

A 3D green dollar sign is shown in perspective, with a road running through its center. The road is green with a white dashed line down the middle, receding into the distance. The background is a light blue gradient.

Do Roads Pay for Themselves?

Setting the Record Straight
on Transportation Funding

CALPIRG
Education Fund

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Table of Contents

Executive Summary	1
Introduction	4
The Gasoline Tax: Not a User Fee	6
What Is a User Fee? And Who Is a User?	6
Are Gas Taxes For “Something Extra”?	8
Origins of the Gas Tax: Sorting Historical Fact from Fiction	11
Highways Don’t Pay For Themselves	15
Highways Have Not Historically Paid for Themselves	16
Highways Pay for Themselves Less than Ever Today	17
Driving Doesn’t Pay its Full Costs	18
Will Highways Pay for Themselves in the Future?	20
A Useful Fiction	24
A Smarter Way to Pay for Transportation	28
Choosing What to Build	28
Deciding How to Pay for Transportation	29
Gasoline Taxes Shouldn’t Be Dedicated to Roads	31
Conclusion	32
Notes	34

Executive Summary

Highway advocates often claim that roads “pay for themselves,” with gasoline taxes and other charges to motorists covering—or nearly covering—the full cost of highway construction and maintenance.

They are wrong.

Highways do not—and, except for brief periods in our nation’s history—never have paid for themselves through the taxes that highway advocates label “user fees.” Yet highway advocates continue to suggest they do in an attempt to secure preferential access to scarce public resources and to shape how those resources are spent.

To have a meaningful national debate over transportation policy—particularly at a time of tight public budgets—it is important to get past the myths and address the real, difficult choices America must make for the 21st century.

Gasoline taxes aren’t “user fees.”

Highway advocates often describe gasoline taxes as “user fees” in order to argue that those funds should be used only on highways. Yet, gasoline taxes are not user fees in any meaningful sense of the term.

- *“Fees” are not connected to “use”* – The amount of money a particular driver pays in gasoline taxes bears little relationship to his or her use of roads funded by gas taxes—unlike other true user fees such as admission fees for state parks or turnpike tolls. Drivers on local streets and roads, for example, pay gasoline taxes for the miles they drive on those roads, even though those taxes are typically used to pay for state and federal highways. Efforts to ensure that residents of a given area “get back” what they pay in gasoline taxes—such as the federal equity bonus program—actually perpetuate wasteful pork-barrel spending since they allocate money with no consideration of need or the benefits those investments would deliver to society.
- *State gas taxes are often not entirely “extra” fees* – Most states exempt gasoline from the state sales tax. The substitution of the gasoline tax for the sales tax diverts much of the money that would have gone into a state’s

general fund to a fund used often for the exclusive benefit of drivers. In some states, such as New Jersey, the gasoline tax is at times lower than the corresponding sales tax would be, meaning that drivers get a net tax subsidy that encourages the purchase of gasoline relative to other goods.

- *Federal gas taxes have typically not been devoted exclusively to highways* – The federal gas tax began its life as a deficit-fighting measure under President Herbert Hoover decades before the Interstate Highway System. Only during a brief 17-year period beginning in 1956 did Congress temporarily dedicate gas tax revenues to construct the Interstate network, a project completed in the 1990s. Since 1973, the gasoline tax has been used to fund a variety of important transportation priorities and has periodically been used to reduce the federal deficit.
- *Many states use gas tax revenue for a variety of purposes* – While many states have historically dedicated their own state gasoline taxes to highways, that decision has not been universal. According to Federal Highway Administration data, roughly 20 cents of every dollar collected in state gas taxes, motor vehicle fees or tolls nationwide is used for public transportation and other governmental purposes. Many of the states that do use gasoline taxes solely for highways do so because they remain bound by constitutional earmarks of gasoline taxes imposed as much as three-quarters of a century ago, regardless of whether those decisions still make sense today.

Highways don't pay for themselves.

- Since 1947, the amount of money spent on highways, roads and streets

has exceeded the amount raised through gasoline taxes and other so-called “user fees” by \$600 billion (2005 dollars), representing a massive transfer of general government funds to highways.

- Highways “pay for themselves” less today than ever. Currently, highway “user fees” pay only about half the cost of building and maintaining the nation’s network of highways, roads and streets.
- These figures fail to include the many costs imposed by highway construction on non-users of the system, including damage to the environment and public health and encouragement of sprawling forms of development that impose major costs on the environment and government finances.
- New or expanded highways are even less likely to pay for themselves in the future as changing demographic conditions and consumer choices limit the growth in vehicle travel and fuel use that would otherwise provide the revenue for a major program of highway expansion.

Highway advocates use the “user fees/highways pay for themselves” myth in an effort to secure access to scarce government revenue for their desired public policy ends—distorting transportation decision-making.

- Highway advocates often argue that the fact that highways come with their own built-in source of revenue in the form of gasoline taxes make them a financially conservative option relative to other transportation investments, but they typically fail to document whether the new or expanded roads

they propose will raise enough revenue to pay for their costs.

- Highway advocates often use funding myths to make public transit and other forms of transportation appear relatively more expensive—diverting attention from the full accounting of costs and benefits that should be the basis of sound transportation decision-making.

To make the right choices for America's transportation future, the nation should take a smart approach to transportation investments, one that weighs the full costs and benefits of those investments and then allocates the costs of those investments fairly across society.

Introduction

There's nothing as powerful as a good story.

For thousands of years, the world's great philosophers and spiritual teachers have used parables or allegories to get their message across. And for hundreds of years, parents have used fairy tales to instill moral lessons in their children.

