastic cut in federal highway and transit funding will have to be made unless Congress intervenes.

Second, between 2003 and 2007, there has been a significant increase in commodity prices for petroleum, concrete, asphalt, steel, and construction machinery. This has badly reduced the improvements state and local transportation agencies will be able to fund, unless the purchasing power of federal, state, and local programs can be restored.

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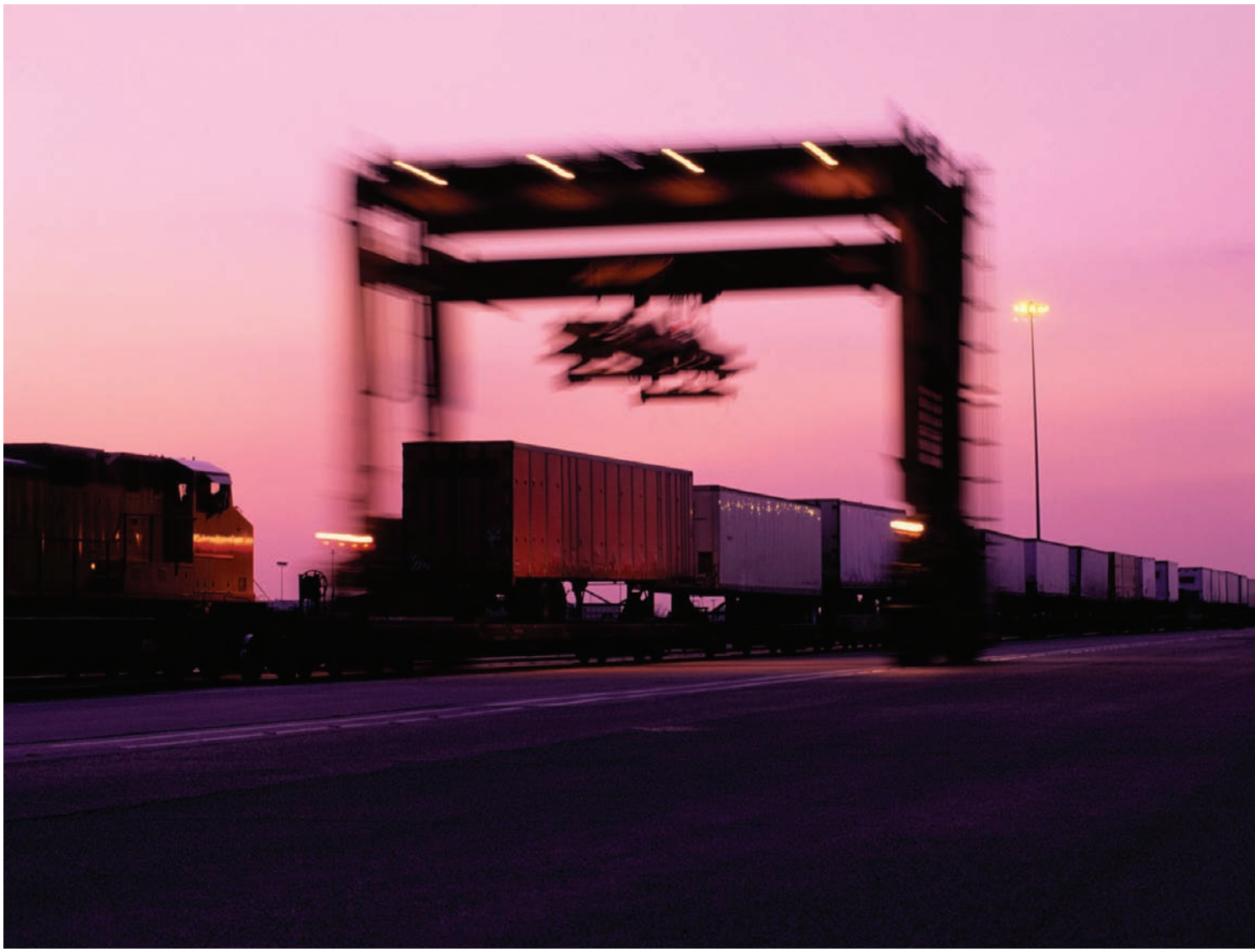


Leadership, Vision, Action

Transportation is always a major topic of discussion in Arizona, but over the past year the intensity of the discussion in all corners of Arizona has increased to levels that we have never seen. The simple fact is: Arizona's incredible growth is outstripping our ability to provide transportation infrastructure to handle the traffic generated by that growth. Compounding this are projections that the state population may double in the next 20 years.

Arizona is also working on a statewide plan for public transit including additional bus, transit, and rail facilities throughout the state to add greater capacity for our transportation system. There is increased pressure to find better ways to connect cities, towns and economic regions within the state.

For Arizona, the disconnect between land use and development decisions and our ability to provide needed infrastructure is one of the biggest problems. Through Governor Napolitano's Growth and Infrastructure Initiative the state will work with cities, towns and tribal communities to develop strategies to coordinate transportation and land use planning at all levels of government.

Our nation as a whole faces the same challenges—population growth and increasing travel demand; inadequate resources to meet those demands; and the challenge of planning development in a way that enables good transportation services.

The transportation system that has been the envy of the world may be surpassed by the world unless we plan and invest now to meet the mobility needs of future generations.

It is a time for leadership, for vision and for action.

Victor Mendez
President
American Association of State
Highway and Transportation Officials
Director, Arizona Department of Transportation

Transportation Investment Is Vital to National Competitiveness and Way of Life

- On March 15, 2007 European Union Vice President Jacques Barrot inaugrated the first 185 mile section of a new 900-mile high-speed rail line that will cut travel time between many of Europe's major cities in half.
- FedEx Express will offer guaranteed next-day deliveries within China for the first time beginning May 28. The move underscores the increasing sophistication of transportation and logistics services in the country.

As never before, we are engaged in an intensive competition in the global economy, now not only with our traditional trading partners such as Japan and the European Union, but also with China and India with a combined population of 2.3 billion. Because the economies of these two emerging megastates have been growing in excess of 8 percent annually, compared to 2.8 percent here in the U.S., while we may be ahead for the moment, they are on track to catch up, and overtake us.

It is no time for the U.S. to be standing still. We must look to the future to set bold goals for our own transportation network.

As the AASHTO Board of Directors has said in a Call for Action, "The 21st century is an increasingly competitive world where countries like China and India have set their sights on overtaking America as the preeminent economic power. Our prosperity and way of life are at stake. America must respond.

"Only immediate bold action to invest in transportation will sustain our national competitiveness and personal opportunities. It is time to marshal the will and the resources needed.

"Simply put, we believe the mission of the U.S. Surface Transportation Program is to keep the U.S. competitive in the global economy and meet America's 21st Century mobility needs."

Pete Rahn
Vice-President
American Association of State
Highway and Transportation Officials
Director, Missouri Department of Transportation

EXECUTIVE SUMMARY






To keep the U.S. competitive in the global economy, surface transportation investment must be substantially increased. The first step is to avert a potential reduction due to revenue shortfalls in the Highway Trust Fund. The next step the nation needs to take toward that goal is to restore the purchasing power of current programs by increasing highway capital investment to approximately $160 billion and transit investment to nearly $40 billion by 2015. Finally, the nation must address the long-term viability of funding for transportation programs.

The only way those levels of funding can be achieved is for all levels of government—federal, state, and local—to continue to fund their historical shares and for each level of government to increase their funding participation. Over the past decade the federal government has provided approximately 45 percent of highway and transit capital funding, while 55 percent has been provided by state and local governments.

Meeting America's surface transportation needs will require a multi-modal approach which preserves what has been built to date, improves system performance, and adds substantial capacity in highways, transit, freight rail, intercity passenger rail, and better connections to ports, airports, and border crossings. Meeting several of these multi-modal needs will require sources of revenue outside the Highway Trust Fund.

The Immediate Federal Funding Crisis

The federal highway program faces a funding crisis beginning in fiscal year 2009 and accelerating dramatically in fiscal year 2010. Current Highway Account revenue projections for 2009 show a shortfall of $200 million in revenue. That shortfall will require an obligation reduction in the highway program of just under $800 million.* In 2010, the deficit dramati-

*Dollars committed to be paid out from the Highway Trust Fund begin with a payout of 27 cents on the dollar in the first year of commitment. Therefore in order to save $1 in payouts it is necessary to reduce the commitments (obligation limitation) by $4 to generate the necessary savings.

cally increases to $5.7 billion and would require an obligation limit reduction of $18.2 billion from the 2009 obligation level, a 42 percent reduction.

The federal highway program faces a funding crisis beginning in fiscal year 2009 and accelerating dramatically in fiscal year 2010. For 2009 that shortfall will require an obligation reduction in the highway program of just under $800 million. In 2010, the deficit would require an obligation limit reduction of $18.2 billion.

A three-cent fuels tax increase, or its equivalent in other revenue, can avert the dramatic $18 billion highway program cut, and allow for modest growth in the highway program.

Restoring Program Purchasing Power

Commodity prices for steel, concrete, petroleum, asphalt, and construction machinery increased dramatically from 2004 to 2007. As a result it is estimated that between 1993, the year in which federal fuel taxes were last adjusted, and 2015, construction costs will have increased by at least 70 percent. To restore the purchasing power of the program, federal highway funding will have to be increased from $43 billion in 2009 to $73 billion by 2015. To restore the purchasing power of the transit program, federal funding would have to be increased from $10.3 billion in 2009 to $17.3 billion in 2015.

Commodity prices for steel, concrete, petroleum, asphalt, and construction machinery increased dramatically from 2004 to 2007. As a result it is estimated that between 1993, the year in which federal fuel taxes were last adjusted, and 2015, construction costs will have increased by at least 70 percent.

To generate the revenues to support this increase, between 2010 and 2015, federal fuel taxes would have to be increased by 10 cents or its equivalent. The rate would need to be increased by 3 cents or its equivalent in 2009 to sustain the program at the level guaranteed in SAFETEA-LU. It would have to be increased by another 7 cents or its equivalent in 2010 to restore the program's purchasing power.

Short-Term Federal Revenue Options for the Highway Trust Fund (2010–2021)

There are several options to accomplish the dual objectives of sustaining the program at the levels authorized by SAFETEA-LU and then restoring the program's purchasing power. (Table 1.)

Table 1. Highway Trust Fund Options to Increase Revenues

	Highway Program Level Made Possible by 2021
10-Cent Rate Increase	$75 billion
10-Cent Rate Increase, Indexed to CPI	$82 billion
5 Percent Sales Tax on Gas (If fuel prices increase 4 percent, annually)	$85 billion
14.2 Percent Sales Tax on Gas in lieu of 28.4-Cent Gas Tax (If fuel prices increase 4 percent, annually)	$95 billion

Short-Term Federal Funding Options Outside the Highway Trust Fund

Whether the problem is the need for better intermodal connections to ports, airports, or railroads, or the expansion of railroad capacity itself, the scale of the public-sector investment needed is beyond that which can be met from the Highway Trust Fund. The United States needs to find ways to significantly increase freight-related investment using new sources of revenue. (Table 2.)

Stabilizing funding for Amtrak and capitalizing new intercity passenger rail corridor service will also require substantial revenues from outside the Highway Trust Fund.

Whether the problem is the need for better intermodal connections to ports, airports, or railroads, or the expansion of railroad capacity itself, the scale of the public-sector investment needed is beyond that which can be met from the Highway Trust Fund.

Table 2. Federal Options for Increasing Revenue from Sources Other Than the Highway Trust Fund

	6-Year Revenue 2010–2015
Investment Tax Credits for Railroads	$7 billion
5 Percent of Customs Fees or $30 Container Fee	$12 billion
Federal Tax Credit Bonds (50 percent for Freight Projects)	$25 billion
Subtotal for Freight Projects of National Significance	$44 billion
Federal Tax Credit Bonds (50 Percent for Passenger Projects)	
Subtotal for Highway, Passenger Rail, and Transit Projects	$25 billion
Grand Total	**$69 billion**

State and Local Government Investments

AASHTO believes that if we are to make the large increase in funding needed, state and local governments must do their part as well. That means for the period between now and 2015, state and local highway capital investment would have to increase to approximately $89 bil-

lion, and their transit investment increase to around $21 billion. The good news is that they have delivered increases on this scale before.

