



CENTER ON URBAN AND METROPOLITAN POLICY

Fueling Transportation Finance: A Primer on the Gas Tax

Robert Puentes and Ryan Prince¹

Findings

A study of the collection, allocation, and use of federal and state taxes on motor fuels—the “gas tax”—in recent decades finds that:

- **More than one-third of the \$133 billion in total U.S. revenue available for highway spending in 2001 came from federal and state gas taxes.** State gas taxes alone made up 21.6 percent of all highway revenues that year. The state gas tax is also the largest single source of highway funding for the states.
- **After years of steady growth, federal and state gas tax receipts have plateaued in the late 1990s.** When accounting for inflation, federal and state gas tax revenues are actually declining.
- **Twenty-eight states have raised their gas tax rates since 1992, but only three raised it enough to keep pace with inflation.** Although the average state gas tax rate increased by 8.7 percent, in real terms, the average gas tax rate declined by about 14 percent. In other words, many states do not have the same buying power they did in 1991.
- **Thirty states restrict the use of their gas tax revenues to highway purposes only.** Such restrictions limit states’ ability to finance mass transit, congestion and air quality improvement projects, and other options not related to highways.
- **The distribution of the gas tax within some states appears to penalize cities and urban areas.** In several states, urban areas act as “donor regions.” These areas contribute significantly more in tax receipts than they receive in allocations from their state’s highway fund or through direct local transfers.

I. Introduction

With debates about traffic and taxes urgent now, few issues have become so contentious as that of how to pay for roads and transit. Amid these disputes, few controversies remain as heated as those surrounding the motor fuel excise tax—also known as the “gas tax.”

Initiated originally at the state level, the gas tax has been widely used in public finance since the 1930s, when states introduced the levies to pay for expanding the highway system. Today, revenue generated by the 18.4-cents-per-gallon federal excise tax generates the bulk of federal highway funds. Similarly, revenue from the state gas tax comprises the largest source of financing for spending at the state level, although funding tends to be

spent on a greater variety of purposes. The average state tax rate in 2002 was 20.17 cents.

Although every state levies a gas tax and depends on it as an essential funding source to pay for transportation projects and programs, many citizens and professionals still find the gas tax confusing and contentious.

The confusion results in part from differences in the state rules governing the imposition, rate, and administration of the tax. Further complicating the debate is the fragmented nature of the tax, the unclear relationship between the state and federal gas taxes, and the arcane system of transportation finance overall. The contention surrounding the gas tax stems from policymakers' resistance to taxes in general, and the often inequitable distribution of its revenues within states. Equally controversial is most states' exclusive dedication of the gas tax to highway purposes. This forces transit and other projects to seek other sources of funding, and places them on a less advantageous footing.

To help dispel this confusion and controversy, this paper undertakes to describe the use of federal and state gas taxes, and assess their impacts on state and local transportation systems and funding. To that end, the paper describes the history of the taxes, details the rules governing the use of associated revenues in every state, and assesses the flow and distribution of gas tax revenues at the federal, state, and local levels. At the end the paper considers various ways to improve the current use and distribution of gas tax revenues to support the development of more balanced, multi-modal transportation networks.

II. What Is the Gas Tax?

A. Background

At both the state and federal levels, the gas tax is a levy imposed on the sale of motor fuels on a cents per gallon basis.² Economists identify the gas tax as a user fee because the tax generally applies only to individuals purchasing gasoline for motor vehicle use on public highways.³

However, it is important to note that neither the federal or state gas taxes are true user fees in the sense that the end user explicitly pays the specified tax at the point of purchase. Rather, both the state and federal gas tax are "manufacturer's excise taxes." The first entity in the state to refine, distribute, or wholesale gasoline (and other motor fuels) pays the stipulated tax rate. Often, the tax-paying entity is a distributor, importer, refiner, retail manufacturer, licensed dealer, supplier, or wholesale distributor.

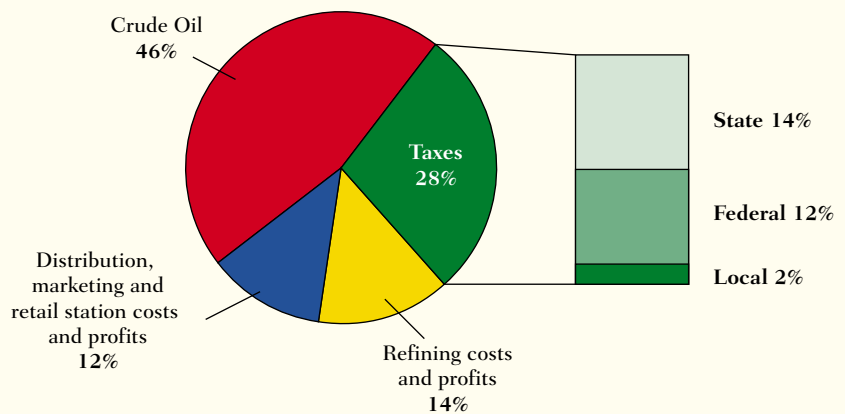
The initial taxpayer incorporates the levy as an additional cost in its production process. To compensate for the added cost, producers incorporate the gas tax into their wholesale price and pass it through to the end user (i.e., consumers), resulting in higher retail

gasoline prices. Although the consumer is not directly taxed on the purchase of gasoline, that is ultimately how the tax functions. In fact, some states explicitly acknowledge this transfer.⁴

The U.S. Department of Energy has allocated an expense to each of the constituent parts in the gasoline supply chain and has derived percentages for each component's contribution to retail prices. This analysis reveals that federal, state, and local taxes constituted the second highest portion of the retail price of gas in 1999 and 2000. Crude oil, the primary resource component of gasoline, continues to contribute the majority share of the retail price.⁵

Since 1978, the federal government has exempted local units of government from paying the federal gas tax. In contrast, several states continue to impose the gas tax on local public entities. For example, in Wisconsin, the state levies a gas tax on local governments and school districts. In all, 32 states levy their gas tax on purchases made by local entities for highway purposes.

Figure 1. Components of the Retail Price of One Gallon of Gasoline



Source: U.S. Department of Energy Information Administration

B. History and Current Role

In 1919, Oregon became the first state to enact a gas tax, and within ten years, every state had followed suit. Both Alaska and Hawaii instituted motor fuel taxes upon receiving statehood in 1959. The specific impetus behind the state gas tax was to finance the nation's growing roadway system and to alleviate the burden on other funding mechanisms, such as bond issuance and property taxation.⁶

Today, gas tax receipts are the most important source of revenue for aggregate state highway spending. However, the gas tax is collected, administered, and spent according to complicated and unique provisions that sometimes vary greatly from state to state.

In the majority of states, the tax is collected monthly from the manufacturer and administered by the state's department of revenue, tax commission, or similar agency. In other states, the department of transportation administers the tax. Each state then distributes the funds based on an intricate and complex formula. A small portion of the receipts usually goes to the department of revenue or similar agency to cover the expenses of collecting the tax. Funds also occa-

sionally flow to water transportation programs, such as harbor and watercraft funds, or non-transportation programs such as fish and wildlife funds.

The majority of the gas tax proceeds, however, flow to various repositories for spending on the transportation system—often a transportation trust fund, the state department of transportation, or the state's general fund. From these repositories, a portion of the revenue is typically distributed by formula to counties, cities, and other localities, but principally, the state departments of transportation retain the funds.

The federal gas tax was first levied in 1932 along with other excise taxes in an effort to mitigate a mounting fiscal crisis and to help balance the federal budget. Initially, Congress intended to employ the gas tax for immediate budgetary concerns, and the tax would lapse when the budget was balanced. Indeed, Senate Finance Committee testimony confirms that the federal gas tax was originally intended to be temporary. Furthermore, there was a clear sentiment that it should continue to serve principally as a fiscal tool for states to pay for highways.⁷

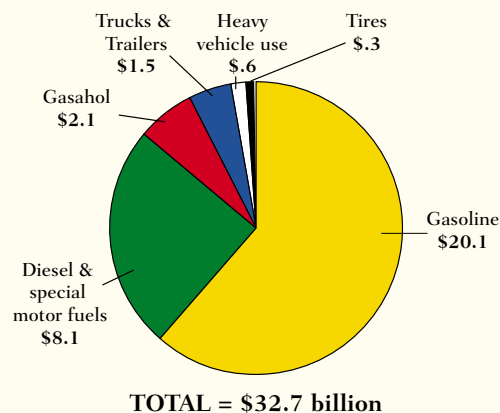
Contrary to original intent, the fed-

eral gas tax has remained and through periodic, incremental increases has produced a sustained cash flow to federal coffers. Its functional role, however, has changed dramatically. Initially, receipts from the federal tax accrued in the general fund, with congressional discretion for appropriation. That meant that revenues generated from the gas tax were not explicitly bound to highway or transportation infrastructure spending. Instead, highway funds were subject to the same allocation process applied to domestic discretionary spending. With the passage of the Federal-Aid Highway Act and Highway Revenue Act of 1956, however, federal gas tax revenues were earmarked for roadway spending only. This law established the current Highway Trust Fund (HTF), which remains the principal repository for receipts from the federal gas tax.

Congress has periodically extended the gas tax beyond its initial expiration date in 1972. The most recent continuation accompanied the reauthorization of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) as the Transportation Equity Act for the 21st Century (TEA-21) in 1998. Congress has also elected to periodically increase the federal gas tax to generate additional revenues and to realign trust fund receipts with inflationary pressures in the transportation and construction industries.⁸

The federal gas tax rose from 1 cent per gallon in 1932 to 4 cents in 1960. The tax remained unchanged until the early 1980s. At that time, the proceeds of the gas tax were still being deposited into the HTF for highway-only uses (the "Highway Account"). In 1982, Congress passed the Surface Transportation Act, which, for the first time, split gas tax receipts into two accounts. Beginning in 1984, 1 cent of a new 5 cent increase in the gas tax was placed in the Mass Transit Account for capital projects, with the remainder held in the highway account.

Figure 2. Federal Highway Trust Fund Receipts for Fiscal Year 2001 (in billions of dollars)



Source: U.S. Congressional Budget Office, 2002.