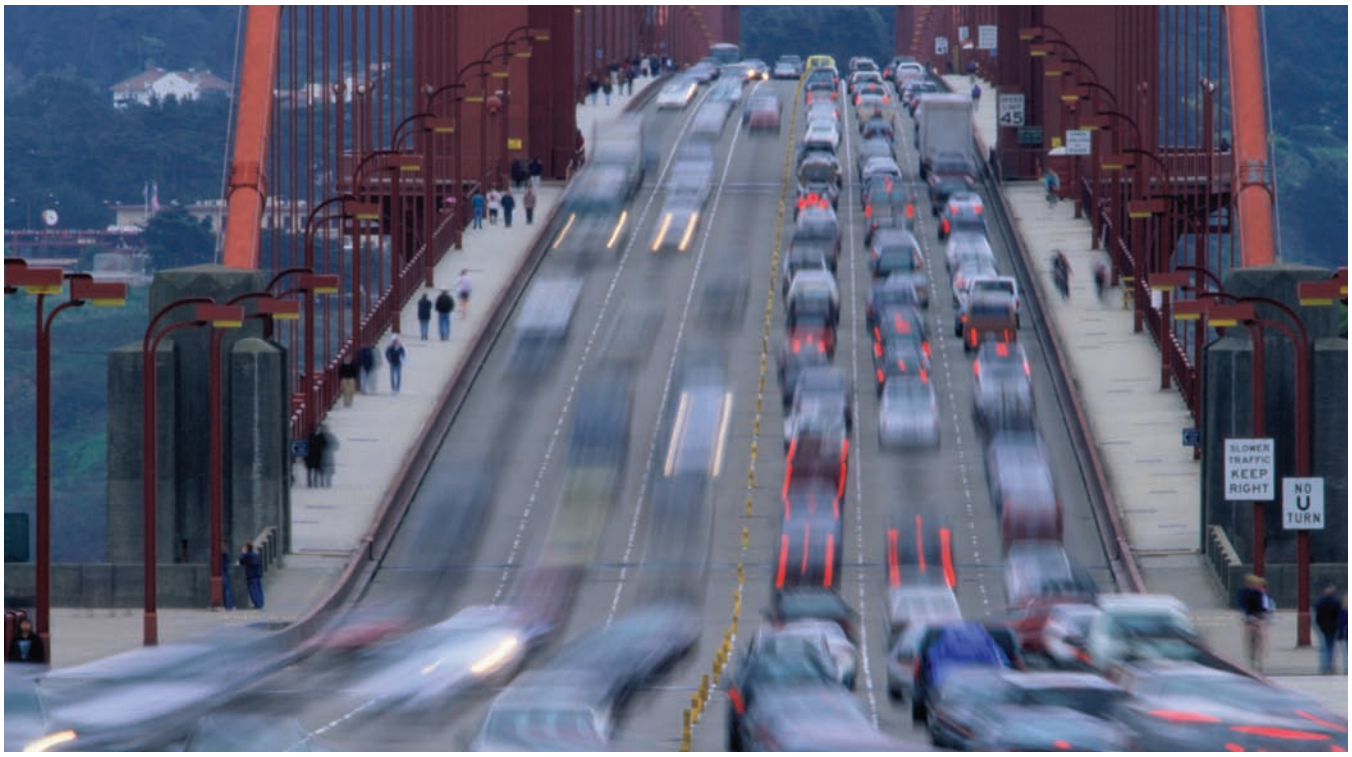
In 1981, highway capital investment was a total of $19.7 billion, $11.5 billion in federal funding and $8.2 billion state and local. By 2005, it had increased to $75 billion, up 280 percent, that included $33 billion federal, a 187 percent increase, and $42 billion, state and local funding, up 412 percent. If state and local investment increases at the same annual rate for the 10 years between 2005 and 2015, as it did for the 24 years between 1981 and 2005, it will increase to $89 billion.

During the 23-year period from 1981 to 2004, transit capital investment on all levels increased by 290 percent, from $3.4 billion to $14.2 billion. It is significant to note that in the period from 1990 to 2005, state funding for transit increased by 256 percent from $3.7 billion per year to $9.5 billion per year.

Over the past two years, transportation measures nationally have done well at the polls. In the 2004 elections, 76 percent of transportation ballot measures passed. In the 2006 elections, between statewide measures and city, county, and transit proposals, $40 billion in new funding for transportation was approved.

Tolls are currently collected on 4,600 miles of roads in 25 states. Toll-generated revenues amounted to $7.75 billion in 2005, which represented 5 percent of total highway revenues in that year.

AASHTO has taken the position that every state should be given all options possible for funding opportunities in the areas of tolling and public–private ventures so states can determine for themselves what is in the best interests of their citizens. AASHTO has also embraced a bold goal of increasing the percentage of toll revenues to 9 percent of the total for highway revenues nationally. AASHTO's position is that federal policy should enable and encourage innovative finance tools and innovative contracting tools as well.



Long-Term Federal Revenue Options

Over the past three years, Oregon has been field testing a mileage-based user fee, which could be the alternative needed to replace the fuel tax as the primary means of support for the Highway Trust Fund. What Oregon's experiment has demonstrated is the complexity of implementing such a change. Congress should be urged to fund additional pilots and studies during the period from 2010 and beyond to test and explore alternative revenue options. (Table 3.) AASHTO is developing a report on additional long-term revenue options which will be published later this year.

Table 3. Long-Term—Alternatives to Supplement or Replace Fuel Taxes

Study Viability of Vehicle Miles Traveled Taxes	2010–2015
Field Test VMT Technologies	2015–2021
Develop Implementation Plans for VMT Taxes	2021–2027
Transition to VMT Tax	2027–2033

CHAPTER 1

Background on Federal Transportation Revenues and Needs






Three questions need to be answered before we can explore in greater detail, viable short-term federal revenue options that can sustain highway and transit programs at the levels needed:

First, what are the current sources of revenue supporting the Highway Trust Fund? Second, what revenues are they forecast to produce over the next 10 years? Third, is the viability of the federal gas tax as the primary source of revenue for the Highway Trust Fund being eroded by increasing fleet fuel efficiency and alternatively fueled vehicles?

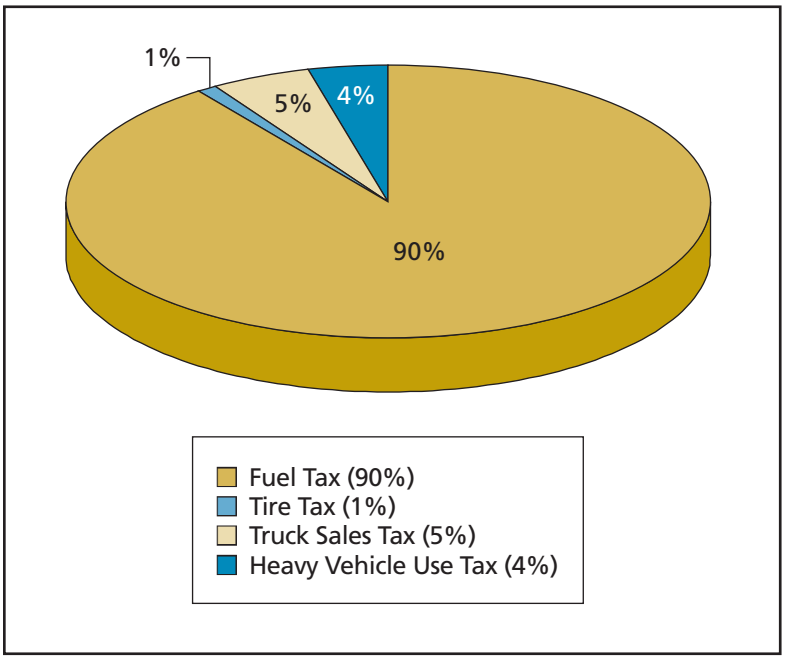
Sources of Revenue Supporting the Highway Trust Fund and Revenue Forecasts

The current Federal gasoline tax rate is 18.4 cents per gallon, of which 15.44 cents is dedicated to the Highway Account of the Highway Trust Fund, and 2.86 cents is dedicated to the Mass Transit Account. The tax rate on diesel fuel is 24.4 cents, of which 21.44 cents is deposited to the Highway Account, and 2.86 cents to the Transit Account. One-tenth of a cent of both gasoline and diesel fuel taxes goes to the Leaking Underground Storage Tank Trust Fund.

Highway Trust Fund revenues will have grown from $22.2 billion in 1995 to $39.7 billion in 2007, and are forecast to increase to $48 billion by 2017.

According to the U.S. Treasury, federal Highway Trust Fund revenues will have grown from $22.2 billion in 1995 to $39.7 billion in 2007, a 12-year increase of 79 percent. In 1998, fuel tax revenues from the 4.3 cent increase was recaptured by the Highway Trust Fund. While the increase was passed in 1993, Congress had used the funds for the national deficit reduction. The 4.3-cent increase is one of the factors which enabled the significant increase in revenues over this period.

Figure 1. Federal Revenue Components
Revenues to the Highway Account of the Highway Trust Fund, 2002



In 2007, $26 billion in revenues is expected to come from gas taxes and $9.8 billion from diesel taxes. So 90 percent of Highway Trust Fund revenues is expected to come from fuel taxes. The remaining 10 percent is expected to come from commercial vehicle taxes and fees including a sales tax on trucks, tire taxes, and a heavy vehicle use tax. Highway Trust Fund receipts are forecast to increase from $39.7 billion in 2007 to $48 billion by 2017.

Ninety percent of Highway Trust Fund revenues is expected to come from fuel taxes.

The chart below from the U.S.Treasury estimates future revenues for 2007 by source.

Table 4. U.S. Department of Treasury
Forecast of Excise Tax Receipts to Highway Trust Fund, 2007

Gross Transfers	
Gasoline	$25,955 million
Diesel and Other Fuels	$9,784 million
Retail Tax on Trucks	$3,464 million
Highway-Type Tires	$579 million
Heavy Vehicle Use Tax	$1.508 million
Gross HA and TA Transfers	$41,290 million
Less Aquatic Account	$422 million
Net HA and TA Transfers	$40,848 million
Less HA and TA Refunds	$1,141 million
Highway Trust Fund Total	**$39,707 million**

Erosion of Fuel Tax Revenue Because of Increasing Fuel Efficiency and Alternative Fuels Is Not an Immediate Problem

A key revenue question Congress directed the Commission to assess is "whether the amount of revenue flowing into the Highway Trust Fund is likely to increase, decrease, or remain constant, taking into consideration the impact of possible changes in vehicle choice, fuel use, or travel alternatives?" The Commission was asked to build on related analysis such as the recent Transportation Research Board study on alternatives to the fuel tax to support highway program financing.