Table 1. Revenue Sources for Highways, 2001 (in thousands)

| | Federal | State | Local | Total | Percent |
|--|---------------------|---------------------|---------------------|----------------------|---------------|
| User Charges | | | | | |
| Gas Tax | \$16,462,311 | \$28,709,006 | \$1,102,601 | \$46,273,918 | 34.8% |
| Vehicle Taxes and Fees | 10,453,462 | 14,946,364 | 828,399 | 26,228,225 | 19.7% |
| Tolls | 0 | 4,741,845 | 1,043,000 | 5,784,845 | 4.4% |
| Subtotal | 26,915,773 | 48,397,215 | 2,974,000 | 78,286,988 | 58.9% |
| Other | | | | | |
| Property Taxes | 0 | 0 | 6,399,000 | 6,399,000 | 4.8% |
| General Fund Appropriations | 1,057,000 | 4,112,267 | 15,201,000 | 20,370,267 | 15.3% |
| Other Taxes and Fees | 248,000 | 3,862,027 | 3,311,000 | 7,421,027 | 5.6% |
| Investment Income and Other Receipts | 0 | 3,077,469 | 4,655,000 | 7,732,469 | 5.8% |
| Bond Issue Proceeds | 0 | 9,423,804 | 3,241,000 | 12,664,804 | 9.5% |
| Subtotal | 1,305,000 | 20,475,567 | 32,807,000 | 54,587,567 | 41.1% |
| Total | \$28,220,773 | \$68,872,782 | \$35,781,000 | \$132,874,555 | |
| Percent of Total Highway Revenues | 21.2% | 51.8% | 26.9% | | 100.0% |

Source: Federal Highway Administration Highway Statistics Series, 2002

Today, the tax on gasoline is still the principal source of revenue for the HTF (Figure 2), and the HTF is the principal source of funding for Federal-Aid surface transportation programs. In 2001, the gas tax accounted for 61.5 percent of all highway trust fund receipts.

However, not all HTF revenues are spent on the highway system. The 18.4 cents per gallon federal gas tax is still deposited in the HTF but is now divided as follows: approximately 15.44 cents accumulates in the Highway Account, with the remainder distributed to the Mass Transit Account (2.86 cents) and the Leaky Underground Storage Tank (LUST) trust fund (0.10 cents).⁹ Nearly \$17 billion of the \$20.1 billion generated by the federal gas tax went into the Highway Account in 2001.¹⁰

III. Findings

A. More than one-third of the \$133 billion in total U.S. revenue available for highway spending came from federal and state gas taxes. State gas

taxes alone made up 21.6 percent of all highway revenues that year.

The gas tax generates considerable revenues for transportation because of the sheer quantity of gasoline consumed in this country.¹¹ In fiscal year 2001, \$132.9 billion was raised from federal, state, and local sources for highway programs. Receipts from federal, state, and local gas taxes accounted for 34.8 percent of all revenues available for highway spending. Combined with other user fees, such as tolls, the tax on alternative fuels (diesel and gasohol), and other taxes on motor vehicles, these revenues exceeded \$78 billion, or 58.9 percent of all highway expenditures (Table 1).

More than one-half of the highway revenues are generated from state taxes, fees, tolls, and general revenue. Of the funds, the state gas tax is by far the largest revenue category, generating about \$28.7 billion, or 21.6 percent of all highway revenues in 2001.

The largest percentage of federal and state transportation revenues is generated from “user charges,” such as fuel and vehicle taxes and tolls. At the federal level, nearly all (95 per-

cent) of the revenue is generated by user fees. A large percentage of state funds (70.2 percent) is also derived from user fees, although the role of other sources, such as bond proceeds, are becoming more significant. (Proceeds from bonds have increased by nearly 60 percent since 1997.) By contrast, only a small percentage (8.3 percent) of the local revenues is generated by user fees. This is generally owing to localities’ inability to administer such taxes as determined by the state.

The significance of the gas tax can also be seen in breakouts of individual states’ revenue sources for highways. As Table 2 illustrates, in 2001, the state gas tax represented the primary source of highway funds for 29 states. Federal payments (mostly from the federal gas tax) represented the second largest share and are the primary source in 17 states. Kentucky is the only state in which vehicle taxes are the primary source, and Delaware is the only state in which toll revenues are most significant. Three other states rely most heavily on bond proceeds.

**Table 2. State Revenues, by Source, Used by States for State-Administered Highways, 2001
(Ranked by Gas Tax Share)**

| State | Gas Tax | Vehicle Tax | Tolls | Other Levies & General Funds | Misc. | Bond Proceeds | Federal Payments | Local Payments |
|----------------|---------|-------------|-------|------------------------------------|-------|------------------|---------------------|-------------------|
| Nevada | 50.5% | 11.3% | 0.0% | 1.9% | 2.4% | 13.8% | 20.0% | 0.0% |
| Arkansas | 48.7% | 13.1% | 0.0% | 4.0% | 3.2% | 0.0% | 30.2% | 0.8% |
| Louisiana | 42.8% | 10.1% | 2.4% | 11.0% | 2.4% | 0.0% | 31.3% | 0.0% |
| Tennessee | 41.6% | 14.5% | 0.0% | 10.4% | 3.6% | 0.0% | 28.4% | 1.4% |
| Ohio | 41.4% | 15.9% | 5.1% | 0.5% | 4.0% | 6.1% | 25.4% | 1.5% |
| Nebraska | 40.8% | 9.5% | 0.0% | 18.9% | 0.6% | 0.0% | 25.2% | 5.0% |
| Mississippi | 40.2% | 15.2% | 0.0% | 11.1% | 1.7% | 0.0% | 31.0% | 0.9% |
| Wisconsin | 39.1% | 15.6% | 0.0% | 0.0% | 3.9% | 7.0% | 30.0% | 4.5% |
| North Carolina | 38.7% | 12.4% | 0.1% | 17.2% | 2.9% | 0.0% | 28.5% | 0.3% |
| Texas | 37.0% | 21.9% | 1.8% | 0.6% | 2.6% | 0.0% | 32.4% | 3.7% |
| Pennsylvania | 36.6% | 17.6% | 10.0% | 3.2% | 3.1% | 0.0% | 29.2% | 0.3% |
| Alabama | 36.1% | 15.3% | 0.0% | 0.7% | 0.3% | 0.0% | 46.1% | 1.5% |
| Idaho | 36.0% | 20.5% | 0.0% | 0.0% | 0.0% | 0.0% | 42.8% | 0.7% |
| Montana | 35.9% | 8.3% | 0.0% | 0.0% | 0.5% | 0.0% | 54.5% | 0.8% |
| Maine | 35.5% | 13.7% | 13.0% | 0.5% | 0.8% | 4.5% | 32.0% | 0.0% |
| Oregon | 35.3% | 21.3% | 0.0% | 2.9% | 2.3% | 5.4% | 32.9% | 0.0% |
| Utah | 34.3% | 8.8% | 0.0% | 24.5% | 3.9% | 0.0% | 28.4% | 0.0% |
| Michigan | 34.0% | 26.3% | 1.0% | 0.8% | 2.6% | 10.1% | 23.7% | 1.4% |
| Washington | 34.0% | 13.3% | 4.5% | 4.2% | 2.8% | 14.4% | 25.9% | 0.9% |
| Maryland | 32.9% | 21.5% | 8.1% | 7.9% | 2.6% | 0.0% | 26.9% | 0.1% |
| Minnesota | 32.8% | 27.7% | 0.0% | 9.6% | 3.8% | 2.1% | 23.0% | 1.0% |
| Kansas | 32.1% | 11.0% | 5.6% | 18.9% | 6.7% | 0.0% | 23.8% | 2.0% |
| South Carolina | 31.7% | 2.7% | 0.0% | 5.9% | 2.3% | 27.9% | 29.3% | 0.1% |
| Missouri | 31.3% | 11.0% | 0.0% | 12.1% | 1.3% | 10.3% | 32.4% | 1.6% |
| Florida | 30.6% | 13.4% | 12.6% | 2.6% | 2.7% | 6.1% | 28.0% | 4.1% |
| Oklahoma | 30.0% | 10.1% | 11.5% | 4.6% | 3.5% | 13.6% | 25.9% | 0.9% |
| Illinois | 29.9% | 27.2% | 9.2% | 0.0% | 2.2% | 6.5% | 24.1% | 0.9% |
| New Hampshire | 29.9% | 17.9% | 14.6% | 0.0% | 3.4% | 1.5% | 30.5% | 2.4% |
| Iowa | 28.5% | 24.5% | 0.0% | 24.2% | 0.9% | 0.0% | 21.9% | 0.0% |
| North Dakota | 27.5% | 16.0% | 0.0% | 7.5% | 0.4% | 0.0% | 45.5% | 3.1% |
| Kentucky | 27.3% | 34.5% | 0.8% | 1.7% | 5.6% | 0.0% | 30.0% | 0.0% |
| California | 27.3% | 16.0% | 3.3% | 24.1% | 3.0% | 0.0% | 21.0% | 5.4% |
| Colorado | 27.1% | 8.0% | 0.0% | 17.3% | 1.1% | 27.0% | 18.8% | 0.7% |
| Virginia | 26.6% | 17.4% | 2.9% | 18.3% | 2.9% | 12.7% | 18.1% | 1.0% |
| Connecticut | 26.3% | 15.1% | 0.0% | 1.1% | 8.7% | 17.7% | 30.9% | 0.2% |
| Wyoming | 24.9% | 10.7% | 0.0% | 6.9% | 1.5% | 0.0% | 55.6% | 0.3% |
| West Virginia | 24.8% | 17.7% | 4.4% | 5.7% | 2.1% | 9.2% | 36.0% | 0.0% |
| South Dakota | 24.8% | 11.9% | 0.0% | 11.6% | 0.7% | 0.0% | 49.2% | 1.9% |
| Arizona | 24.6% | 8.7% | 0.0% | 24.4% | 4.0% | 19.7% | 17.2% | 1.2% |
| New York | 24.1% | 11.1% | 15.9% | 3.9% | 1.6% | 21.1% | 22.2% | 0.0% |
| Indiana | 23.6% | 7.1% | 2.6% | 0.1% | 0.6% | 43.3% | 22.0% | 0.6% |
| New Mexico | 20.7% | 20.5% | 0.0% | 0.6% | 3.2% | 21.6% | 32.5% | 0.8% |
| Vermont | 19.8% | 26.7% | 0.0% | 0.0% | 3.5% | 0.0% | 49.7% | 0.4% |
| Hawaii | 18.5% | 19.2% | 0.0% | 0.7% | 5.6% | 14.1% | 42.0% | 0.0% |
| Georgia | 17.9% | 9.1% | 1.3% | 13.1% | 5.6% | 8.2% | 44.9% | 0.0% |
| Rhode Island | 17.5% | 8.1% | 3.0% | 0.0% | 0.4% | 31.6% | 39.4% | 0.0% |
| Massachusetts | 15.5% | 6.5% | 5.2% | 0.1% | 8.6% | 51.7% | 12.4% | 0.0% |
| Delaware | 15.2% | 13.7% | 21.3% | 6.7% | 5.3% | 18.9% | 19.0% | 0.0% |
| New Jersey | 10.5% | 11.1% | 13.5% | 11.2% | 4.6% | 36.7% | 12.3% | 0.0% |
| Dist. of Col. | 7.1% | 16.9% | 0.0% | 17.9% | 12.0% | 0.0% | 46.1% | 0.0% |
| Alaska | 5.6% | 5.0% | 3.3% | 16.5% | 4.7% | 0.0% | 64.9% | 0.0% |

Source: Federal Highway Administration, Highway Statistics Series, 2001, Table SF-3

Figures in **bold** represent the largest percent of revenues for each state.

B. After years of steady growth, federal and state gas tax receipts plateaued in the late 1990s.

Gas tax revenues at the federal level rose from \$125 million in 1932 to a high of \$21.2 billion in 1999 (Figure 3). Subsequently, total federal gas tax revenues have declined from \$21.0 billion in 2000 to \$20.6 billion in 2001. After controlling for inflation, revenues increased from \$1.7 billion in 1932 to more than \$20.8 billion in 2002 dollars. The change in real revenues over time represents an increase of more than 1,000 percent.¹²

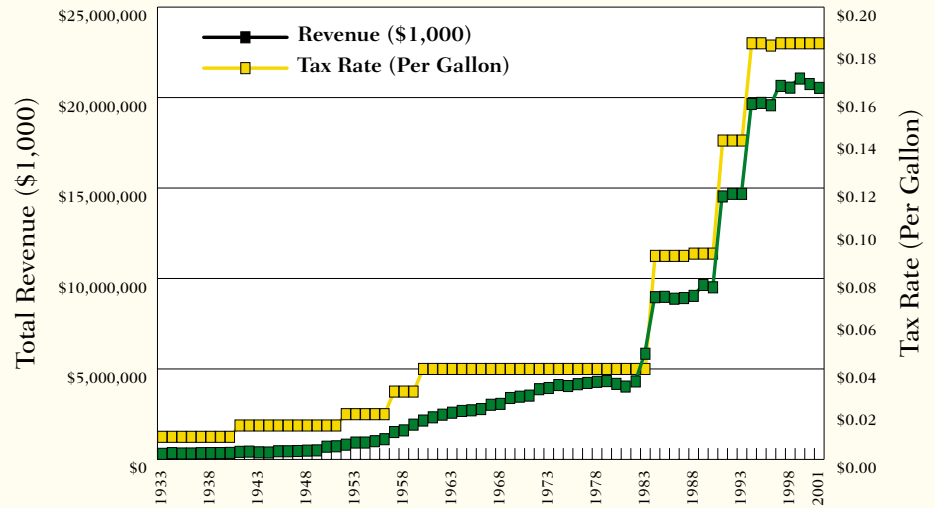
The inflation-adjusted data illustrate a much different picture of the historical growth of the federal gas tax and its corresponding receipts.¹³ Figure 4 shows a prevailing upward trajectory for revenues, accompanied by frequent fluctuations in the effective tax rate. Periodic bouts of heightened inflation without commensurate tax rate adjustments are responsible for the majority of fluctuations. Thus, as the real value of the dollar declined, the effective tax rate also declined.

Until recently, receipts have trended upward despite variations in the overall trajectory of the real tax rate. Aside from a brief period in the 1970s, with high inflation and volatility in world crude oil prices, inflation-adjusted revenues from the gas tax have consistently trended upward.

In 2002 equivalent dollars, the tax rate reached its highest level in the early 1960s, exceeding 24 cents per gallon. Beginning in the 1970s, the real tax rate descended into a trough, and by the early 1980s had reached its lowest level, about 7 cents per gallon (2002 equivalent dollars) (Figure 4).

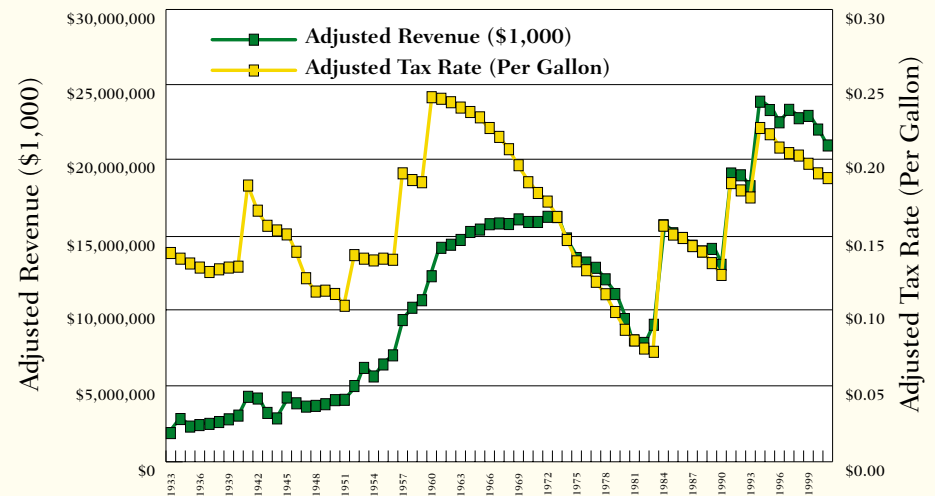
In 1984, Congress responded to the decline in the real gas tax rate with the first rate increase in 23 years. Subsequently, incremental increases have stabilized the real rate throughout the 1990s. The adjusted tax rate had, however, peaked by 1995. Accordingly, since then, adjusted revenues have

Figure 3. Federal Gas Tax Rate and Revenues with Year of Rate Increase



Source: Internal Revenue Service, 2001 and Federal Highway Administration Highway Statistics Series

Figure 4. Inflation-Adjusted Federal Gas Tax Rate and Revenues (2002 dollars)



Source: Internal Revenue Service, 2001; Federal Highway Administration Highway Statistics Series; and authors' calculations.

declined by 13 percent.

Although inflationary pressures have affected the real tax rate, the sustained growth in population, per capita automobile ownership, automobile travel, and gasoline consumption have

contributed immensely to the stability of the HTF over time (Figure 5). Until recently, growth in both vehicular miles traveled (VMT) and fuel consumption have more than offset the inconsistent adjustments to the gas tax

Figure 5. Conditions Underlying Growth in Fuel Consumption at the National Level

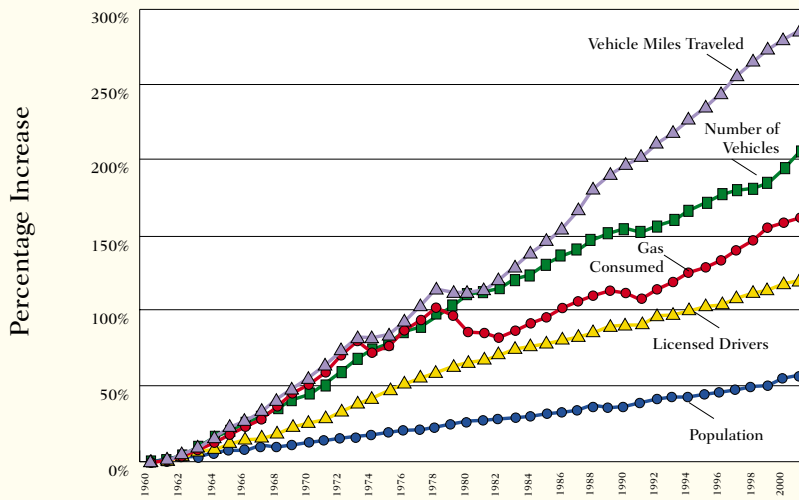
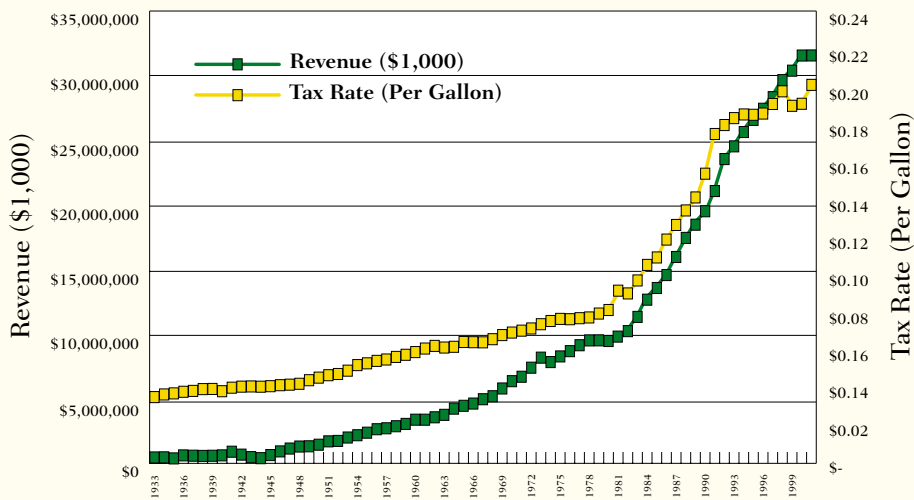


Figure 6. Aggregate State Revenues and Average (Weighted) Gas Tax Rate



Source: Federal Highway Administration Highway Statistical Series

rate. VMT has risen both in aggregate and per capita terms with a commensurate, although not as extreme, increase in fuel consumption. Of course, although increases in the indicators illustrated in Figure 5 all

contribute to additional gas tax revenues, they also add additional costs and place additional stresses on the transportation network.

An analysis of the most recent data indicates that the rapid increases in

these indicators may be leveling off. Perhaps most important is the leveling off of annual VMT. Recent data from the Federal Highway Administration (FHWA) show only a 1.1 percent increase in VMT from 2000 to 2001. This increase is only about one-half as much as the average annual increase since 1992. Similarly, the growth in gasoline consumed also increased by 1.1 percent during the same time period. Several factors explain this, including increased fuel efficiency of some vehicles, and slow, but steady, growth in the proliferation of alternative fuel vehicles.¹⁴

The leveling off of VMT is a generally positive trend for metropolitan areas in terms of air quality, curbing metropolitan decentralization, and increasing transit ridership to help achieve a balanced transportation network.¹⁵ However, all these trends taken together ultimately jeopardize the overall stability of the HTF.

In addition to the federal tax, all 50 states impose an excise tax on gasoline. Since 1933, revenues at the state level have risen from \$518 million to approximately \$31.8 billion in 2001 (Figure 6).¹⁶ After controlling for inflation, aggregate revenues at the state level increased from \$7.1 billion to more than \$32.1 billion in 2002 dollars.