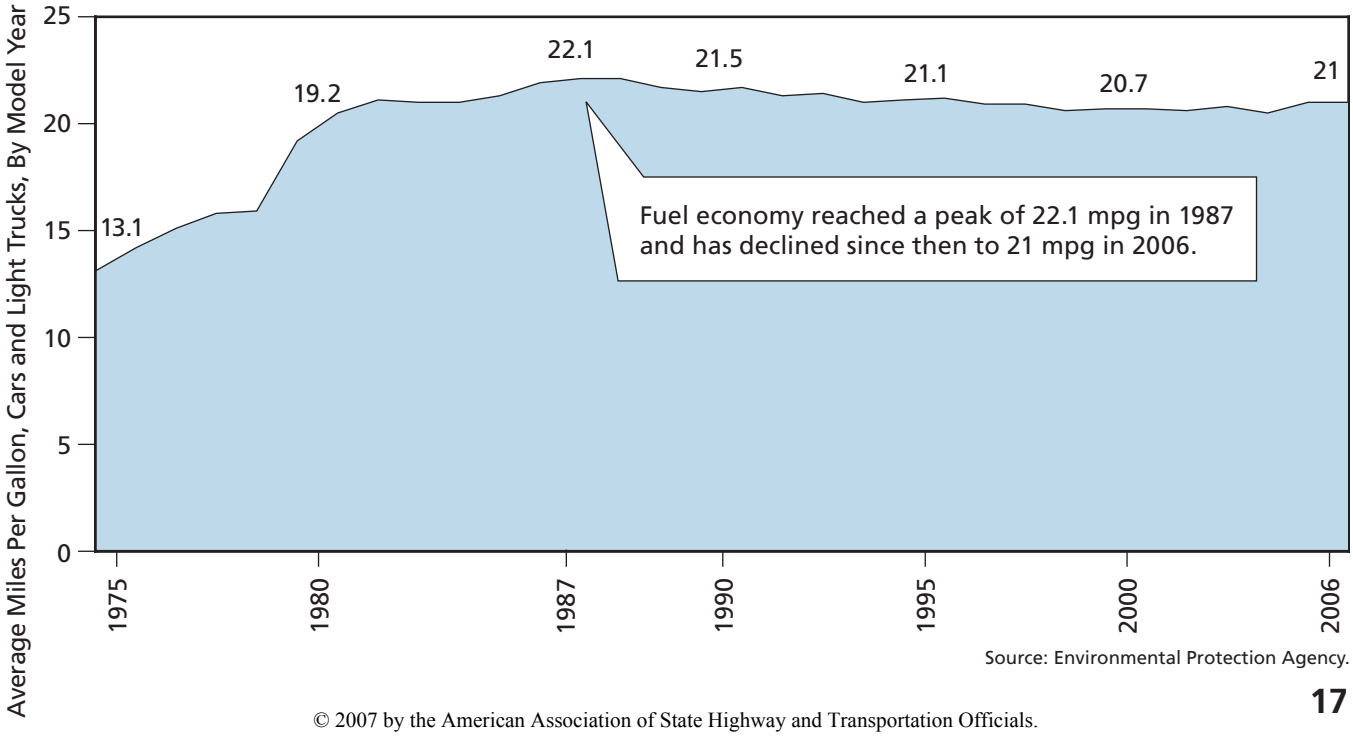
Prior to the Commission being created, there was speculation that the fuel efficiency of the vehicles on America's highways was increasing so fast, and the use of alternative fuel was advancing at such a rate, that the fuel tax could no longer be relied on to support the Highway Trust Fund. A review of current studies shows that that speculation is not supported by the facts.

The 2006, TRB study titled, *The Fuel Tax and Alternatives for Transportation Funding*, concluded that fuel taxes would continue to be a viable source of support for the Highway Trust Fund for at least the next 15 years. The report stated, "The risk is not great that the challenges evident today will prevent the highway finance system from maintaining its historical performance over the next 15 years."

The 2006, TRB study titled, *The Fuel Tax and Alternatives for Transportation Funding*, concluded that fuel taxes would continue to be a viable source of support for the Highway Trust Fund for at least the next 15 years.

The Environmental Protection Agency in its July 2006 report, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2006*, showed that the fuel economy measured in average miles per gallon for the light-duty automotive fleet, which is made up of automobiles, light trucks, and sports utility vehicles, actually has declined 5 percent over the past 19 years from 22.1 mpg in 1987 to 21 mpg in 2006. (Figure 2.)

Figure 2. Fuel Economy Stagnates



Source: Environmental Protection Agency.

According to the new fuel economy ratings instituted by the Department of Energy for 2008 models, of the top 20 best-selling vehicles in the United States in January 2007, 11 got gas mileage ratings of 19 miles per gallon and below. According to EPA, 50 percent of the 2006 light duty automotive fleet is made up of light trucks and SUVs.

The U.S. DOT in its *2004 Conditions and Performance Report*, released in early 2006, estimated that highway vehicle miles traveled would increase 2.07 percent annually through 2022. The number of vehicles on the roads grew from 65 million in 1956 to 246 million today and is expected to continue its growth. A 2003 National Cooperative Highway Research Study on alternative fueled vehicles, such as those fueled by hydrogen, electricity, and compressed natural gas, forecast that the market share of these vehicles is not expected to exceed 0.02 percent until 2020.

What these studies show is that fleet fuel efficiency has gone down, not up. Highway travel is increasing as are the number of cars and trucks on the road. Hybrid sales hit just over 1 percent of total automobile sales for the first time in 2006. Vehicles fueled by hydrogen, electricity, and compressed natural gas will not be a real factor until well after 2020. The federal agencies we rely on to forecast revenues expect fuel tax revenues to grow by approximately 2 percent annually. Further into the future, in the 2025 to 2035 time-frame, fuel efficiency or alternate fuels may begin to erode fuel tax-generated revenues, but for the near term this does not appear to be a real problem.

The amount of highway mileage added over the past 50 years, especially that provided through the construction of highway arterials, was substantial. However, the increase in travel has been so great that most of the capacity and redundancy planned when the system was built has been used up.

Needs Assessment Summary

AASHTO's February 2007 report titled, *"Future Needs of the U.S. Surface Transportation System,"* made the following findings:

The future needs of the U.S. surface transportation system are great and the costs to provide them are increasing. Much of the system of highways, bridges, public transportation, and railroads built during the past century is getting older and needs to be rebuilt or replaced. Our population grew by 130 million over the past 50 years, and is expected to increase by 140 million over the next 50 years. Highway demand measured in vehicle miles traveled (VMT) has increased five-fold over the past 50 years, from 600 billion VMT to three trillion VMT, and is expected to continue to grow by over 2 percent, annually. Because of a strong economy, which is increasingly dependent on international trade, freight demand is increasing. Truck freight is expected to double by 2035, and rail freight to grow by more than 60 percent.

The amount of highway mileage added over the past 50 years, especially that provided through the construction of highway arterials, was substantial. However, the increase in travel has been so great that most of the capacity and redundancy planned when the system was built has been used up.

Over the past 50 years, to reduce costs and increase productivity, railroad track miles have been reduced from 380,000 to 175,000 miles. However, current demand on railroads has resulted in a capacity shortage. As a consequence of these factors, congestion on the highways and on the railroads is a growing problem in nearly every region of the country.

The costs of preserving and modernizing the system in place, as well as providing the capacity needed for the future, are substantial. Because of a spike in commodity prices for steel, concrete, asphalt, petroleum, and construction machinery over the past three years, skyrocketing construction costs are eroding the purchasing power of the funding being provided by federal, state, and local governments and the railroads. So the United States faces three challenges.

- As never before we are engaged in an intensive competition in the global economy with Japan and Europe and emerging economies such as China and India, all of which are investing massively to modernize their transportation systems.
- Our current levels of capital investment for highways, transit and rail fall 40 to 50 percent short of the levels needed.
- The purchasing power of the funding currently provided is being undercut by rapidly increasing construction costs.

Meeting Surface Transportation Needs by Increasing Revenues

In its February 2007 report on surface transportation needs and its March 2007 report on surface transportation policy recommendations AASHTO made three key points:

- Surface transportation investment needs to be increased to the levels required to keep the United States competitive in the global economy and meet America's 21st Century mobility needs. In the immediate period between 2010 and 2015, that means restoring the purchasing power of the programs currently being funded. That requires increasing highway capital investment overall to approximately $160 billion by 2015, and transit investment to nearly $40 billion. In the intermediate term between 2015 and 2025, it means increasing highway and transit funding toward the "cost-to-improve" goal estimated by the U.S. Department of Transportation. Expressed in "year of expenditure dollars" the 2025 goal for highways would be $242 billion and transit would be $49 billion.
- The only way those levels of funding can be achieved, is for all levels of government—federal, state, and local—to continue to fund their historical shares of what is needed. Over the past decade the federal government has provided approximately 45 percent of highway and transit capital funding, while 55 percent has been provided by state and local governments.
- Meeting America's surface transportation needs will require a multi-modal approach which preserves what has been built to date, improves system performance, and adds substantial capacity in highways, transit, freight rail, intercity passenger rail, and better connections to ports, airports, and border crossings. Meeting several of these multi-modal needs will require sources of revenue outside the Highway Trust Fund.

CHAPTER 2
The Highway Program's Immediate Crisis






When Congress authorized SAFETEA-LU at $286.5 billion in 2005, it was expected that revenues flowing into the Highway Trust Fund would be sufficient to support the program through the sixth and final year of the program. To meet the country's needs, Congress was urged to spend down the resources generated by the Highway Trust Fund to the absolute maximum extent possible. While it was expected that outlays would exceed revenues over the course of the bill by approximately $5 billion, it was estimated that the program would remain solvent long enough for other measures to generate the revenues necessary to sustain the program at the levels authorized in SAFETEA-LU.

It now appears that the tipping point expected to hit in FY 2010 may occur sooner. Based on the information provided in the President's budget for FY 2008, the highway program faces a funding crisis beginning in fiscal year 2009 and accelerating dramatically in fiscal year 2010. Current Highway Account revenue projections for 2009 show a shortfall of $200 million in revenue. That shortfall will require an obligation reduction in the highway program of just under $800 million, since it takes just under $4 to save $1 in spending.* In 2010, the deficit dramatically increases to $5.7 billion and would require an obligation limit reduction of $18.2 billion from the 2009 obligation level, a 42 percent reduction. (Figure 3.)

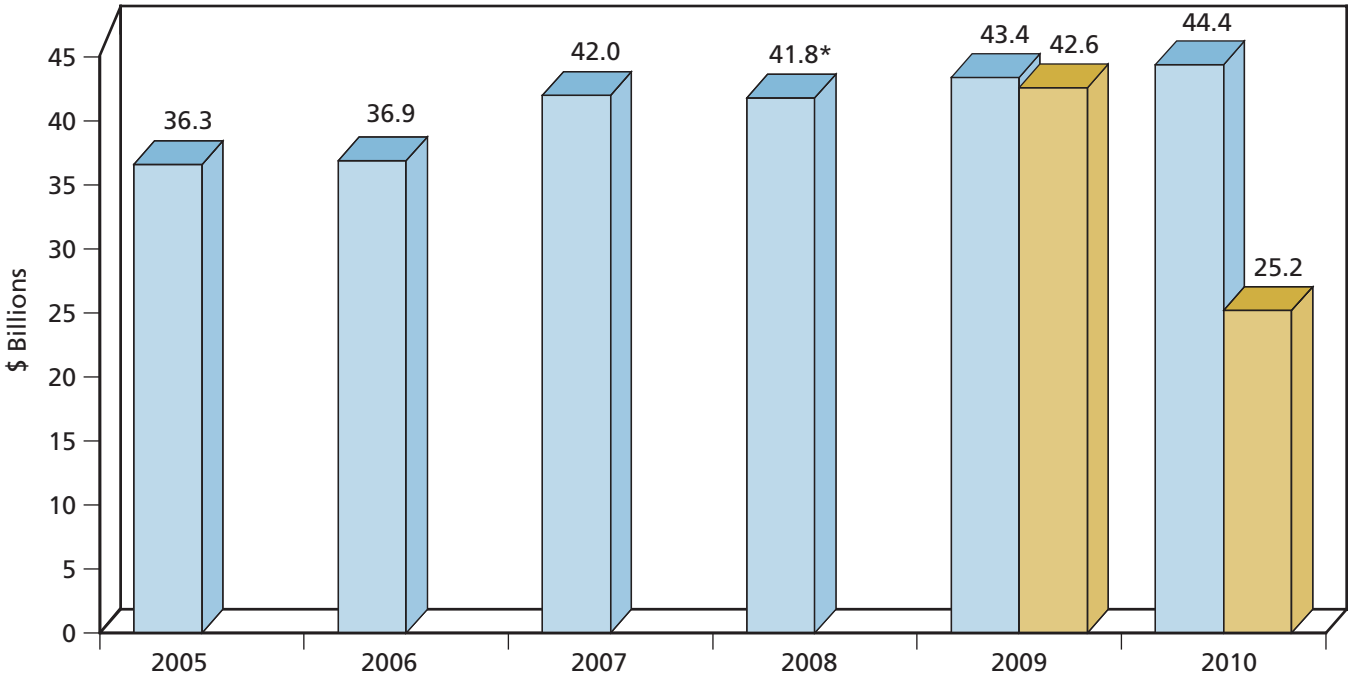
The following chart (Figure 3) illustrates the impending crisis situation facing the Highway Account expressed in highway program obligation levels.