Throughout its existence, the average tax rate at the state level has remained somewhat higher than the federal tax rate. This difference reflects the historical role of states as the principle financier of early highway construction. Despite the current federal role in highways funding, states retain responsibility for state and local roads outside the federal purview. In addition, federal policy requires that states provide a matching fund in proportion to federal expenditures for local projects. Given the funding requirements and roadway responsibilities, a powerful incentive exists for states to depend on and expand the state gas tax to finance highway projects. Accordingly, most

states have continued to increase their gas tax rate, with the average rate consistently exceeding the federal rate. State tax receipts have in this fashion increased substantially over time. Aggregate state tax receipts have benefited from the trends that have also until recently elevated federal receipts.

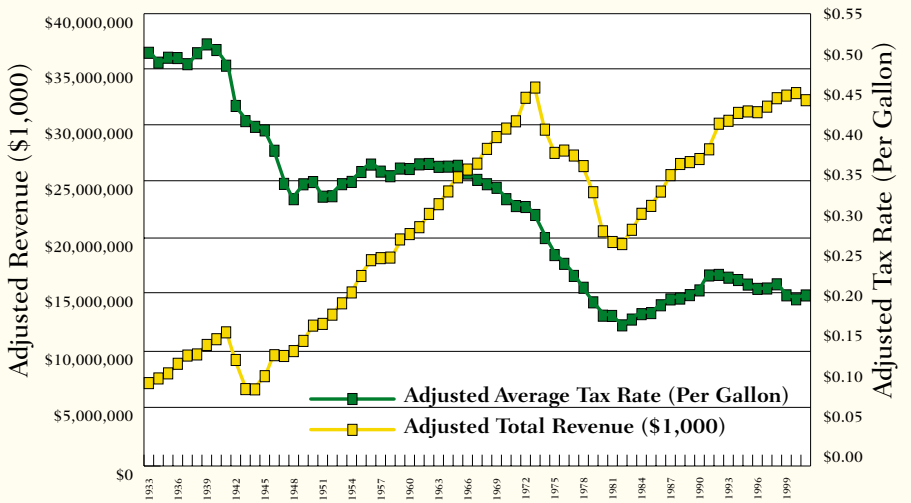
State revenues, however, were not unaffected by the excessive inflationary pressures that arose in the late 1970s and persisted through the early 1980s. Figure 7 shows that net receipts, adjusted for inflation, fell precipitously throughout that period. The decline in state revenues was even more severe than that experienced at the federal level. Total state gas tax receipts, adjusted for inflation, began to decline from a high in 1973 of \$34 billion to a low in 1982 of less than \$20 billion (in real terms). Federal receipts declined by \$7.2 billion, whereas net receipts, aggregated at the state level, declined by \$14 billion.

Unlike federal revenues, state receipts from the gas tax have yet to eclipse the “real” revenue level of their 1973 peak, despite sustained increases in the effective tax rate commencing in the 1980s.

As state gas tax revenues begin to level off, therefore, states will need to cap their transportation budgets or come up with additional revenue to finance the increasing needs of the transportation network. Considering the current fiscal climate, in which all but a handful of states are facing budget deficits next year, additional revenue sources may not be forthcoming.

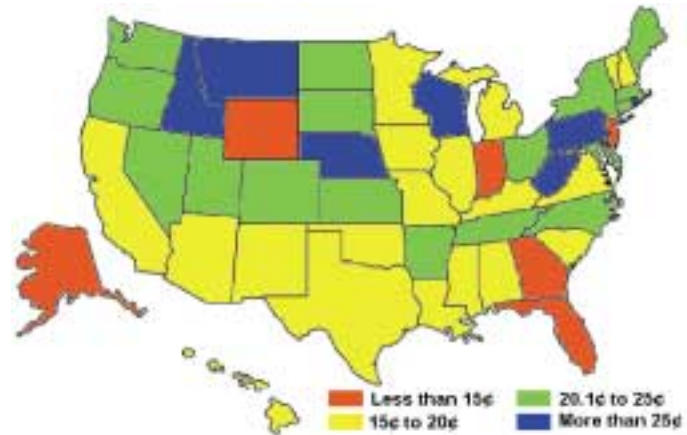
Finally, although the previous two federal transportation laws (ISTEA and TEA-21) carried with them huge increases in overall funding for states, there is little speculation that this trend will repeat itself. When TEA-21 is reauthorized in 2003, the general consensus is that funding levels will, at best, remain the same. There is added concern that the federal gas tax revenues may be diverted to fund other activities of increasing national

Figure 7. Inflation-Adjusted Average (Weighted) State Tax Rate and Revenues (2002 dollars)



Source: Federal Highway Administration Highway Statistics Series and authors' calculations

Figure 8. State Gas Tax Rates



attention, such as the war on terrorism and homeland security. Clearly, states must make arduous decisions about how to finance their transportation networks over the next several years.

C. Twenty-eight states have raised their gas tax rates since 1992, but only three have raised the rate enough to keep pace with inflation. Each state imposes its own taxes on

wholesale motor fuel, and the rates have changed over time. For example, the tax rate ranges from a low of 7.5 cents in Georgia to 29 cents in Rhode Island, the highest in the nation. The median and average rates are 20 cents and 20.3 cents, respectively. Appendix 2 indicates each state's current gas tax rate.¹⁷

Although wide variation exists among individual state gas tax rates,

**Table 3. Nominal and Real State Gas Tax Rates, 1992 and 2001
(Ranked by Percent Change in Inflation-Adjusted Tax Rate)**

| STATE | 1992 Tax Rate | 1992 Rate Adjusted for Inflation | 2002 Tax Rate | Change in Tax Rate | Percent Change in Tax Rate | Inflation- Adjusted Change in Tax Rate | Percent Change in Inflation- Adjusted Change in Tax Rate |
|----------------|--------------------------|---|--------------------------|-------------------------------|---|---|---|
| New York | 22.89 | 29.25 | 22.00 | -0.89 | -3.89% | -7.25 | -24.79% |
| Connecticut | 26.00 | 33.23 | 25.00 | -1.00 | -3.85% | -8.23 | -24.76% |
| Nebraska | 24.60 | 31.44 | 24.50 | -0.10 | -0.41% | -6.94 | -22.07% |
| Alabama | 18.00 | 23.00 | 18.00 | 0.00 | 0.00% | -5.00 | -21.75% |
| Alaska | 8.00 | 10.22 | 8.00 | 0.00 | 0.00% | -2.22 | -21.75% |
| Arizona | 18.00 | 23.00 | 18.00 | 0.00 | 0.00% | -5.00 | -21.75% |
| Colorado | 22.00 | 28.12 | 22.00 | 0.00 | 0.00% | -6.12 | -21.75% |
| Dist. of Col. | 20.00 | 25.56 | 20.00 | 0.00 | 0.00% | -5.56 | -21.75% |
| Georgia | 7.50 | 9.58 | 7.50 | 0.00 | 0.00% | -2.08 | -21.75% |
| Hawaii | 16.00 | 20.45 | 16.00 | 0.00 | 0.00% | -4.45 | -21.75% |
| Illinois | 19.00 | 24.28 | 19.00 | 0.00 | 0.00% | -5.28 | -21.75% |
| Indiana | 15.00 | 19.17 | 15.00 | 0.00 | 0.00% | -4.17 | -21.75% |
| Louisiana | 20.00 | 25.56 | 20.00 | 0.00 | 0.00% | -5.56 | -21.75% |
| Maryland | 23.50 | 30.03 | 23.50 | 0.00 | 0.00% | -6.53 | -21.75% |
| Massachusetts | 21.00 | 26.84 | 21.00 | 0.00 | 0.00% | -5.84 | -21.75% |
| Minnesota | 20.00 | 25.56 | 20.00 | 0.00 | 0.00% | -5.56 | -21.75% |
| New Jersey | 10.50 | 13.42 | 10.50 | 0.00 | 0.00% | -2.92 | -21.75% |
| South Carolina | 16.00 | 20.45 | 16.00 | 0.00 | 0.00% | -4.45 | -21.75% |
| Tennessee | 20.00 | 25.56 | 20.00 | 0.00 | 0.00% | -5.56 | -21.75% |
| Texas | 20.00 | 25.56 | 20.00 | 0.00 | 0.00% | -5.56 | -21.75% |
| Virginia | 17.50 | 22.36 | 17.50 | 0.00 | 0.00% | -4.86 | -21.75% |
| Washington | 23.00 | 29.39 | 23.00 | 0.00 | 0.00% | -6.39 | -21.75% |
| Oklahoma | 17.00 | 21.73 | 17.00 | 0.00 | 0.00% | -4.73 | -21.75% |
| Iowa | 20.00 | 25.56 | 20.10 | 0.10 | 0.50% | -5.46 | -21.36% |
| Mississippi | 18.20 | 23.26 | 18.40 | 0.20 | 1.10% | -4.86 | -20.89% |
| Nevada | 24.00 | 30.67 | 24.75 | 0.75 | 3.13% | -5.92 | -19.31% |
| Ohio | 21.00 | 26.84 | 22.00 | 1.00 | 4.76% | -4.84 | -18.03% |
| New Hampshire | 18.60 | 23.77 | 19.50 | 0.90 | 4.84% | -4.27 | -17.97% |
| Kentucky | 15.40 | 19.68 | 16.40 | 1.00 | 6.49% | -3.28 | -16.67% |
| New Mexico | 17.00 | 21.73 | 18.50 | 1.50 | 8.82% | -3.23 | -14.85% |
| Oregon | 22.00 | 28.12 | 24.00 | 2.00 | 9.09% | -4.12 | -14.64% |
| North Carolina | 21.90 | 27.99 | 24.10 | 2.20 | 10.05% | -3.89 | -13.89% |
| Rhode Island | 26.00 | 33.23 | 29.00 | 3.00 | 11.54% | -4.23 | -12.72% |
| California | 16.00 | 20.45 | 18.00 | 2.00 | 12.50% | -2.45 | -11.97% |
| Maine | 19.00 | 24.28 | 22.00 | 3.00 | 15.79% | -2.28 | -9.40% |
| Arkansas | 18.70 | 23.90 | 21.70 | 3.00 | 16.04% | -2.20 | -9.20% |
| Pennsylvania | 22.35 | 28.56 | 26.00 | 3.65 | 16.33% | -2.56 | -8.97% |
| Kansas | 18.00 | 23.00 | 21.00 | 3.00 | 16.67% | -2.00 | -8.71% |
| Florida | 11.60 | 14.82 | 13.60 | 2.00 | 17.24% | -1.22 | -8.26% |
| Idaho | 21.00 | 26.84 | 25.00 | 4.00 | 19.05% | -1.84 | -6.85% |
| Delaware | 19.00 | 24.28 | 23.00 | 4.00 | 21.05% | -1.28 | -5.28% |
| South Dakota | 18.00 | 23.00 | 22.00 | 4.00 | 22.22% | -1.00 | -4.36% |
| North Dakota | 17.00 | 21.73 | 21.00 | 4.00 | 23.53% | -0.73 | -3.34% |
| Vermont | 16.00 | 20.45 | 20.00 | 4.00 | 25.00% | -0.45 | -2.19% |
| West Virginia | 20.35 | 26.01 | 25.65 | 5.30 | 26.04% | -0.36 | -1.37% |
| Montana | 21.40 | 27.35 | 27.00 | 5.60 | 26.17% | -0.35 | -1.27% |
| Wisconsin | 22.20 | 28.37 | 28.10 | 5.90 | 26.58% | -0.27 | -0.96% |
| Michigan | 15.00 | 19.17 | 19.00 | 4.00 | 26.67% | -0.17 | -0.88% |
| Utah | 19.00 | 24.28 | 24.50 | 5.50 | 28.95% | 0.22 | 0.90% |
| Missouri | 13.03 | 16.65 | 17.00 | 3.97 | 30.47% | 0.35 | 2.09% |
| Wyoming | 9.00 | 11.50 | 14.00 | 5.00 | 55.56% | 2.50 | 21.72% |
| Average | 18.55 | 23.42 | 20.17 | 1.62 | 8.73% | -3.25 | -13.87% |