The federal transit program could suffer similar shortfalls and require massive program cuts beginning in 2012 as a result of current-law revenues that are inadequate to cover outlays. A cut of 32 percent from $10.3 billion in 2009 under SAFETEA-LU down to $7.0 billion in 2012 is currently estimated.

As Figure 4 shows, with a three-cent fuels tax increase, or its equivalent in other revenue, the dramatic $18 billion highway program cut will be averted, and modest growth in the highway program would be possible. The alternative of a significant cutback in 2010, followed by several years of reduced Federal funding for both highways and transit, is not acceptable.

*Dollars committed to be paid out from the Highway Trust Fund begin with a payout of 27 cents on the dollar in the first year of commitment. Therefore in order to save $1 in payouts it is necessary to reduce the commitments (obligation limitation) by $4 to generate the necessary savings.

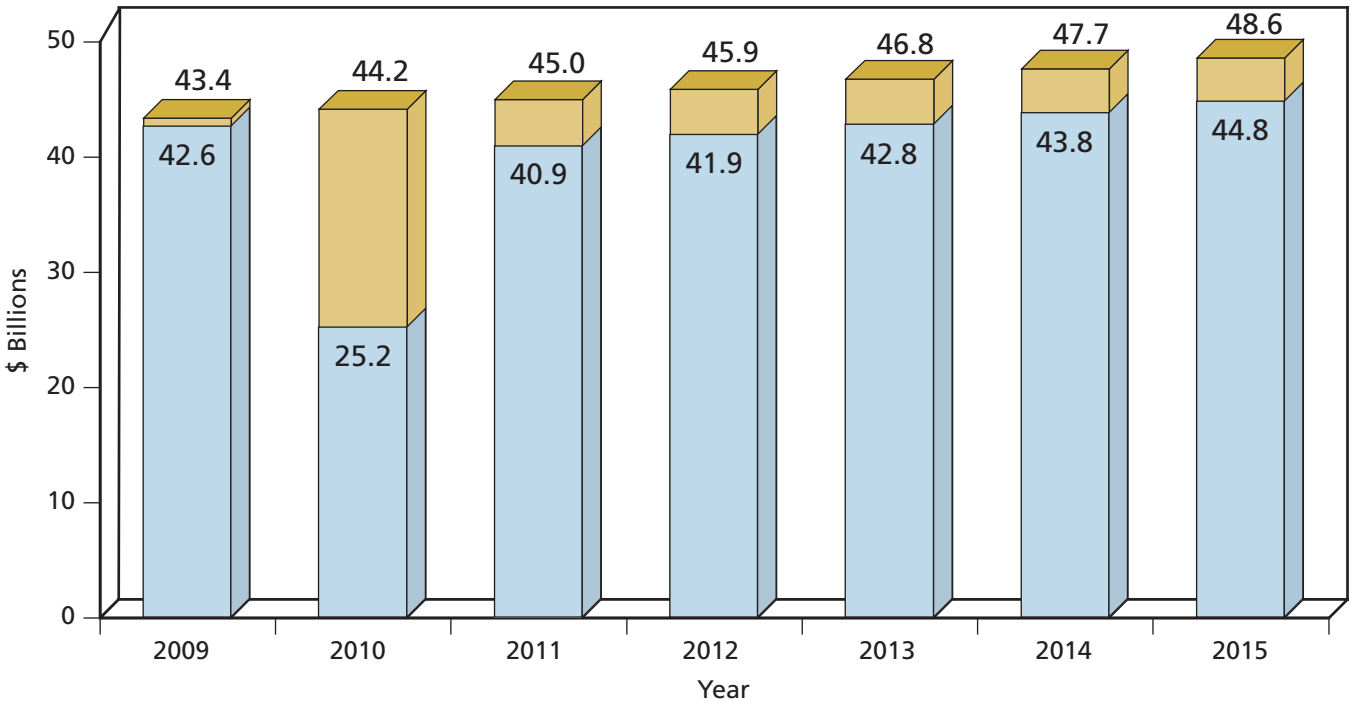
Figure 3. $18 Billion Cut in Federal Highway Program Obligations If Congress Takes No Corrective Action



*Obligation level proposed in the President's 2008 budget request, which includes a suspension of $631 million in RABA funding.

SAFETEA-LU Extended to 2010
Highway Program Reduction

Figure 4. Federal Highway Program Possible with 3-Cent Fuels Tax Adjustment



Program Funding with 3-Cent Adjustment
Highway Program Reduced (No Action)

Revenues sufficient to preserve full funding of SAFETEA-LU authorizations must be provided. In order to ensure a minimum acceptable Highway Account balance, this essential fix requires the infusion of up to $5 billion in 2010—equivalent to a 3-cent Federal fuels tax increase.

The time is approaching when Congress will have to face the need to adjust the fuel tax rate again to restore the program's purchasing power.

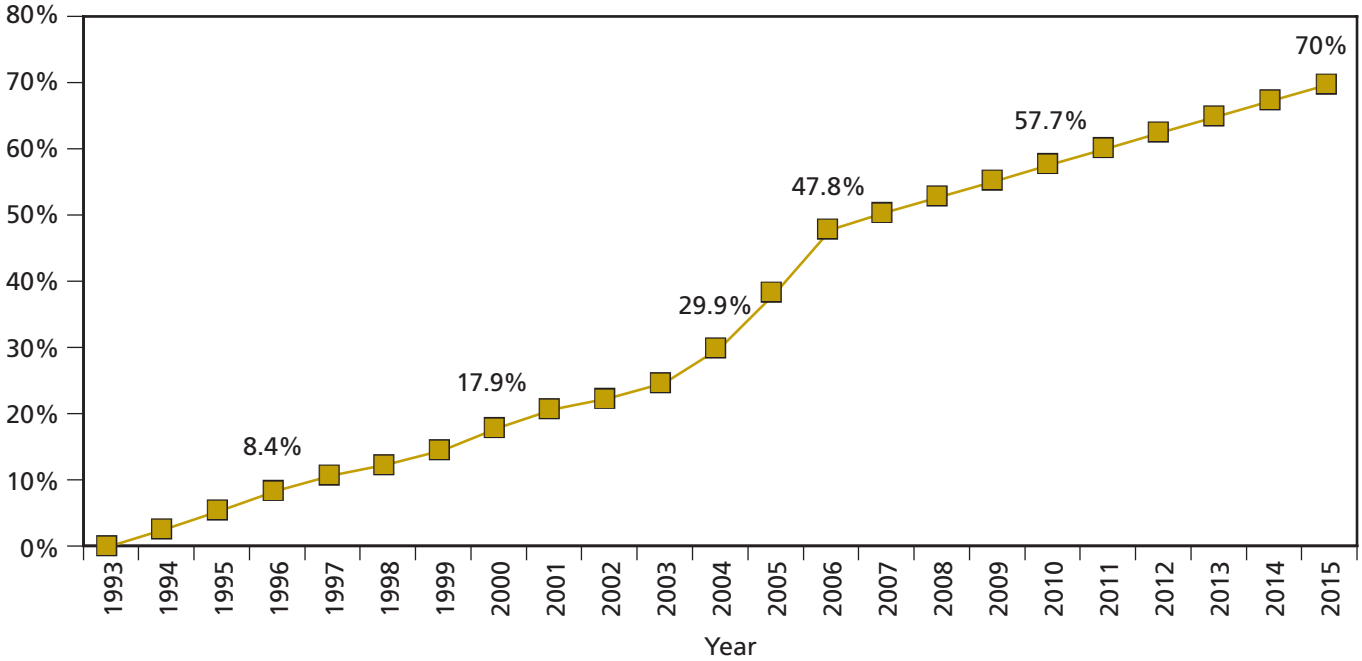
Restoring the Purchasing Power of Federal Assistance

Commodity prices for steel, concrete, petroleum, asphalt, and construction machinery increased dramatically in 2004 to 2007. As a result, it is our estimate that between 1993, the year in which federal fuel taxes were last adjusted, and 2015, construction costs will have increased by at least 70 percent. (Figure 5.) To restore the purchasing power of the program, federal highway funding will have to be increased from $43 billion in 2009 to $73 billion by 2015. Over the past 15 years, the federal share of highway capital spending has been 45 percent, and the state and local share 55 percent. To sustain their share at 55 percent of the total in 2015, state and local governments would have to increase their investment to $89 billion.

Federal gas tax rates have remained static since 1993 when the rate was increased to 18.3 cents with 4.3 cents dedicated to the General Fund for deficit reduction. (Figure 7.) The Highway Trust Fund did not receive any investment benefit until 1998 when the 4.3 cents was recaptured. Our estimate of what it would take to restore the program's purchasing power is calculated to coincide with the level of revenue in 1998 under TEA-21. Inflation has and will continue to dramatically decrease the purchasing power of current revenues due to a lack of rate adjustments.

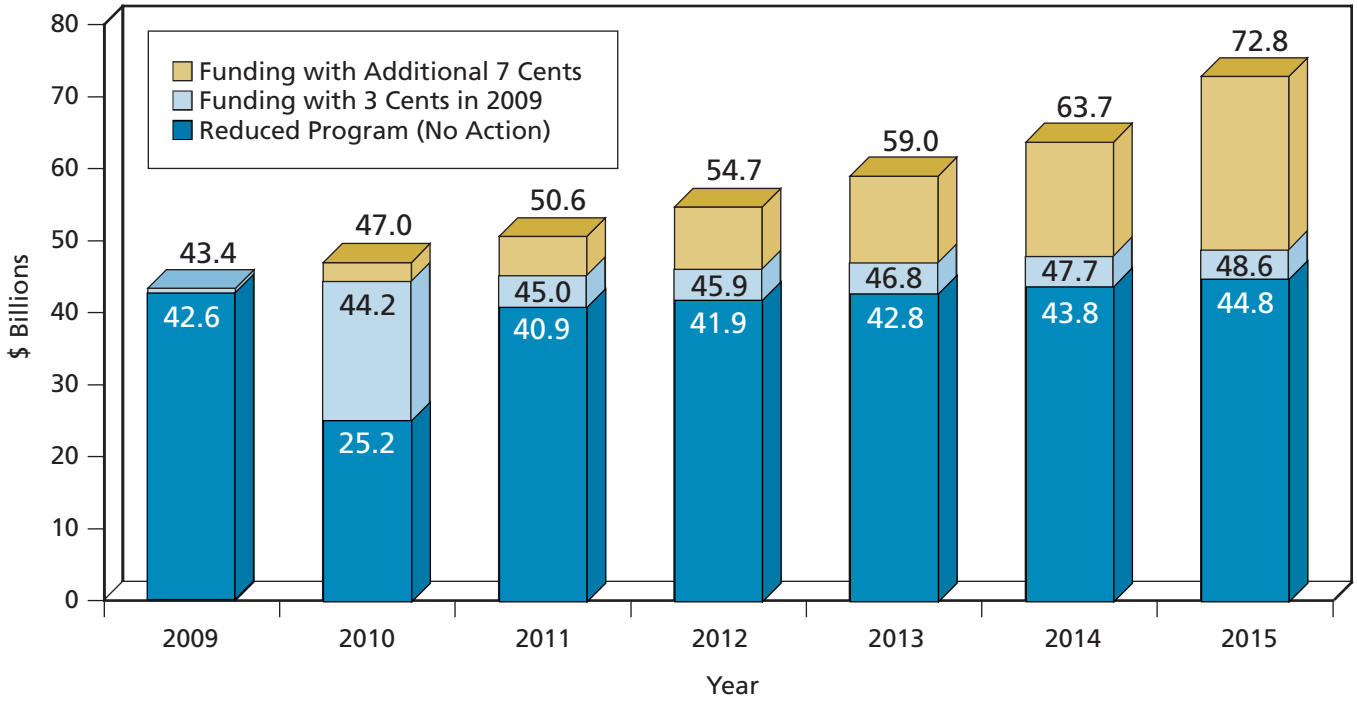
Because of the rising costs of construction, the value of the 18.3 cents Federal gas tax rate will decline 55 percent or to 8.3 cents between 1998 and the end of 2015, if corrective action is not taken to preserve Federal capital investment.