no regional or geographic trends correlate strongly with the tax rate variations across the United States (Figure 8). The average gas tax is only slightly higher in the Northeast (22.2 cents) than it is in the Midwest (20.8 cents), West (20.2 cents), or South (19.1 cents). States as diverse as Montana and Rhode Island have rates above 25 cents (among the highest), while Wyoming and New Jersey have tax rates below 15 cents, among the lowest in the nation.¹⁸

During the 1990s, the only states that drastically reduced their nominal tax rate were Connecticut, New Mexico, and New York. In 1996, Connecticut's tax rate exceeded all other states'. Newspaper accounts suggest that excessive retail prices forced state officials to act.¹⁹ In response, Connecticut reduced its tax rate by 2 cents in 1997, 4 cents in 1998, and 7 cents in 2000. By 2002, seven states' tax rates were as high or higher than Connecticut's. Nebraska's gas tax rate declined three times, from 25.9 cents in 1996 to 22.8 cents in 2000, but has since returned to 25.4 cents. Only Alaska and Georgia have maintained the same nominal tax rate since 1980.

Legislative discussions or public referenda to increase the state gas tax are often contentious, particularly in recent years. Indeed, as Figure 6 illustrates, during the 1990s, the average tax rate leveled off considerably following dramatic increases of the previous decade. This is not to say that states avoided raising their taxes during this period. Since 1992, 28 states have increased their gas tax. However, the amount of the average increase fell from 5.8 cents during the 1980s to 1.7 cents since 1992.

Some of this can be explained by the economic expansion that was taking place during the 1990s, the increase in revenues being generated from the gas tax, and the higher levels of overall federal funding that followed ISTEA and TEA-21. These laws not only infused the states with more federal transporta-

tion dollars than ever before, but they also gave states the flexibility to spend the funds as they saw fit.

Although most states raised their gas tax during this period, very few raised it enough to keep pace with inflation. Of the 28 states that have increased their gas tax since the passage of ISTEA, only three raised it as fast or faster than inflation. Although the nominal percentage change was 8.7 percent, in real terms, the average tax rate declined by approximately 14 percent. In other words, many states do not have the same buying power, in terms of gas tax revenue, that they did ten years ago (Table 3).

In several instances, state gas tax revenues have not kept pace with rising transportation budgets. This hinders states' abilities to raise matching contributions to meet requirements for federal funding. Consequently, borrowing has increased. In Rhode Island, for example, of the \$133.9 million in state gas tax receipts spent on transportation in 2001, the state now allocates \$28.4 million for debt service. In Rhode Island, transportation expenditures, including debt retirement, have risen faster than gas tax receipts.²⁰

Rhode Island is not alone in its escalating commitment of revenue to debt service and bond retirement. In 2001, Massachusetts, Connecticut, Arizona, Georgia, and New York (as well as Rhode Island) each allocated more than 50 percent of gas tax receipts spent on highways to debt service. Throughout the past decade, the amount of revenues in state transportation budgets allocated to debt service has increased substantially. Since 1990, aggregate outstanding bond obligations have increased by approximately 70 percent (in inflation-adjusted dollars). The use of gas tax receipts for debt service has remained relatively stable in proportion to disbursements, increasing from approximately 7.7 to 8.6 percent.

As state revenues plunged owing to inflationary pressures in the late

1970s and early 1980s, many state legislatures aggressively raised their tax rates. In 1981, 24 states (an unprecedented number) increased their tax rates by an average of about 2.2 cents per gallon.²¹

While the majority of states legislated periodic increases in their gas tax, other states have indexed rate increases to fluctuations in some measure of inflation, such as the consumer price index (CPI), published by the Bureau of Labor Statistics. Other states index the tax to a base-line retail price of gasoline or to an inflation index gauging changes in the highway construction and maintenance industry or state revenue needs.²² Also, New York and Connecticut impose a gross receipts tax on petroleum corporations operating in their states. The tax rate (translated into the conventional cent per gallon levy) increases commensurately with growth in revenues of petroleum firms operating in the state.²³

These alternative tax structures, known as "variable rate" taxes, have emerged as an effective strategy to increase the tax rate and offset declines in revenue without the politically acrimonious task of tax increases by the legislature or through public referendums. Since 1980, 19 states (including the District of Columbia) have employed some variant of the variable tax rate structure. Although several states subsequently repealed the indexing mechanism (only 12 employ indexing today), inflation indexing remains an important option for augmenting revenues for transportation funding, regardless of inflationary pressures.

D. Thirty states restrict the use of their gas tax revenues to highway purposes only.

Beyond their tax structures, states also differ in their regulations governing how gas tax receipts can be spent. Originally conceiving the gas tax as a user fee, many state legislatures con-

tinue to employ legal means to link gas tax receipts with highway expenditures. Thirty states “ earmark ” gas tax revenues for highway or roadway projects only. The remaining states allocate a portion of revenues to other expenditures.

Some states broaden the scope of receipt allocations to include all transportation expenditures, including mass transit. In a few instances, state provisions stipulate the decoupling of tax receipts from transportation expenses altogether and allocate a certain portion of receipts to the state general fund, or in the case of Texas, a special education fund.²⁴ Generally, the states’ statutory and constitutional stipulations fall under one of three typical arrangements:

- The first and most exclusive categorical provision dedicates all gas tax receipts to public roadway development, administration, and maintenance. Frequently this regulation is embedded in state constitutions, and when it is, the wording is generally explicit.²⁵ Twenty-two states maintain constitutional restrictions.
- In eight other states, statutory restrictions enacted by the legislature dedicate revenues to highway uses. The statutory provisions are presumably more amenable to reform than constitutional mandates.
- The remaining 20 states and the District of Columbia have less stringent requirements and generally allow for a multi-modal approach to the disbursement of gas tax receipts. The exact provisions and the amount of available flexible funding vary considerably among the states. Most often, the respective state codes have provisions that dedicate funds to general transportation purposes, with moderate allocations to other

transportation programs, such as mass transit, congestion mitigation, and environmental impact mitigation.

Table 4 shows that three states (Alaska, Louisiana, and West Virginia) spend more than 95 percent of their gas tax receipts on state highways. By contrast, New York state statutory provisions allocate net gas tax receipts (less the costs of administration) to a variety of transportation modes. The state’s provisions outline a complex formula for distributing the receipts to several alternative trust funds. Since the passage of TEA-21 in 1998, New York’s state gas tax has generated approximately \$5.8 billion in receipts. Following the statutory disbursement formula, the state spent \$3.9 billion (67.5 percent) on “state-administered highways,” transferred or directly spent \$820 million (14.2 percent) on local government-administered roads, and allocated \$953 million (16.5 percent) to fund mass transit. Maryland’s spending was the most balanced: state highways, \$1.1 billion (37 percent); local roads, \$1 billion (35.7 percent); and transit \$640 million (22.7 percent).

Notwithstanding several anomalies, many states without exclusive provisions adhere to a disbursement formula somewhat analogous to that in New York. Aside from administrative costs and nominal allocations to general funds, most states apportion the substantial majority of gas tax receipts for highway expenditures and, to a lesser extent, general transportation expenses.

Few states spent a relevant portion of their gas tax receipts on transit between 1998 and 2001. Only 11 states spent more than 5 percent of their receipts on transit, and only four states—New York, Connecticut, Rhode Island, and Maryland—spent more than 15 percent. In each of these four states, statutory provisions set aside substantial portions of net revenues

for mass transit funding.²⁵

But these figures do not tally all transit funding from gas tax receipts. States such as Massachusetts, Pennsylvania, New Jersey, and D.C. have made sizable investments in mass transit through flexible spending provisions by contributing a substantial portion of gas tax receipts and other revenues to their respective state transit authorities with appropriations from the general fund. Each fiscal year, the state legislatures of New Jersey and Massachusetts allocate funds for mass transit through the appropriations process. However, the accounting process used by the FHWA separates gas tax receipts and appropriations to fund mass transit agencies, thanks to the two-step process involving the general fund. In 2001, direct state mass transit revenues from the general fund were \$550 million in Pennsylvania, \$351 million in D.C., \$52.2 million in Massachusetts, and \$39.3 million in New Jersey. See Appendix 1 on “Methodology.”

Conversely, some states, such as Washington and Ohio, appear to allocate a percentage of gas tax revenues for mass transit despite explicit constitutional or statutory provisions that prescribe expenditures for highways only. The FHWA data suggest that appropriations have somehow circumvented constitutional or statutory provisions. This may indeed be the case for some small projects that are tangentially transit related, such as the construction of park-and-ride lots and high-occupancy vehicle (HOV) lanes.

In Washington state, which maintains a constitutional restriction on the use of the gas tax, state law also allows gas tax revenues to finance the state’s extensive ferry system, operated by the state department of transportation (DOT). Ohio, which also has a constitutional restriction, permits the state DOT to spend gas tax revenues on transit-related construction, such

as railway bridges, but explicitly restricts its use for transit operating assistance or vehicle purchases. Nevertheless, as Table 4 illustrates, the portion of has tax funds spent on transit by most states remains comparatively minute.

Overall, states' exclusive dedication of gas tax revenues to highway purposes matters for several reasons. First, it precludes the use of these state funds for transit, at a time when citizens in many metropolitan areas are clamoring for more transit alternatives. Second, very few other options exist for paying for transit investments. Given those realities, the dedication of gas tax revenues to highway uses may effectively prevent states from using federal funds for transit given that it is often difficult to raise matching funds locally or through other sources. In this connection, a 1993 U.S. General Accounting Office report pointed out that without access to state gas tax revenues, some transit systems often have to rely almost exclusively on funding derived from local sales taxes, which is often inadequate to meet their needs.²⁷

E. The distribution of the gas tax within some states appears to penalize cities and urban areas.

Provisions regarding the distribution of the gas tax receipts within states may, on their surface, appear to be geographically unbiased. However, in states with certain statutory provisions, the gas tax appears to penalize cities and urban areas in favor of rural areas or those on the suburban fringe.

In several states, urban areas act as "donor regions." These areas contribute significantly more in tax receipts than they receive in allocations from their state's highway fund or through direct local transfers. Research has demonstrated this fact explicitly in states as diverse as Colorado, Ohio, Missouri, and Washington.²⁸ This slant is likely also found in other states with comparable levels of urbanization and similar distribution formulas.

Table 4. Disposition of State Motor Fuel Tax Receipts, 1998–2001

| State | For State-Administered Highways ^A | For Local Roads and Streets ^B | For Mass Transit Purposes | For General Fund and Nonhighway Uses ^C |
|-----------------------|--|--|---------------------------|---|
| Connecticut | 66.9% | 5.9% | 24.6% | 2.6% |
| <i>Maryland</i> | 37.0% | 35.7% | 22.7% | 4.6% |
| <i>Rhode Island</i> | 56.7% | 4.3% | 19.8% | 19.2% |
| <i>New York</i> | 67.5% | 14.2% | 16.5% | 1.7% |
| <i>Delaware</i> | 90.6% | 1.0% | 8.5% | 0.0% |
| <i>Massachusetts</i> | 59.3% | 32.2% | 8.4% | 0.1% |
| <i>Wisconsin</i> | 45.5% | 43.2% | 8.1% | 3.1% |
| <i>Michigan</i> | 36.6% | 56.0% | 7.4% | 0.0% |
| <i>New Jersey</i> | 71.1% | 13.2% | 7.2% | 8.4% |
| <i>California</i> | 47.0% | 44.4% | 6.8% | 1.9% |
| <i>Washington</i> | 45.3% | 43.6% | 5.6% | 5.6% |
| <i>Vermont</i> | 48.6% | 25.7% | 4.9% | 20.7% |
| <i>Florida</i> | 66.1% | 17.4% | 4.7% | 11.7% |
| <i>Virginia</i> | 80.7% | 14.8% | 4.3% | 0.2% |
| <i>Illinois</i> | 46.2% | 51.5% | 2.3% | 0.0% |
| <i>Missouri</i> | 66.6% | 28.9% | 1.7% | 2.8% |
| <i>Maine</i> | 87.3% | 10.9% | 1.6% | 0.2% |
| <i>Pennsylvania</i> | 90.1% | 8.5% | 1.3% | 0.1% |
| <i>Texas</i> | 73.4% | 0.3% | 1.1% | 25.2% |
| <i>Ohio</i> | 49.9% | 46.4% | 1.1% | 2.6% |
| <i>New Hampshire</i> | 67.8% | 20.2% | 1.1% | 10.9% |
| <i>Montana</i> | 86.9% | 10.6% | 1.1% | 1.5% |
| <i>South Carolina</i> | 80.2% | 12.6% | 0.9% | 6.4% |
| <i>Kansas</i> | 42.1% | 56.1% | 0.9% | 0.9% |
| <i>Wyoming</i> | 67.0% | 28.3% | 0.9% | 3.8% |
| <i>North Carolina</i> | 87.6% | 9.8% | 0.6% | 1.9% |
| <i>North Dakota</i> | 43.4% | 55.4% | 0.6% | 0.6% |
| <i>Oregon</i> | 61.5% | 35.7% | 0.6% | 2.3% |
| <i>Colorado</i> | 61.2% | 38.3% | 0.5% | 0.0% |
| <i>Mississippi</i> | 66.5% | 30.4% | 0.5% | 2.6% |
| <i>Hawaii</i> | 81.6% | 1.4% | 0.4% | 16.6% |
| <i>Iowa</i> | 38.9% | 60.7% | 0.4% | 0.0% |
| <i>Minnesota</i> | 54.3% | 45.2% | 0.4% | 0.1% |
| <i>Nebraska</i> | 54.4% | 39.4% | 0.4% | 5.8% |
| <i>South Dakota</i> | 85.8% | 11.0% | 0.3% | 2.9% |
| <i>Oklahoma</i> | 50.4% | 34.7% | 0.3% | 14.6% |
| <i>New Mexico</i> | 71.5% | 17.8% | 0.3% | 10.4% |
| <i>Idaho</i> | 46.1% | 46.5% | 0.3% | 7.1% |
| <i>Georgia</i> | 77.5% | 13.1% | 0.2% | 9.1% |
| <i>Nevada</i> | 71.4% | 24.7% | 0.1% | 3.8% |
| <i>Louisiana</i> | 95.8% | 4.0% | 0.1% | 0.1% |
| <i>Indiana</i> | 56.0% | 44.0% | 0.0% | 0.0% |
| <i>Utah</i> | 66.5% | 32.6% | 0.0% | 0.8% |
| <i>Alaska</i> | 97.2% | 2.8% | 0.0% | 0.0% |
| <i>Arkansas</i> | 66.2% | 33.2% | 0.0% | 0.5% |
| <i>D.C.</i> | 0.7% | 99.2% | 0.0% | 0.0% |
| <i>Alabama</i> | 62.8% | 34.6% | 0.0% | 2.6% |
| <i>Arizona</i> | 47.1% | 51.7% | 0.0% | 1.2% |
| <i>Kentucky</i> | 55.2% | 38.0% | 0.0% | 6.8% |
| <i>Tennessee</i> | 61.5% | 33.9% | 0.0% | 4.6% |
| <i>West Virginia</i> | 100.0% | 0.0% | 0.0% | 0.0% |
| Average | 62.4% | 28.5% | 4.1% | 5.0% |
| Median | 66.2% | 29.6% | 0.9% | 2.4% |

Source: FHWA Highway Statistics Table MF-s. States in italics do not have a highways-only restriction. ^A Includes capital outlay, maintenance and administration, highway law enforcement and safety, and debt service. ^B Includes direct expenditures by state, and transfers to local governments. ^C Includes local and state general nonhighway purposes.

Two major factors affect the distribution of gas tax receipts within states. The first is the categorization of each state's roadways as either "state-administered" or managed by local governments. The second factor is the formula used to distribute funds among local governments.

In most states, the maintenance of local streets and roads is considered a municipal responsibility. Each jurisdiction must determine its own spending priorities and revenue sources. By contrast, some unincorporated area roads are state-maintained (simply because they are not located in a jurisdiction) and are not necessarily funded by local coffers. In such cases, these roads are often built, maintained, and rehabilitated from resources at the state and county levels. This provisional vagary directs a substantial portion of funds away from cities and older suburban areas that should be able to rely on the same pool of funds for their roads. Instead, they must rely on municipal income, property taxes, and other fees.

To ensure gas tax proceeds are spent equitably within the state, many states also have developed a distribution formula based on some combination of resident population, registered motor vehicles, and highway miles. However, several states (such as Tennessee, Arkansas, Ohio, and Alabama) distribute a portion of the funds evenly among each county, regardless of size or need. The result is that built-out urban counties fail to receive their share of funding and lose out to less-populated exurban counties, whose tax receipts remain tied to their "rural" categorization.²⁹

Historically, many states enacted distribution formulas while actively constructing the state highway network.³⁰ Often, the investment needs for rural highway construction greatly exceeded the fiscal requirements in urban areas. Property taxes, general funds, and local bond issuance provided ample revenue during the initial era of urban highway building for rap-

idly urbanizing cities and their surrounding suburbs. With many older municipalities facing a stagnating local tax base, transportation investments increasingly compete with myriad other expenditures in a constrained budget environment.³¹

In Washington state, this distortion manifests itself in, by far, the state's most urbanized metropolitan area Seattle. The Washington Research Council analyzed the distribution of transportation spending in the state from 1994 to 2013 and projected that the Seattle metropolitan area would raise 51 percent of the state's total revenues and receive 39 percent in return.³² In other words, Seattle serves as a net exporter of transportation (and gas tax) revenue, despite the critical role the metropolitan area plays in the state's economy.

Washington State recently recognized this disparity and created a statewide Transportation Improvement Account (TIA), which is designed to funnel gas tax revenues to urban areas. Programs include an arterial improvement program designed to direct state funds for local government transportation projects to city and urban county arterial roads. The TIA currently receives 13 percent of the gas tax revenues.

Colorado's gas tax redistribution formula also reflects this inequity. The state has experienced tremendous population and economic growth since 1960. The Denver metropolitan area has captured much of this growth, and in 2000 accounted for more than 60 percent of the state population, 58 percent of registered motor vehicles, and 66 percent of statewide employment.³³ Projections suggest that metropolitan Denver will continue to absorb an increasing share of state population and job growth. Nevertheless, Colorado retains a rural bias within its formula used to distribute gas tax receipts. After administrative costs, the code allocates 65 percent of the first 7 cents to the state highway fund. The highway fund must distrib-

ute 26 percent to counties and 9 percent to incorporated municipalities, with the remainder earmarked for state-administered highways. The statute allocates revenues from other portions similarly.

The Denver Regional Council of Governments (DRCOG) has addressed the outcome of Colorado's antiquated allocation formula in an appendix to its Metro Vision 2020 Regional Transportation Plan. Its research found that in fiscal year 1999, the share of transportation dollars allocated to the Denver metropolitan area had declined from 46 to 35 percent. The decline in proportionate allocation destined for the metropolitan region occurred despite the preeminent position held by Denver in both demographic and economic terms, as well as gasoline consumption. The DRCOG report indicated that the Colorado formula for distributing revenues results in gross inequities.³⁴ Based on its calculation, the Denver metropolitan area receives only 69 cents for each \$1 of tax revenue it contributes.³⁵

On the other hand, California has enacted a model distribution formula that provides equity and flexibility. The state's formula for spatial distribution reflects the fundamental role its metropolitan areas play in enhancing the state's economic competitiveness. Indeed, the provisions require that allocations to both counties and cities reflect the proportionate contribution of each unit of government. In counties, the proportional distribution relies on each county's tax receipts, registered motor vehicles, and for a smaller share, the percentage of county roads in relation to the total number in the state. For cities, each allocation relies on a city's population in proportion to the state population. Although population figures are not an exact proxy for tax receipt contributions, population correlates highly with automobile ownership.