Figure 5. Percentage Increases in Construction Costs 1993–2015



Note: Projected change from 2007 to 2015 based on the Consumer Price Index. Data for 2004 to 2006 based on the Producer Price Index for highway construction.

Figure 6. Federal Highway Program Possible:
with 3-Cent Fuels Tax Adjustment or Equivalent in 2009
with Additional 7-Cent Adjustment or Equivalent Through 2015



The Solution

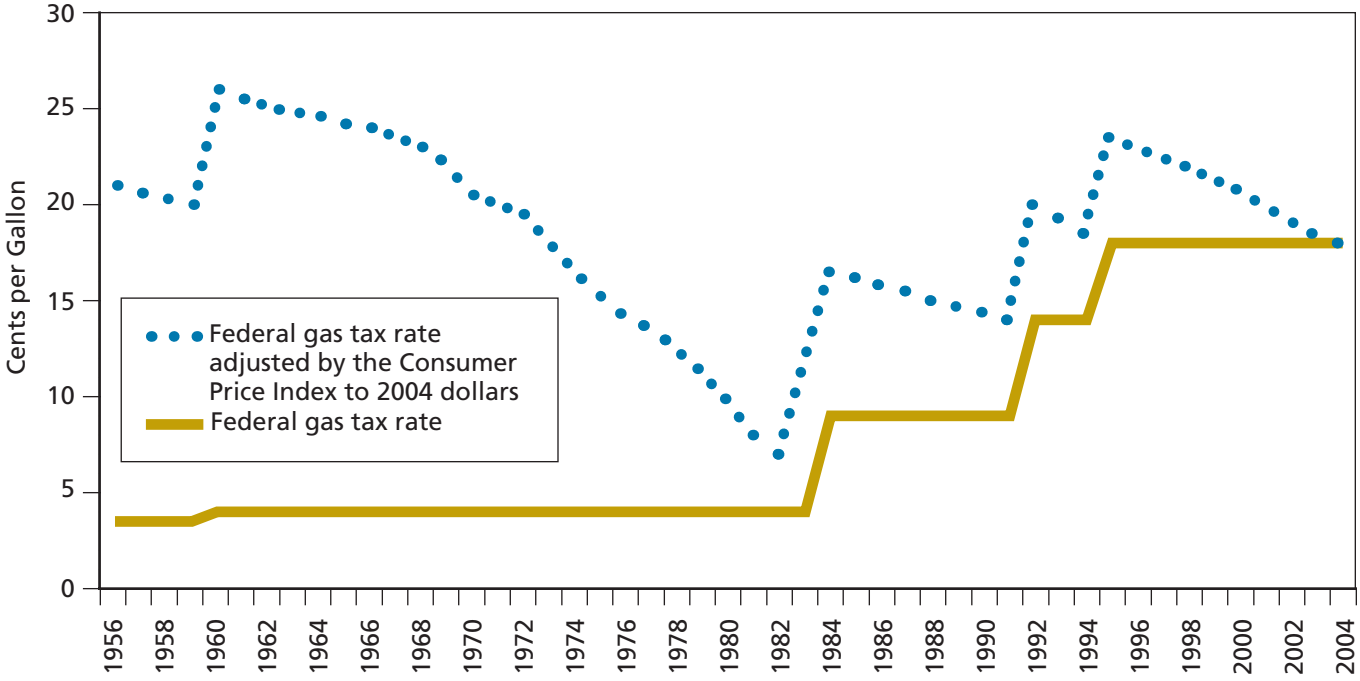
Between 2009 and 2015, federal fuel taxes would have to be increased by a total of 10 cents or its equivalent: 3 cents or its equivalent in 2009 to sustain the program at the level guaranteed in SAFETEA-LU, and another 7 cents or its equivalent in 2010 to restore the program's purchasing power. (Figure 6.)

Because fuel tax rates are set as a fixed number of cents per gallon, they lose purchasing power as program costs increase.

Historical Background on Federal Fuel Tax Rate Adjustments

Because fuel tax rates are set as a fixed number of cents per gallon, they lose purchasing power as program costs increase. This has been the pattern for the past 50 years. To deal with this problem Congress has periodically adjusted fuel tax rates. To fund the Interstate Highway System, President Eisenhower signed bills increasing fuel taxes from two to four cents in the late 1950s. Twenty-five years later, after the Highway Trust Fund lost 62 percent of its purchasing power, President Reagan successfully urged Congress to raise fuel taxes by 5 cents. In 1990, President H.W. George Bush agreed to sign a bill increasing fuel taxes 5 cents, and in 1993 President Clinton persuaded Congress to increase fuel taxes by 4.3 cents. The last two increases were enacted to help reduce the deficit, but revenues were later recaptured by the Highway Trust Fund. (Figure 7.) The time is approaching when Congress will have to face the need to adjust the fuel tax rate again to restore the program's purchasing power.

Figure 7. Gas Tax History
Federal Gasoline Tax Rate in Real 2004 Dollars



CHAPTER 3

Short-Term Federal Revenue Options for the Highway Trust Fund (2010–2025)






There are several options to accomplish the dual objectives of sustaining the program at the levels authorized by SAFETEA-LU and then restoring the program's purchasing power. (Table 5.)

Table 5. Highway Trust Fund Options to Increase Revenues

	Highway Program Level Made Possible by 2021
10-Cent Rate Increase	$75 billion
10-Cent Rate Increase, Indexed to CPI	$82 billion
5 Percent Sales Tax on Gas (If fuel prices increase 4 percent annually)	$85 billion
14.2 percent Sales Tax on Gas in lieu of 28.4 Cent Gas Tax (if fuel prices increase 4 percent, annually)	$95 billion

1. **A 10-Cent Rate Increase.** The first option is to increase federal fuel taxes by the equivalent of 10 cents by 2010. To avert a major cut in the highway program in 2009 and to sustain the program after that would take the equivalent of a 3-cent fuel tax increase. To restore the purchasing power of the program would take the equivalent of an additional 7-cent fuel tax increase in 2010. If the gas tax were increased by 10 cents to a total of 28.4 cents, the diesel tax would have to be increased by13 cents to a total of 37.4 cents. Most of the other commercial vehicle fees supporting the Highway Trust Fund are levied based on a percentage of price so they already rise with inflation. Our analysis shows that by 2021 the revenues made possible by this 10 cent increase could support a highway program of $75 billion.

2. **Index to the Consumer Price Index.** The second option is to index fuel tax rates to the consumer price index (CPI) from 2010 and beyond. Indexing federal rates to the CPI is similar to the practice being followed in Florida. According to our analysis, if the high-

way program could grow to $73 billion by 2015 with the revenue generated through a 10-cent increase in gas taxes, indexing rates to the CPI from 2010 forward could generate enough revenue to increase the highway program to $82 billion by 2021.

3. **Five Percent Federal Sales Tax on Motor Fuels.** A third option would substitute for the first. Instead of increasing fuel tax rates by 10 cents per gallon for gasoline and 13 cents per gallon for diesel, keep the current fuel tax rate and impose a federal sales tax on motor fuels at a rate that generates the equivalent amount of revenue. Assuming gas and diesel wholesale prices of $2.00 per gallon, an equivalent amount of revenue could be generated by a 5 percent sales tax on gasoline and a 6.5 percent sales tax on diesel fuel. This would result in a tax structure at the national level similar to that in California. California levies a motor fuel excise tax of 18 cents per gallon, and a state sales tax on motor fuels of 7.25 percent. One of the benefits of a sales tax is that it is based on a percentage of price rather than set as a fixed number of cents per gallon. If during the six years from 2015 to 2021, fuel prices increased by 4 percent annually, having a 5 percent sales tax in place would increase revenues to the point that the highway program could increase to $85 billion by 2021.

4. **Replace the 18.4-Cent Federal Fuel Tax with a 14.2 Percent Federal Sales Tax on Gasoline and Replace the 24.4-Cent Federal Tax on Diesel with a 18.7 Percent Federal Sales Tax on Diesel.** Assuming gas and diesel wholesale prices of $2.00 per gallon, a sales tax rate of 14.2 percent generates revenues equivalent to a fee per gallon of 28.4 cents. An 18.7 percent sales tax on diesel generates revenues equivalent to a fee per gallon of 37.4 cents. Converting the entire federal fuel tax to a percentage rather than just the 10-cent portion, would make it even more responsive to fuel prices. A floor would have to be imposed so that revenue generation is not adversely affected if wholesale prices dropped below a given rate such as $2.00 per gallon. If during the six years from 2015 to 2021, fuel prices increased by 4 percent annually, revenues would rise accordingly and enable the highway program to increase to $95 billion by 2021.

5. **Index the Heavy Vehicle Use Tax to 2010 or 1997.** The Heavy Vehicle Use Tax is for heavy vehicles over 55,000 pounds. Revenues from this user fee go into the Highway Account of the Highway Trust Fund. The fee, with the maximum rate set at $500, has remained constant for more than two decades. This option assumes that this fee would be adjusted for inflation starting in 2010. Cumulative revenues from 2010 to 2015 are estimated at approximately $1 billion. If this change were made retroactive by indexing the change in rate to 1997, to gain half the purchasing power lost since 1984, this would produce approximately $17 billion over six years.

6. **A Commission to Adjust Rates.** While the need for adjusting federal fuel tax rates is technically quite clear, the political challenge remains. We should also bear in mind that the past two times federal fuel tax rates were adjusted, it was done for deficit reduction rather than explicitly to increase transportation funding or restore the program's purchasing power.

   There is a mechanism which seems to work well in the field of military base closing which might be a model for what is needed for the Highway Trust Fund. The Base Realignment and Closure Commission (BRAC) is convened periodically to review the needs of the Department of Defense and to recommend base closures where facilities are no longer needed. An appeal period is provided. However, once the final

list is submitted to Congress it is considered on an up or down vote. No amendments are allowed.

If Congress chooses not to index rates or impose a sales tax, there is an alternative which might help. Congress could create an impartial board called the Transportation Revenue Advisory Commission (TRAC). Its mission would be to periodically review whether the rates of federal fuel taxes and other fees supporting the Highway Trust Fund are set at levels sufficient to sustain the program at the levels needed. Once the Commission's recommendation is made, and after an established review period, the recommendation would take effect unless Congress voted during the review period to reject it.

CHAPTER 4

Short-Term Federal Funding Options Outside the Highway Trust Fund






The past several decades have witnessed dramatic growth in freight demand, driven by economic expansion, global trade, and revolutionary changes in business logistics. Today, the nation is entering the early stages of a freight transportation capacity crisis. Federal funding options outside of the Highway Trust Fund are needed to ensure that our nation can stay competitive in the global economy.

The tonnage of freight moved in the United States is forecast to double between 2005 and 2035, from 16 billion tons to 31.4 billion tons. Trade with Canada is up. Oil imports and expanding trade with Mexico and Latin America have resulted in major increases in trade through Gulf Coast ports and across the U.S.–Mexico border. International container cargo coming primarily from Asia and Europe grew from 8 million units in 1980 to 40 million by 2000 and is expected to explode to 110 million by 2020. This is placing enormous pressure on West Coast and East Coast ports and the highway and rail distribution systems in between.

The nation benefits from trade, but the burden of meeting the demand is borne by the states and localities at gateways and on trade corridors. The nation also needs freight railroads to make the capacity improvements required so they can continue to carry their current market share of the increase in freight expected. AASHTO's studies show that freight rail will be unable to do so without public funding in the range of $2.65 billion annually for the next 20 years.

The effects of growing demand and limited capacity are felt as congestion, upward pressure on freight transportation prices, and less reliable trip times as freight carriers struggle to meet delivery windows. Over time these costs add up to a higher cost of doing business, a higher cost of living for consumers, and a less productive and competitive economy.