IV. Conclusions and Policy Recommendations

Gas tax receipts have generally increased throughout the last several decades, despite volatility in the real rate of taxation and downturns in the business cycle. The resilience of gas tax receipts reflects the underlying spatial, demographic, and economic transitions underway in metropolitan America that have resulted in decentralized, auto-dominated metropolitan areas. Commuting distances are increasing, as are the number of non-commuting trips for otherwise mundane activities.

Several trends, however, may begin to flatten the growth of gas tax revenues. Recent data suggest, for example, that the tremendous growth rate in vehicular miles traveled is slowly abating.³⁶ Moreover, efforts have been made to improve air quality by improving the fuel economy of the American vehicular fleet, and the consumption of alternative fuels appears poised for sustained growth. These phenomena may temper the growth in gasoline consumption in the future. In turn, these converging influences will affect anticipated gas tax revenues and, by extension, transportation expenditures, unless changes in tax policy and transportation spending occur at the federal and state levels.

In view of that, states should consider the following policy recommendations to ensure appropriate levels of funding for future transportation needs and to meet the modern challenges facing metropolitan areas:

A. Allow gas tax revenues to be spent on a balanced variety of transportation modes and projects. End the highway-only exclusion.

Provisions in recent federal laws that allowed the “flexible” dedication of transportation funds to either roads or their alternatives revolutionized surface transportation policy. Unfortunately,

many states have failed to complement these reforms and continue to limit how transportation funds can be spent. As a result, even though the federal government recognized the benefits of flexible spending and the devolution of local decision-making in transportation, states continue to follow a more centralized, detached process.

Although states must necessarily allocate a substantial portion of gas tax receipts to highway-related expenditures, roads-only policies should not encumber funding decisions. Metropolitan areas, the drivers of state economies, require balanced transportation networks to move people and goods. Restricting the available resources to roads only inhibits a balanced network by greatly limiting the ability of transit agencies and others to pursue sufficient funding.

Furthermore, states would undoubtedly make better use of federal funds by removing the roads-only exclusion. By committing a portion of revenues to transit, states would increase their ability to meet federal matching requirements. Currently, states are unable to take advantage of these federal initiatives because they are often unable to come up with their share of the match.

B. Reconfigure formulas to avoid penalizing urban places and metropolitan areas.

At the federal level, TEA-21 responded to the demands of “donor” states with the Minimum Guarantee Program, which mandated an equitable 90.5 percent guaranteed rate of return based on each state’s tax receipt contribution to the HTF. A similar policy at the state level would ensure an equitable redistribution of state tax receipts among each state’s counties and municipalities. Furthermore, states should also require that counties allocate receipts to municipalities based on a rational measure of proportional contribution and need. The concentration of population and economic growth in

metropolitan areas requires that states change their redistribution formulas to better support these places.

C. Expand state gas tax exemptions to local public agencies.

Although the federal government exempts localities from the federal gas tax for their municipal vehicle fleets (including school buses), more than half of the states do not. State exemptions would provide considerable tax relief for local jurisdictions—particularly large urban places—at a time when officials are working to achieve a balance between easing the burden on revenue sources such as property taxes and providing public services. The Wisconsin Alliance of Cities recently found that Milwaukee would save about \$700,000 a year with such an exemption.³⁷

Of course, states are wrestling with tremendous budget issues of their own. Notwithstanding the curious practice of one government taxing another, exempting localities would be consistent with federal policies and would provide direct tax relief for urban residents.

D. States should consider raising their gas tax, but only after instituting applicable reforms.

Only after states have removed the restrictions on gas tax spending, and taken steps to ensure urban areas receive an equitable distribution of gas tax and general transportation revenues, should they consider increases in the gas tax. Reform must be coupled with any such increase.

In recent years, the growth in gas tax revenues, which states are accustomed to receiving, has leveled off. This comes at a time when nearly every state is facing budget deficits. As a result, states do not have the financial wherewithal to address a wide variety of transportation concerns.

To maintain funding levels and without leveraging alternative revenue sources, state legislatures

should consider increasing their state gas tax or vehicle registration tax and implementing appropriate indexing mechanisms. Increasing the gas tax and the distribution to local governments for maintenance would reduce the necessity at the state level to provide additional funding for transportation through appropriations from the general fund.

Indexing the state gas tax to a reasonable measure of inflation would rationalize the process of increasing the tax rate and allow revenues to keep pace with rising costs. Furthermore, it would reduce the need for state legislatures to use general fund appropriations to compensate for shortfalls in transportation spending. Indexing tax rates is an efficient means to ensure stable tax receipts and reliable transportation budgets.

However, none of these steps should take place until the aforementioned reforms are put in place.

E. Disclose more information about gas tax collection and allocation.

In response to the hot “donor versus donee” debate on Capitol Hill in 1998, the federal government provided a wealth of information about states’ contributions to, and disbursements from, a wide variety of transportation funding sources, including the gas tax. States, however, release no comparable data and information.

States should close this gap. They should take immediate steps to provide information on the geographic sources and redistribution of gas tax revenues within their states. The data should be available on the Census tract level. The focus of such information should be to ensure that redistribution formulas properly reflect contributions and to ensure that urban and metropolitan areas receive allocations that fairly reflect both the transportation revenue they generate and their critical roles in the states.

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Appendix 1. Methodology

Many of the figures regarding transportation finance are derived from Federal Highway Administration’s Office of Highway Policy Information, Highway Statistics Series. This annual publication provides a wealth of information on vehicles and drivers, transportation finance, and the extent of the transportation system. Particular emphasis is placed, naturally, on the roadway network. The highway data in the summary are reported to the FHWA by the states.

The FHWA cautions users that, although the data meet reporting requirements for highway program activities, the data are derived from a very broad range of sources, from other federal agencies, to each state and their agencies, to metropolitan planning organizations, to each local government. As a result, the quality and consistency of the information is difficult to discern. For example, the data in Table 4 may not necessarily reflect the exact amount of disbursements because of reporting discrepancies. The table reports revenues produced by the excise taxes on motor fuel and, therefore, the revenues include tax receipts collected from the sale of all types of motor fuels. In certain instances, states reported receipts in lump sums, thereby requiring the FHWA to estimate disbursements.

The FHWA further cautions users that because of the many differences among states, comparisons between them are tenuous. Each state is, of course, different, with unique roadway characteristics and transportation policies. For the purposes of this report, we endeavored to account for these differences through notes in the narrative as well as judgment in presentation. In fact, to some extent, it is those laws and regulations that we chose to examine and identify. Our intent was not to scrutinize the precise percentage of transportation revenues or spending, but rather, to gain a general sense of how funds are collected and distributed within states and which rules and restrictions govern those funds.

Information about states’ policies regarding individual gas taxes is derived from an extensive investigation into state constitutions and relevant statutes. The FHWA Office of Highway Policy Information also provides helpful information on the provisions governing each state’s disposition of gas tax receipts.

For the data and discussion in Figure 3, we relied on data collected and presented by the Internal Revenue Service, given that the Department of Treasury collects most of these taxes.

Appendix 2. State Gas Tax Rates and Restrictions and Authorities

| State | Gas Tax Rate, 2002 (in cents) | Indexed Tax Rate | Exclusive Highway Provision | Type of Exclusive Provision | Constitution and Statute Section with Stipulations |
|----------------------------|-------------------------------|------------------|-----------------------------|-----------------------------|--|
| Alabama | 18.00 | no | Yes | Constitutional | Amendment 93 |
| Alaska | 8.00 | no | yes | Statutory | Sec 42 - 40 - 10.G |
| Arizona | 18.00 | no | yes | Constitutional | Art. 9 Sec 14 |
| Arkansas | 21.70 | no | yes | Statutory | Sec 26 - 55 - 206 |
| California | 18.00 | no | no | N/A | Part II Ch 10 Sec 8503 |
| Colorado | 22.00 | no | yes | Constitutional | Art. X Sec 18 |
| Connecticut | 25.00 | yes* | no | N/A | Sec. 13b-61a |
| Delaware ¹ | 23.00 | no | no | N/A | 30 - IV - 5110 |
| D.C. | 20.00 | no | no | N/A | Div VIII: Sec 47 - 2301 |
| Florida ² | 13.60 | yes | no | N/A | Title XIV Sec 206.46 (3) |
| Georgia ³ | 7.50 | no | yes | Constitutional | Art. III Sec IX Par. VI |
| Hawaii | 16.00 | no | no | N/A | Sec 1 - 14 - 243 - 6(6) |
| Idaho | 25.00 | no | yes | Constitutional | Art. VII Sec 17 |
| Illinois ⁴ | 19.00 | yes | no | N/A | Sec 35 - 505.8 |
| Indiana ⁵ | 22.00 | no | yes | Statutory | Sec 6 - 6 - 1.1 - 801.5 |
| Iowa | 20.10 | yes | yes | Constitutional | Art. 7 Sec 8 |
| Kansas ⁶ | 21.00 | no | yes | Constitutional | Art. 11 Sec 10 |
| Kentucky | 16.40 | yes | yes | Constitutional | Section 230 |
| Louisiana | 20.00 | no | no | N/A | Art. 7 Sec 27 |
| Maine ⁷ | 22.00 | no | yes | Constitutional | Art. IX Section 18 |
| Maryland | 23.50 | no | no | N/A | Title II Sub 11 Sec 2-110 |
| Massachusetts ⁸ | 21.00 | no | no | N/A | Ch 64A Sec 13 |
| Michigan | 19.00 | no | no | N/A | Ch 205 205.45 Sec 5 |
| Minnesota | 20.00 | no | yes | Constitutional | Art. XIV Sec 5 |
| Mississippi | 18.40 | no | yes | Statutory | Title 27 Ch 055 Sec 11 |
| Missouri | 17.00 | no | yes | Constitutional | Art. IV Sec 30B |
| Montana | 27.00 | no | yes | Statutory | Title 15 Ch 70 Sec 101 |
| Nebraska | 24.50 | yes | yes | Statutory | Ch 39 Sec 2510 |
| Nevada | 24.75 | no | yes | Constitutional | Art. XI Sec 5 |
| New Hampshire | 19.50 | no | yes | Constitutional | Part 2nd Art. 6A |
| New Jersey | 10.50 | no | no | N/A | Art. VII Sec II Para. IV |
| New Mexico | 18.50 | no | yes | Statutory | Sec 7 - 1 - 6.9 |
| New York | 22.00 | yes* | no | N/A | FIN: Sec 6 - 89(a-e) |
| North Carolina | 24.10 | yes | no | N/A | Sec 136 - 16.8 |
| North Dakota | 21.00 | no | yes | Constitutional | Art. X Sec 11 |
| Ohio | 22.00 | no | yes | Constitutional | Art. XII Sec 5a |
| Oklahoma | 17.00 | no | no | N/A | Sec 68 - 500.6(A)(3) |
| Oregon | 24.00 | no | yes | Constitutional | Article IX Sec 3A |
| Pennsylvania | 26.00 | yes | yes | Constitutional | Art. VIII Sec 11 |
| Rhode Island | 29.00 | yes | no | N/A | Sec 31 - 36 - 20 |
| South Carolina | 16.00 | no | no | N/A | Sec 12 - 28 - 2725 |
| South Dakota | 22.00 | no | yes | Constitutional | Art. XI Sec 8 |
| Tennessee | 20.00 | no | yes | Statutory | Sec 67-3-2001 |
| Texas ⁹ | 20.00 | no | no | N/A | Art. VIII Sec 7a |
| Utah | 24.50 | no | yes | Constitutional | Art. XIII Sec 13 |
| Vermont | 20.00 | no | no | N/A | Sec 23 - 28 - 3106 |
| Virginia | 17.50 | no | no | N/A | Sec 58.1-22 - 89 |
| Washington | 23.00 | no | yes | Constitutional | Art. 2 Sec 40 |
| West Virginia | 25.65 | yes | yes | Constitutional | Art. 6 Sec 52 |
| Wisconsin | 28.10 | yes | no | N/A | Sec 78.015 |
| Wyoming | 14.00 | no | yes | Constitutional | Art. 15 Sec 16 |

*Gross receipts tax on petroleum producers. Tax rate increases with growth in revenues.

¹Delaware indexed its tax rate beginning in 1981, but has subsequently established 23 cents as a static rate.

²The Florida constitution explicitly designates fuel tax receipts for highway purposes, but statutory provisions apportion a certain amount to mass transportation projects.

³The Georgia code does not stipulate a highway trust fund per se, but does earmark all proceeds from motor vehicle excise taxes for highway expenditures.

⁴Illinois provides for the distribution of 2.5 cents per gallon to a state constitutional fund, with the remainder of receipts distributed to various highway uses. Illinois's variable rate applies only to gasoline purchased for consumption in a commercial vehicle.

⁵Indiana's tax rate increased to 22 cents per gallon effective January 1, 2003.

⁶Kansas's constitution authorizes taxation of motor fuels, while statutory language mandates disposition to highway fund; 10 percent of appropriation to municipalities allowed for expenditure on bicycle and footpaths.

⁷Maine, through a legislative determination, allocates a nominal portion of revenues, based on pro-rated share, to certain recreational uses.

⁸Massachusetts abolished its variable rate tax at the end of state fiscal year 2001.

⁹Texas has provisions for the allocation of one-fourth of gas tax revenue from the gas tax to a school fund to provide aid for public schools.

Endnotes

1. Robert Puentes is the senior research manager and Ryan Prince is a research assistant at the Brookings Institution Center on Urban and Metropolitan Policy.
2. Certain states and local governments impose an additional tax on retail gasoline sales, but this paper focuses specifically on the excise tax imposed on motor fuel as reported by the states to the Federal Highway Administration (FHWA).
3. The vast majority of states provide refunds or exemptions for gasoline purchases intended for non-highway use.
4. See, for example, Indiana Statute: 6-1.1-201 Section 201: "The distributor shall initially pay the tax on the billed gallonage of all gasoline the distributor receives in this state The distributor shall then add the per gallon amount of tax to the selling price of each gallon of gasoline sold in this state and collected from the purchaser so that the ultimate consumer bears the burden of the tax."
5. U.S. Energy Information Administration, *A Primer on Gasoline Prices* (Department of Energy, 2001).
6. Jeffrey Brown, "Reconsider the Gas Tax: Paying for What You Get," Access 19 (2001).
7. Brian Francis, "Gasoline Excise Taxes, 1933–2000," *Internal Revenue Service, Statistics of Income Bulletin* (U.S. Department of Treasury, 2001).
8. With the passage of the Revenue Reconciliation Act of 1990, Congress appropriated HTF revenues to mitigate an increasing budget deficit. After balancing the budget, Congress passed the Taxpayer Relief Act of 1997 and returned revenues from the 4.3 cent tax increase, instituted in 1993, to the HTF.
9. The LUST trust fund was created to help states clean up leaking fuel storage tanks that can pose an environmental and health hazard in terms of contaminated ground water and soil.
10. The "Highway Account" has not actually been named as such. For the purposes of this paper, it refers to those revenues in the Highway Trust Fund not designated for the Mass Transit Account or Leaky Underground Storage Tank fund. In fact, the Highway Trust Fund would be better named the Surface Transportation Trust Fund to reflect its broader perspective beyond roadways.
11. Just under 130 billion gallons were consumed for highways only in 2001.
12. Note that for the analysis in this section, we relied on revenue raised by the gas tax irrespective of where it was spent, as reflected in the prior tables, which focused on highway spending only. See "Methodology" section for more details.
13. To account for inflation, we have used the Bureau of Labor Statistics, Consumer Price Index (Urban Consumers). Dollar amounts presented are in 2002 dollars.
14. The fuel efficiency of the American vehicle fleet is a confusing, but important, point in terms of the impact on gas tax revenues. The average fuel rate of all passenger cars was 22.1 miles per gallon (mpg) in 2001, the highest rate ever. However, since 1988, the overall fuel economy of "light vehicles" (cars plus light-duty trucks) has declined to 20.4 mpg, an approximately 8 percent decrease. According to the U.S. Department of Environmental Protection (EPA), this decline is attributable to the proliferation of sport utility vehicles. U.S. EPA, "Light Duty Automotive Technology and Fuel Economy Trends," Report EPA420-S-01-001 (2001).
15. The growth in transit ridership has outpaced the growth in VMT every year since 1997.
16. Only \$28.7 billion of these funds were spent for highway purposes.
17. The "effective" tax rate is higher in certain states that impose a sales tax on the retail price of gasoline, in addition to the gas tax rate on wholesale prices. Arkansas, California, Connecticut, Georgia, Hawaii, Idaho, Illinois, Indiana, Kentucky, Louisiana, Michigan, Nebraska, New York, South Carolina, Tennessee, and Wyoming all impose a sales tax on the retail purchase of gasoline.
18. New Jersey is an interesting case. The reported tax rate in New Jersey does not include a gross receipts tax levied on petroleum companies operating within the state. That tax equates to approximately 4 cents per gallon. By contrast, the reported tax rate in New York and Connecticut does include those states' gross receipts tax. Also in New Jersey, the percent of highway revenues generated from tolls is the second highest in the country, trailing only Delaware. They are the only two states in which toll revenue exceeds gas tax revenue (see Table 2).
19. Fran Silverman, "Gas Prices to Trickle Down at Pump: Many Stations to Drain Supply then Pass on Tax Cut." *Hartford Courant*, July 2, 1998, p. D1.
20. Bruce Landis, "Highways, Bridges, RIPTA Face Crisis," *Providence Journal-Bulletin*, August 11, 2002, p. A-1
21. Before 1980, there were not great differences between the states' gas tax rates. In 1976, all but three states' gas tax rates were between 6 cents and 9 cents, with one below the range and two above. By 1983, the range was dramatically broader: 6.5 cents to 14 cents, with just one state below. See J. H. Bowman and John Mike-sell, "Recent Changes in State Gasoline Taxation," *National Tax Journal* 36 (2) (1983): 163–182.
22. *Ibid.*
23. For the purposes of this analysis, we have included the gross receipts tax among the variable rate alternatives.
24. Because of this education fund, Texas does not earmark all its gas tax receipts for highways. However, all the remaining receipts are spent almost exclusively on highways.
25. The Colorado example is illustrative: "Proceeds from the imposition of any excise tax on gasoline...shall, except for costs of administration, be used exclusively for the construction, maintenance, and supervision of the public highways of this state." The Constitution of the State of Colorado (Article X: Section 18).
26. Nationally, local governments manage about 90 percent of the transit systems. See Local Officials for Transportation, "TEA-21 Reauthorization Principles" (2003).
27. General Accounting Office, "Better Tools Needed for Making Decisions on Using ISTEA Funds Flexibly." Report GAI/RCED-94-25 (1993).
28. See Denver Regional Council of Governments, "Transportation Funding Equity?" Undated. See also Edward Hill and others: "Slanted Pavement: How Ohio's Transportation Spending Shortchanges Cities and Suburbs" (Washington: Brookings Institution, 2003); Public Policy Research Center, University of Missouri—St. Louis, "Analysis of Metropolitan St. Louis State Transportation Fiscal Flows" (2001); and Washington Research Council, "Referendum 51 Gets Is Moving, Safely, Again."

Policy Brief 02–13 (2002).

29. This anti-urban bias in Ohio is clearly illustrated in Hill and others, “Slanted Pavement.”
30. Nevada has not changed its redistribution formula since the 1930s.
31. See Robert Puentes and Myron Orfield, “Valuing America’s First Suburbs: A Policy Agenda for Older Suburbs in the Midwest” (Washington: Brookings Institution, 2002).
32. Washington Research Council, “Referendum 51 Gets Moving, Safely, Again,” Policy Brief 02–13 (2002).
33. Census Bureau, “County Business Patterns,” available at www.census.gov/epcd/cbp/view/cbpview.html (2000).
34. Denver Regional Council of Governments, “Transportation Funding Equity?” (undated).
35. During the debate over reauthorization of ISTEA, the issue of donor vs. donee states dominated the discussion. The resulting “minimum guarantee” provision ensures that each state receives at least 90.5 percent of its gas tax contribution to the HTF. See Hill and others, “Slanted Pavement.”
36. Don Pickrell and Paul Schimek, “Growth in Motor Vehicle Ownership and Use: Evidence from the Nationwide Personal Transportation Survey,” *Journal of Transportation and Statistics* 2 (1999); and “Surface Transportation Policy Project: Transit Growing Faster Than Driving: A Historic Shift in Travel Trends” (2002).
37. Wisconsin Alliance of Cities, “Position Paper on Local Government Gas Tax Exemption” (2002). Available at www.wiscities.org/gastaxposn.htm

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For More Information

Robert Puentes
 Senior Research Manager
 Brookings Institution Center on Urban and Metropolitan Policy
 Phone: (202) 797-6071
rpuentes@brookings.edu

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THE BROOKINGS INSTITUTION

1775 Massachusetts Avenue, NW • Washington D.C. 20036-2188
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DIRECT: 202-797-6139 • FAX/DIRECT: 202-797-2965