Since 80 percent of freight in the United States is carried by truck, improving our highways should be the first priority. The states, the federal government and the private sector should collaborate to reaffirm the importance of investing in highway trucking capac-

ity. States should be provided the authority and resources necessary to provide truck-only lanes or truck-only-toll lanes where demand warrants. States should create, and the federal government should support, multi-state/regional institutions to coordinate, manage, and guarantee the performance of economically important highway freight corridors which cross more than one state. Finally, the federal government should support efforts by states to focus highway programs on significant supply-chain bottlenecks at interchanges, gateways, intermodal connectors, and international borders.

The United States needs to find ways to significantly increase freight-related investment using new sources of revenue.

Whether the problem is the need for better intermodal connections to ports, airports, or railroads, or the expansion of railroad capacity itself, the scale of investment needed is beyond that which can be met from the Highway Trust Fund. The United States needs to find ways to significantly increase freight-related investment using new sources of revenue.

Stabilizing funding for Amtrak and capitalizing new intercity passenger rail corridor service will also require substantial revenues from outside the Highway Trust Fund.

Table 6. Federal Revenue Options Outside Highway Trust Fund

	6-Year Revenue 2010–2015
Investment Tax Credits for Railroads	$7 billion
5 Percent of Customs Fees or $30 Container Fee	$12 billion
Federal Tax Credit Bonds (50 Percent for Freight Projects)	$25 billion
Subtotal for Freight Projects of National Significance	$44 billion
Federal Tax Credit Bonds (50 Percent for Passenger Projects)	
Subtotal for Highway, Passenger Rail, and Transit Projects	$25 billion
Total	**$69 billion**

Stabilizing funding for Amtrak and capitalizing new intercity passenger rail corridor service will also require substantial revenues from outside the Highway Trust Fund. There are several options for generating revenues outside the Highway Trust Fund which have potential. (Table 6.)

1. **Investment Tax Credits.** The Association of American Railroads is pushing for federal investment tax credits for rail improvements which improve capacity. A recent example is Senate Bill 3742, the "Freight Rail Infrastructure Expansion Act," co-sponsored by Senators Trent Lott of Mississippi and Kent Conrad of North Dakota. It would provide incentives for investments in capacity enhancing freight rail infrastructure through both tax credits and tax deductions.

This program is designed to stimulate private capital investment by railroads as well as shippers, intermodal carriers, and other companies that make qualified expenditures for capacity expansion projects. AASHTO has indicated its support for this concept, providing that a satisfactory mechanism for determining public benefit can be mutually determined with the railroads. It is estimated that this measure could generate new, private investment capital of $6 billion over a five-year period, or the equivalent of $1.2 billion per year.

The Association of American Railroads is pushing for federal investment tax credits for rail improvements which improve capacity.

2. **Dedicating 5 Percent of Customs Fees for Port Access and Intermodal Freight Projects.** Dedicating 5 percent of customs fees to port intermodal connections via rail and highways would bring in $1.8 billion per year. Customs revenues are derived from duties on imported goods passing through international gateways. The transportation of these goods imposes significant costs on ports, intermodal facilities, and the surrounding communities. Over the next 15 years the number of international containers expected to cross U.S. docks and border crossings is expected to grow from 40 million units to 110 million units. With growth rates like these, sharing only 5 percent of this rapidly growing resource should prove reasonable.

3. **Container Fees.** Another idea is the imposition of a container fee of $30 on every 20-foot cargo container, which would be placed in a trust fund dedicated to freight-related improvements nationwide. If applied at all U.S. ports, it is estimated that this could generate in the range of $2 billion per year.

4. **Tax Credit Bonds.** In 2005, Senators Talent, Wyden, Coleman, and Corzine introduced a "Build America Bonds" program which would have made $50 billion in tax credit bonds available through a transportation finance corporation. AASHTO had developed a similar concept. The U.S. Chamber, AGC, ARTBA, and the AFL-CIO Building Trades have all expressed interest in this concept. The tax credit bonds would be long-term debt issued by a federally-chartered, non-profit Transportation Finance Corporation (TFC). Instead of interest payments, investors would receive an annual tax credit which they could use to offset their federal tax liabilities. The proceeds from the $50 billion in bonds the TFC could be authorized by Congress to issue would go to fund projects including freight rail and intercity passenger rail improvements, highway corridors of national significance, freight bottleneck solutions such as the CREATE project in Chicago, and Transit New Starts. $8 billion to $10 billion annually could be made available through this six-year program. It could be used to jump-start many badly needed projects of national significance.

From resources outside the Highway Trust Fund, additional federal government financing should be provided for freight-related investments, including freight gateways, connectors, corridors, and border crossings.

If all of the above options were enacted this could increase investment in freight-related projects by $5 billion to $10 billion annually from resources outside the Highway Trust Fund in the period from 2010 to 2015.

If the Tax Credit Bond program were authorized, at least half or $25 billion, could be used to fund projects including intercity passenger rail corridors, highway corridor improvements, and transit new starts.

Florida Turnpike employees such as Diane Decker collect the tolls that have been used to build two-thirds of all new lane-miles in the state, in the past 15 years.

CHAPTER 5

State and Local Government Revenue Options






What we have just outlined are revenue options at the federal level. AASHTO believes that if we are to achieve the increase in funding needed, state and local governments must do their part as well. That means for the period between now and 2015, state and local highway capital investment would have to increase to approximately $89 billion, and their transit investment increase to around $21 billion.

The good news is that they have done it before. As the General Accounting Office (GAO) reported to Congress June 18, 2003 in its report on Trends in Federal and State Capital Investment in Highways, "While the nation's total capital investment more than doubled, state and local highway capital investment increased at twice the rate of federal investment over the past 20 years."

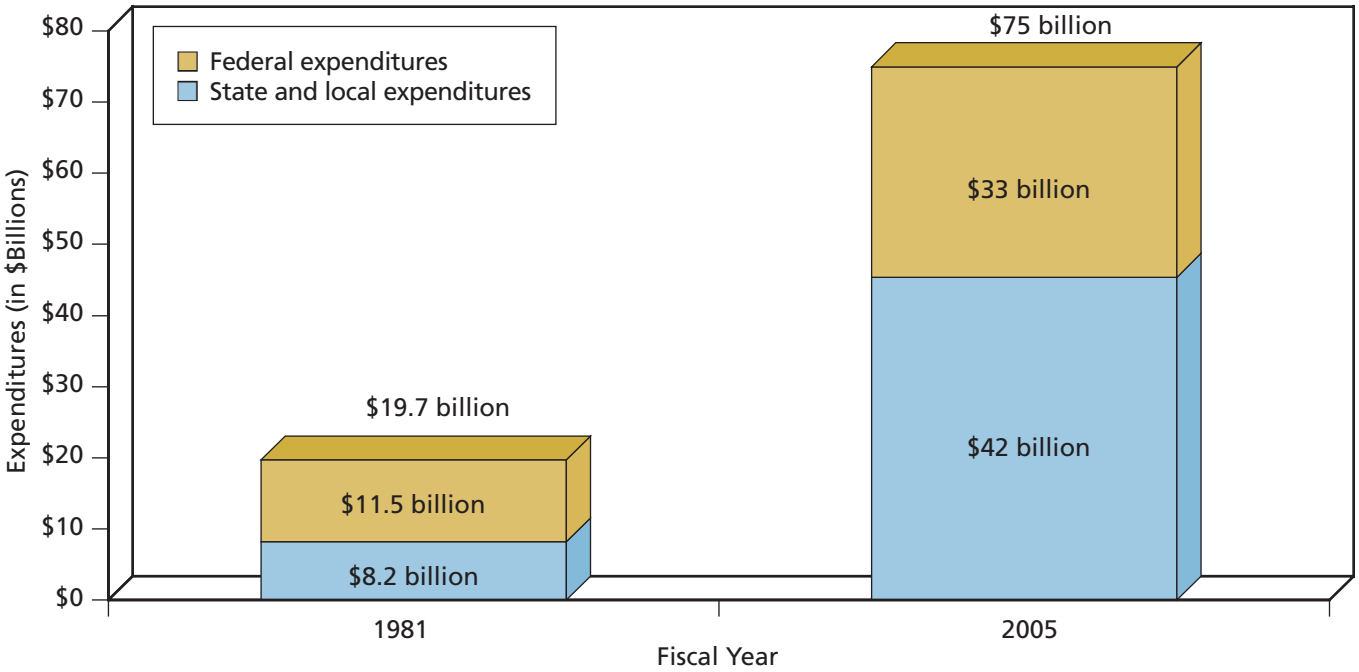
In 1981, highway capital investment was a total of $19.7 billion, $11.5 billion in federal funding and $8.2 billion state and local. By 2005, it had increased to $75 billion, up 280 percent, that included $33 billion federal, a 187 percent increase, and $42 billion state and local funding, up 412 percent. (Figure 8.) If state and local investment increases at the same annual rate for the ten years between 2005 and 2015, as it did for the 24 years between 1981 and 2005, it will increase to $89 billion. To restore the system's purchasing power overall, the federal government will also have to fund its share of the increase needed.

During the 23-year period from 1981 to 2004, transit capital investment increased by 290 percent, from $3.4 billion to $14.2 billion. It is significant to note that in the period from 1990 to 2005, state funding for transit increased from $3.7 billion per year to $9.5 billion per year.

Many States Are Increasing Transportation Funding

In the period from 2004–2007, Washington state increased its construction lettings from $725 million to $1.1 billion. They did so by increasing their gas tax by 14.5 cents over a 5-year period. Remarkably, when the voters in Washington State were given the chance at

Figure 8. Highway Capital Expenditures Increased 280% in 24 Years

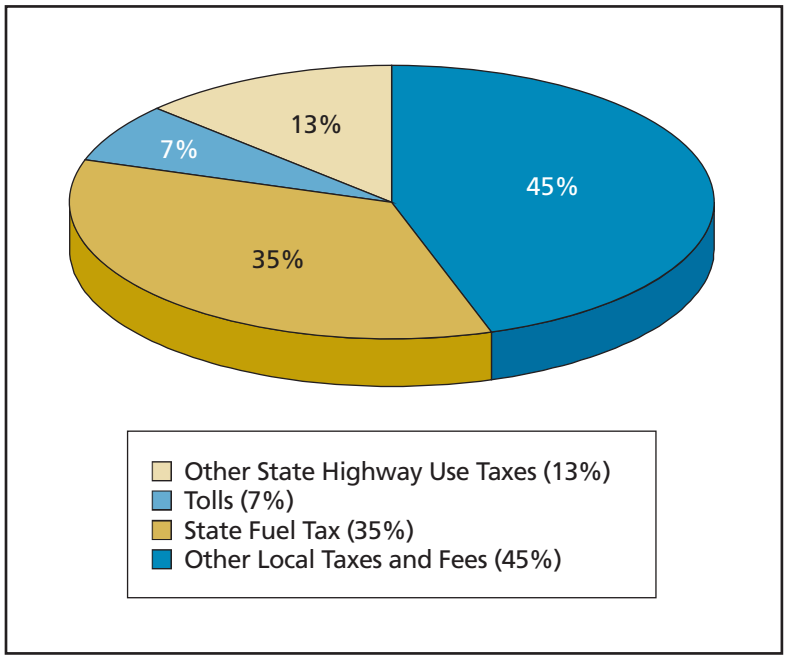


the polls to repeal 9.5 cents of the increase in 2005, by a 53 percent majority they voted to keep it in place.

Over the same period, Georgia has increased its construction program from $911 million to $2 billion. In large part, they did so through a sales tax on gasoline which has brought in more revenue as gas prices have increased. They have also used some bonding.

Texas is one state that is using toll revenue to address its highway needs, such as the construction of this interchange between State Highway 45 and Interstate 35.

Figure 9. State Revenue Components
State and Local Revenues for Highways, 2002



Transportation measures nationally have done well at the polls. In the 2004 Elections, 76 percent of transportation ballot measures passed. In the 2006 elections, $40 billion in new funding for transportation was approved.

Texas has increased its construction program from $3.8 billion to $5 billion. They are using several techniques. In part, they depend on traditional resources such as federal aid and state fuel taxes. They are using tolls to fund the expansion of most of their new capacity, and have developed the concept of the TransTexas Corridors which will open the door to private investment. The first project they launched was TransTexas Corridor 35, which will bring in an initial investment of $7 billion in Spanish and American investment, on a corridor which goes from Mexico to Oklahoma. The investors will be paid back over time through toll revenues.

California increased its program from $7.9 billion to $9.6 billion between 2004 and 2007. In addition to this, in November 2006 voters approved $19.9 billion in transportation bonds which will be invested in highways and transit over the next 10 years. Five self-help counties in California were successful in passing half-cent sales tax measures in 2006. These county ballot measures had to receive a two-thirds majority to pass. Statewide, the 18 self-help counties which have passed such measures will bring in $50 billion in revenues for transportation over the next 30 years.

To be fair, there are other states which have been unable to significantly increase transportation revenues.

Over the past two years, transportation measures nationally have done well at the polls. In the 2004 Elections, 76 percent of transportation ballot measures passed. In the 2006 elec-

Table 7: Potential Contribution of Short-Term Funding Mechanism to Federal, State, and Local Highway and Transit Needs
Year of Expenditure Dollars

Short-Term Funding Mechanisms	Revenue Generation 2010	Revenue Generation 2017	Average Annual Revenue 2010–2017	Revenue Generation Cumulative 2007–2017	Comments
State Revenue Options					
Index state motor and fuel taxes	$1.4 billion	$6.5 billion	$3.8 billion	$31.9 billion	If all states indexed fuel taxes by 2010.
Increase state motor fuel taxes to catch up for inflation losses since 2000	$6.6 billion	$8.6 billion	$7.6 billion	$70.0 billion	If all states were to catch up for inflation losses by 2010; results in average 5.2-cent increase.
Implement motor fuel sales taxes	$8.9 billion	$11.6 billion	$10.1 billion	$94.3 billion	3% assumed dedicated to transportation.
Raise motor vehicle registration fees to keep up with inflation	$1.8 billion	$6.4 billion	$4.0 billion	$33.4 billion	If all states were to raise in concert with inflation starting in 2007.
Use vehicle sales tax for transportation	$6.2 billion	$8.4 billion	$7.2 billion	$66.6 billion	If all states who have sales tax dedicate at least 3% of vehicle sales tax to transportation.
Portion of state sales tax dedicated to transportation	$9.0 billion	$12 billion	$10.5 billion	$108.8 billion	Assume one-half percent dedication to highway and/or transit.
Increase tolling/ pricing revenues (above current 5 % per year increase)	$0.2 billion	$2.4 billion	$1.1 billion	$8.9 billion	Estimate based on aggressive use of tolling and pricing opportunities in SAFETEA-LU.
VMT fees (future); transition from short-term toll/pricing innovation					High potential but widespread deployment assumed after 2015.
Local Revenue Options					
Increased use of specialized dedicated local taxes, e.g., local option taxes, impact fees—Highway	$3.5 billion	$11.6 billion	$7.2 billion	$63.4 billion	Assume more aggressive growth rate of last 10 years continues.
Increased use of specialized dedicated local taxes, e.g., local option taxes, impact fees, miscellaneous transit fees—Transit	$1.8 billion	$6.0 billion	$3.7 billion	$32.8 billion	Assume more aggressive growth rate of last 10 years continues.

Source: NCHRP Report, *Future Financing Options to Meet Highway and Transit Needs.*

tions, between statewide measures and city, county, and transit proposals, $40 billion in new funding for transportation was approved.

State and Local Transportation Revenues

At the state level, where gas taxes average 28.4 cents, fuel excises taxes and sales taxes generate around 35 percent of transportation-related revenues. (Figure 9.) Other transportation user charges such as vehicle registration fees bring in an additional 13 percent of revenues. General funds provided through sales taxes, property taxes, and other state and local fees provide 45 percent of revenues.

Between 1992 and 2002, legislatures in 28 states voted to increase state gas taxes. In 2003, Ohio increased its rate by six cents. In 2005, North Dakota increased its rate by two cents. Some states have attempted to overcome motor fuel tax inelasticity problem by indexing rates to inflation. At least six states—Florida, Kentucky, Maine, Nebraska, New York, and North Carolina—have some from of "variable rate" tax linked to inflation. Florida and Maine link their gas tax increase to the Consumer Price Index. In addition to the flat per gallon excise tax rate imposed by most states, at least 10 states also levy a sales tax on fuels or a gross receipts tax as a percentage of the retail price of motor fuels.

Three recent reports offer detailed analysis of future revenue options at the state and local level.

- In April 2006, the National Conference of State Legislatures published a 100-page report titled, *Surface Transportation Funding, Options for States*.
- At the request of AASHTO, the National Cooperative Highway Research Program prepared and published a September 2006 Report titled, *Future Financing Options to Meet Highway and Transit Needs*. Table 7 from this report outlines state and local options.
- On February 7, 2007 the National Governors Association Center for Best Practices published a 30-page Issue Brief titled, *State Policy Options for Funding Transportation.*

Shifting the share of costs currently funded by the federal government to the states is not a real option, if the objective is to keep pace with both costs and demand.

Summary of Key Points

Because the main focus of the National Surface Transportation Policy and Revenue Study Commission is on revenues at the federal level, this report does not go into detail on what can and should be done at the state and local level. But there are several significant points to be made.

1. A key finding of the NCHRP Study *Future Financing Options to Meet Highway and Transit Needs*, was that closing the funding gap between current levels of transportation investment and what is needed, "will require a concerted effort at all levels of government."
2. State and local governments must balance their budgets each year. The budgets of state governments are under intense pressure from the rising costs of health care and the rapidly

increasing numbers of elderly in need of health care. States also face the increasing costs of the K-12 education system, higher education, prison populations, and social service costs.

3. Shifting the share of costs currently funded by the federal government to the states is not a real option, if the objective is to keep pace with both costs and demand.

4. The cost of preserving the current system is so great it may require nearly all the revenue that can be generated through traditional taxes and fees. In order to meet their needs for new capacity, many states may have to consider toll funding as an option.

Tolls and Public Private Ventures as a Supplement to Traditional Sources of Revenue

Tolls are currently collected on 4,600 miles of roads in 25 states. There are approximately 25 Interstate toll roads and 65 significant non-Interstate toll roads in operation. Toll-generated revenues equaled $7.75 billion in 2005. In 2005, that represented 5 percent of total highway revenues.

Over the past 10 years, the rate of toll road development, measured in centerline miles, has increased significantly. This is especially true in the creation of new roads. Thirty to forty percent of the approximately 150 miles per year of new expressways built in this period have been financed through tolling.

Tolling's market share of highway funding nationally could be increased from 5 percent to as much as 7 percent over the next 15 years if it receives strong policy support from Congress and state legislatures.

The pattern observed over the past 15 years is that toll-generated revenues nationally have been increasing, but at approximately the same rate as the overall increase in funding for highways by federal, state, and local governments. Since 1991, highway capital investment overall has nearly doubled. So even though tolling has increased, the percentage of revenues generated by tolls has remained at between 4 and 5 percent of the total.

Recently interest in tolling has been further sparked by two developments. First, public–private ventures, such as Chicago receiving $1.8 billion for a 99-year concession on its Skyway, and Indiana receiving $3.85 billion for a 75-year concession on the Indiana Tollway, have generated intense interest. These projects involve equity provided by foreign and American investors in return for a long-term return on investment provided through tolls.

The second development has been the growing popularity of HOT lanes, High Occupancy Toll lanes. This concept was pioneered in the variably priced demonstration project on Interstate 15 in San Diego, California in the 1990s when drivers of single-occupant vehicles were allowed to pay a toll and use an eight-mile stretch of an HOV lane. San Diego County now plans to expand this initial eight-mile segment to a hundred-mile system that will not only pay for the new lane capacity, but generate funding for transit as well. Several HOT lane projects have been built or are about to be built in Texas, Virginia, Minnesota, and elsewhere.

AASHTO has taken the position that every state should be given all options possible in the areas of tolling and public–private ventures so those states can determine for themselves what is in the best interests of their citizens.

As an example of what some states are doing in the area of tolls, Florida has used tolling extensively to provide new urban and interurban highways, to improve capacity, and to maintain high-quality service on its existing toll roads. In recent years, the State has derived between 8.2 to 11.2 percent of annual highway revenue for all levels of government from tolling. Florida's toll agencies have built two-thirds of all new lane-miles and nearly all new limited access highways in the State in the past 15 years.

Analysts who have specialized in the potential of tolling, believe that tolling's market share of highway funding nationally could be increased from 5 percent to as much as 7 percent over the next 15 years if it receives strong policy support from Congress and state legislatures. They have observed that, if major growth states like Florida, California, and Texas, continue on their aggressive path of developing most new upper level centerline miles as toll roads, toll revenues could gradually contribute a greater share and increase toward the $10 billion level. Significant increases in toll funding longer term will depend on liberalization of tolling on the Interstate, and other states adopting a similar tolls-for-major-capacity-expansion-policy. Opposition from some trucking and automobile user groups remains a challenge, however.

AASHTO has taken the position that every state should be given all options possible in the areas of tolling and public–private ventures so those states can determine for themselves what is in the best interests of their citizens.

It has also embraced a bold goal of increasing toll-supported projects to 9 percent of the total nationally. What must be understood by the Commission, however, is that while the increased funding made possible through tolling will help states and local governments generate funds needed, it in no way offsets what will be required from the federal level.

Innovative Finance Tools Are Also Important

There are several financial tools which are vital to states, local governments, and transit authorities in making many projects feasible. That includes the many forms of tax exempt municipal bonds which states and local governments have used for decades. According to the Bond Buyer, municipal bond financing for highway, bridge, and transit projects increased from $17.6 billion in 2001 to $30.6 billion in 2005.

Over the past 12 years a number of additional tools have been made available which are also important and need to be retained. This includes Garvee Bonds for highways and grant anticipation notes for transit. It includes TIFIA loans, Private Activity Bonds, State Infrastructure Banks, and other tools. It is important that the federal government come to the table as partners willing to work with state and local governments to do as much as is possible to fund and finance needed projects.

Additional Financing Options for Transit

Increasing transit funding at the federal level will depend on the willingness of Congress to increase fuel taxes in order to increase revenues for the Transit Account of the Highway Trust Fund, and the willingness of Congress to continue to provide General Fund support for transit.

Approximately 80 percent of federal transit assistance is provided through the Transit Account of the Highway Trust Fund, and 20 percent from the General Fund.

At the state and local level, transit funding is provided from a wider range of sources including sales taxes, property taxes, and fare box revenues. AASHTO has proposed a national goal of doubling transit ridership over the next 20 years. To do so, transit ridership would have to increase at 3.5 percent annually. AASHTO recently joined forces with American Public Transit Association on a Transit Cooperative Research Program study to analyze what it would take to expand transit capacity at a rate that would make it possible to achieve this 3.5 percent growth rate. The answer was the need to increase capital investment by over 80 percent.

Just as state departments of transportation are turning to toll funding and public private partnerships to supplement what they can generate in tax-based financing, transit agencies are also turning to innovative solutions for help. Two of the most promising techniques are "transit joint development" (TJD) and "tax increment financing," (TIF). Both depend on "real estate value capture," in areas whose real estate values are enhanced by the construction of a transit station or new transit service. Both appear to hold great promise.

Transit agencies are turning to innovative solutions for help. Two of the most promising techniques are "transit joint development" (TJD) and "tax increment financing," (TIF). Both depend on "real estate value capture," in areas whose real estate values are enhanced by transit.

Transit Joint Development

Transit Joint Development has been described as "an arrangement between a public transit agency and a private organization that involves either private-sector payments to the public entity or private-sector sharing of capital costs in mutual recognition of the enhanced real estate development potential or market potential created by the siding of public transit facility."

An example of a transit joint development which generates revenue for a transit agency is the Bethesda, Maryland Metro Center. An office-retail-hotel project that sits atop the Bethesda Metrorail station generates $1.6 million annually in air rights rent for the Washington Metropolitan Area Transit Authority (WMATA). Regional transit officials indicate that this sum will likely be eclipsed by the lease payments to be generated by the planned 32-acre office-retail-residential project at the White Flint station also located in Montgomery County, Maryland.

An example of a transit joint development project where the private sector partner made a cash contribution to offset project costs and will make on-going payments to the transit agency is the West Dublin/Pleasanton Station project owned by California's Bay Area Rapid Transit District (BART). In this project the developer contributed $15 million toward station land costs. Private sector revenues to be generated at the station will be used to pay off $57 million in bonds taken out to fund the station.

In many of these projects the municipalities in which they occur change zoning to encourage development to take place adjacent to transit stations. An example of this took place in Moun-

tain View, California. That city created a Transit Overlay Zone that allowed higher densities within 2,000 feet of the station. That made it possible for an 18-acre compact, mixed-use, walker-friendly neighborhood, called The Crossings, to replace a once-dying shopping mall.

Along New York's Metro-North commuter rail line, new housing and retail shops have recently been built on parcels near stations in century-old communities like New Rochelle and Mamaroneck. The use of Redevelopment Agencies to assemble land and to issue tax exempt debt has made it possible for many transit joint development projects to succeed. Not only do these projects make transit improvements possible where they would otherwise have to wait, they also create housing and commercial development needed to revitalize communities.

Tax Increment Financing (TIF)

This is a technique used to create taxing districts which can pledge future tax revenues toward financing transit projects.Tax increment financing establishes a base-year tax level for a district. Any taxes generated above that base-year amount through increases in property values are earmarked for use within the same district for improvement projects or services.

Tax increment financing is used in some cases to fund a transit improvement itself. In other cases it is used to fund amenities which help assure the success of real estate in transit oriented developments.

The city of Cedar Rapids, Iowa, used TIF to help finance a Ground Transportation Center which includes an intermodal transit terminal, a 500-space parking garage, a 15-story private office building, a 96-unit elderly and handicapped housing project, and other amenities. TIF financing was used to pay off a $4.5 million bond which paid for the local share of the project.

In other cases, TIF-supported funds are used for infrastructure improvements that will make the area more attractive to private developers and businesses. For example, in Pleasant Hill, California, TIF was used by the redevelopment agency to place utilities under ground and install new water and drainage systems in the vicinity of the BART station. (Further information on these techniques can be found in the TCRP Research Results Digest, October 2002, Number 52; and TCRP Report 102, "*Transit-Oriented Development in the United States*," 2004.)

States are turning to innovative financing solutions for transit development, capturing real estate value that is created when transit stations are developed.

CHAPTER 6
Long-Term Federal Revenue Options






AASHTO believes a four-phase approach should be taken to increasing revenues to the levels needed.

- In phase one, Congress should take action in FY2009 and FY2010 to preserve highway funding at the levels authorized by SAFETEA-LU, and avoid cutting the highway program $18 billion from $43 billion to $25 billion.
- In phase two, Congress should restore the program's purchasing power by increasing highway assistance from $43 billion to $73 billion between 2010 and 20015, and transit assistance from $10.3 billion to $17.3 billion.
- In phase three, from 2015 to 2025, Congress should increase the program toward meeting the "cost-to-improve" goals, estimated in U.S. DOT's *Conditions and Performance Report*, but adjusted to year of expenditure dollars using the Consumer Price Index (CPI). For example US DOT estimated a 2004 "cost to improve" annual highway capital investment level of $118.9 billion in 2002 dollars. Adjusted over time using the CPI, the "cost to improve" figure would be $189 billion by 2015 and $242 billion by 2025.
- From 2025 and beyond, Congress should use a vehicles miles traveled tax to supplement or replace fuel taxes as the principle revenue source for the Highway Trust Fund.

AASHTO is developing a supplemental report on additional long-term federal revenue options which will be published later this year.

The Need to Supplement or Replace Fuel Taxes Between 2025 and 2035

For the period between 2015 and 2025, increasing fleet fuel efficiency and the increasing use of alternative fuels may begin to slightly erode Highway Trust Fund revenues, assuming the current tax rates remain the same. The 2006 TRB study, *The Fuel Tax and Alternatives for Transportation* looked at this situation. It stated that "A reduction of 20 percent in

average fuel consumption per vehicle mile is possible by 2025 if fuel economy is driven by regulation or sustained fuel price increases. Offsetting the revenue effect of such a gain would not require unprecedented increases in fuel tax rates… Without new regulations, fuel price increases alone probably will stimulate only a small improvement in fuel economy in this period."

President Bush's proposal to increase CAFE standards for automobiles from the current fleet average of 25 miles per gallon by 4 percent annually to 2017, may or may not pass. If it does and if concern over global warming in subsequent administrations increases CAFE standards further, the 20 percent change scenario may come into play by 2025. But as the TRB study concluded, the only adjustment this scenario would require is an offsetting increase in fuel tax rates.

A different scenario may come into play in the period from 2025 to 2035. By 2030, it is conceivable that overall fleet fuel economy could increase from 21 mpg today to 31 mpg. That would reduce revenues by 33 percent. It is also conceivable that by 2030, alternative fueled vehicles, which pay no gas or diesel taxes, could represent 15 percent of the market. These could include vehicles fueled by hydrogen, by electricity, and by natural gas. That would reduce revenues by 15 percent.

Somewhere between the point where there is a tolerable revenue loss which can be offset by rate adjustments, and the point when the loss is too serious, the states and the federal government will need to have fashioned an alternative highway user fee which supports the Highway Trust Fund.

It is also conceivable, that as the world demand for petroleum grows from the United States, Europe, Japan and emerging powers like China and India, and the supply struggles to keep pace, gas prices will increase. This could dampen consumption by 5 to 10 percent. That would reduce revenues by 5 to 10 percent. So somewhere between the point where there is a tolerable revenue loss which can be offset by rate adjustments, and the point when the loss is too serious, the states and the federal government will need to have fashioned an alternative highway user fee which supports the Highway Trust Fund. (Table 8.)

Table 8. Long-Term—Alternatives to Supplement or Replace Fuel Taxes

Study Viability of Vehicle Miles Traveled Taxes	2010–2015
Field Test VMT Technologies	2015–2021
Develop Implementation Plans for VMT Taxes	2021–2027
Transition to VMT Tax	2027–2033

Oregon's Mileage-Based Fee Field Test

Over the past three years, Oregon has been field testing a mileage-based user fee, which could be the alternative needed. They have developed and implemented a pilot test to assess a mileage-based fee designed to produce revenue roughly the equivalent that being generated through their current state gas tax. Two hundred sixty trial participants have had a mileage recording and

global positioning system device installed in their car. The device tracks miles driven in Oregon, miles driven out of state, and miles driven in the Portland Metropolitan area during weekday rush hours. They will only be charged for miles driven in Oregon. The past six months of the test will evaluate having a peak-period surcharge (congestion price) in place.

Oregon DOT anticipates that adoption of a mileage-based fee system will require legislative support which will require the understanding and support of the public. Enforcement and privacy concerns will have to be addressed. In addition, it may require testing and evaluation in other regions; funding for installation of vehicle and service-station technology; development of new state and federal legislation governing administration, coordination with vehicle manufacturers, the fuel distribution industry, and organizations representing the general public and the trucking industry.

The Hudson Institute in its report *2010 and Beyond*, outlined a mileage-based system similar to that being tested in Oregon. In addition to a base fee levied on the basis of vehicle miles traveled, Cambridge Systematics which developed this concept for Hudson, proposed an optional service fee, levied at peak-demand periods, "to stimulate some users to divert their trip to a less congested route, less congested time, or to transit, thus removing some of the need to build additional capacity."

What Oregon's experiment has demonstrated is the complexity of implementing what technologically is not all that complicated a system. Congress should be urged to fund additional pilots and studies during the reauthorization periods from 2010 to 2021. By 2021, enough research should have been conducted on a Vehicle Miles Traveled user fee to determine how it can best be configured to supplement or replace the cents per gallon fuels tax by the period just beyond 2025. It would be highly desirable if consensus could be reached between the states and the federal government about which vehicle mile tax system to adopt, so motorists will only have to adjust to one approach at the pump.

Oregon is currently field testing a mileage-based user fee, using such a recording device.

APPENDIX 1






Revenue Options

The following revenue mechanisms represent ways in which the Federal government could generate revenue to meet the program funding levels proffered in the scenarios described in this paper.

Revenue Mechanism	Description	Revenue Generation 2010	Revenue Generation 2015
Current Federal Revenue Sources			
Federal Gasoline and Gasohol Tax	18.40 cents/gal, with 15.44 cents going to the Highway Account, 2.86 cents going to the Transit Account, and 0.10 cent going to the Leaking Underground Storage Tank Trust Fund	$26.9 billion ($22.7 billion Highway Account/ $4.2 billion Transit Account)	$28.0 billion ($23.6 billion Highway Account/ $4.4 billion Transit Account)
Federal Diesel Tax	24.40 cents/gal, with 21.44 cents going to the Highway Account, 2.86 cents going to the Transit Account, and 0.10 cent going to the Leaking Underground Storage Tank Trust Fund	$10.1 billion ($8.9 billion Highway Account/ $1.2 billion Transit Account)	$10.8 billion ($9.5 billion Highway Account/ $1.3 billion Transit Account)
Federal Vehicle Taxes	Includes a tax based on tire weight, a retail tax on trucks weighing more than 33,000 pounds, and a heavy vehicle use tax	$7.2 billion	$10.1 billion
General Fund	Appropriations of General Fund dollars for public transportation purposes (assumes it grows with inflation)	$1.9 billion	$2.2 billion

Potential Federal Revenue Options			
Federal Fuels Tax Increase	Across the board increase in cents/gallon tax on gasoline, diesel, gasohol, and specialty fuels	1 cent/gal = $1.9 billion	1 cent/gal = $2.0 billion
Index Federal Fuels Taxes	Annually adjust cents/gallon fuels tax rates by an inflation index such as the CPI (approximately 0.49 cent/gallon each year)	$0.9 billion	$6.2 billion
Index Federal Fuels Taxes (retroactive to 1993)	Increase fuels tax rates in cents/gallon to capture loss in buying power since 1993 due to inflation	10 cent/gal = $19.0 billion (If implemented in 2010)	14 cent/gal = $28.0 billion (If implemented in 2015)
Sales Tax on Motor Fuels	Percentage charged on sales revenues for gasoline, diesel, gasohol, and specialty fuels	1 percent = $3.5 billion to $5.5 billion (depends on how tax is imposed)	1 percent = $3.9 billion to $6.0 billion
End Revenue Loss from HTF Exemptions	Eliminate or finance from the General Fund Federal fuels tax exemptions for state, municipal, and certain agricultural vehicles	$1.2 billion	$1.3 billion
Recapture Interest on HTF Balances	Reinstates interest earnings on HTF balances (assumes minimum combined $10 billion balance and 5 percent interest rate)	$0.5 billion	$0.5 billion
Alternative Longer-Term Federal Revenue Options*			
Sales Tax on Motor Fuels	Percentage charged on sales revenues for gasoline, diesel, gasohol, and specialty fuels	1 percent = $3.5 billion to $5.5 billion (depends on how tax is imposed)	1 percent = $3.9 billion to $6.0 billion
Customs Duties	Allocates a percent of current U.S. Customs duties for port, transportation, and intermodal freight investments	5 percent = $1.6 billion	5 percent = $2.0 billion
Vehicle Miles Traveled—User Fee	1 cent per mile traveled on Interstate, other NHS, and Federal-Aid highways	1 cent/mile = $25.7 billion	1 cent/mile = $28.3 billion
Vehicle Miles Traveled—User Fee	1 cent per mile traveled on Federal-Aid and Non-Federal (local) highways	1 cent/mile = $30.2 billion	1 cent/mile = $33.4 billion

*Longer-term options reflect new funding sources or major changes in the use of current federal revenue mechanisms and further work is required to develop these concepts into viable options.

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www.transportation.org

ISBN: 978-1-56051-364-3
Publication Code: TIF4-1