For decades, advocates of a highway-centered transportation system have told their own powerful and compelling story. It isn't as timeless as the stories of the Old Testament or as entertaining as the Brothers Grimm, but it has been extremely effective at shaping how American decision-makers think about transportation policy.

Let's call it the Great Myth of Highway Finance.

The Great Myth begins, as so many myths do, with an arduous journey—in this case, then-Lieutenant Colonel Dwight D. Eisenhower's 62-day cross-country trip with a military convoy along our nation's rutted roads during the summer of 1919. Conditions like those faced by Eisenhower were all too familiar to the small but growing number of drivers, who clamored for public investment in better roads.

But how to pay for them? In the same

year that Eisenhower made his journey, the state of Oregon hit upon an innovative method for raising money for the expensive task of improving the state's roads—a tax on gasoline, the revenues of which were exclusively dedicated to highway improvements.

As the years went on and the automobile became increasingly popular, more states followed Oregon's lead. And in 1956, under the leadership of President Eisenhower, the federal government directed the revenues from the federal gasoline tax to raise money for the largest public works project in human history: the Interstate Highway System.

In these good old times, the Interstate Highway System brought extraordinary prosperity, mobility and freedom to the land. Moreover, according to the Great Myth, it was paid for by those who used it—without meaningful subsidies from general taxpayers. The highways paid for themselves! And those who chose not to drive were supposedly none the worse off. According to the Great Myth, drivers not only endured but actually *embraced* the gas tax since they knew they were paying for better roads.

Every fairy tale needs a villain. Along the way, the story goes, politicians began to view the gas tax as a pot of money that could be used for “politically motivated”² projects (unlike highways, which transcended politics). The wicked politicians began to “divert” money from the gasoline tax to other purposes—public transit, bike paths, even public education. As a result, the public that had once been so willing to pay the gasoline tax as a user fee for roads now lost faith in its appropriate use. And so the gas tax became one of the least-liked forms of taxation and that is why the nation now finds itself without the resources needed to fix its aging roads, with little prospect of raising the gas tax to pay for new improvements.

Adherents of the Great Myth argue for a return to the good old days, when gasoline taxes were only used on highways, and that was that.

But like all myths, the Great Myth of Highway Finance relies as much on fiction as fact. If it were a movie, it might best be described as “inspired by a true story.”

That’s because even during the so-called good old days gasoline taxes weren’t always used exclusively for roads, they have almost always failed to fully pay the cost of highways, and non-drivers have always borne additional costs from highways in the form

of disrupted neighborhoods, accidents, and a polluted environment.

Correcting these myths might seem to be merely an historical exercise—and in an ideal world, it would be. But the Great Myth carries with it a set of false presumptions and the misreadings can severely distort transportation decision-making.

In a sensible world, America would invest in transportation projects that deliver the greatest benefits to the population, and pay for those investments in ways that allocate the costs fairly across society—taking into account the many ways that transportation investments can benefit or harm individuals and businesses. In the world of the Great Myth, however, each transportation mode is presumed to survive only on the money its users can provide—and all of the money its users provide should go to that transportation mode, regardless of where the greatest benefits can be achieved.

In this paper, we aim to dismantle the Great Myth once and for all ... with the hope that by doing so, America can get on with the critical debate about what types of transportation infrastructure to build and how to pay for them, free from false assumptions and the tired slogans of the past.

The Gasoline Tax: Not a User Fee

Highway advocates often describe gasoline taxes as “user fees”—a term that suggests direct fees for service should be used specifically for highways. But gasoline taxes are not “user fees” in any meaningful sense. The amount of money that drivers pay in gasoline taxes is only loosely related to their use of the highways supported by these taxes. Moreover, in most states, state gas taxes are not a wholly additional fee paid by drivers, but rather supplant the state sales tax for fuel purchases—thus diverting money that would have gone into states’ general funds into separate funds that often exclusively benefit drivers.

What Is a User Fee? And Who Is a User?

There are many competing academic definitions of a user fee. One element, however, that clearly separates user fees from other kinds of government levies is the fact that users of a given government service or facility pay them, and non-users don’t.

User fees are often levied for admission to government facilities or the use of government resources—for example, entrance fees to state parks or fees for grazing on federal land. User fees are also commonly applied for licensing or permitting, such as the issuance of a marriage license or processing of a passport application. Finally, user fees may be levied on industries to defray the cost of government regulation, such as fees for the testing and approval of prescription drugs or for inspection of meat and poultry processing facilities.

In most of these cases, it is crystal clear who the “user” of the given government service is—the visitor to the state park, the applicant for a permit or license, or the regulated party. In some cases, the user is not the only beneficiary of the service—for example, the public benefits from effective testing of prescription drugs—and the method of setting user fees is designed not necessarily to maximize revenue, but rather to maximize the benefits to the public.³

When it comes to highways, though, who, exactly, is a “user”?

If you consider anyone who drives on a highway anywhere in the country a “user,” then it might be fair to call gasoline taxes

user fees. Everyone who drives uses a road, and everyone who drives on a road⁴ pays the gas tax. It sounds simple enough.

Except for this: most of the money that is spent on local roads and streets—which account for the majority of public road lane-miles⁵ and about 13 percent of vehicle travel—comes not from “user fees” but from other taxes, often local property taxes. People who drive on these streets and roads are “users” in the sense that they pay federal and state gasoline taxes for their driving on those roads, but not when it comes to reaping the benefits.⁶ In short, they pay twice for their use of local roads, while users of other highways pay less.

Moreover, drivers who use vehicles with better fuel economy pay less into the system than those who drive gas guzzlers, since the collection system for gasoline taxes is based on fuel sales, not mileage driven. There are very good reasons for setting the system up this way—a gasoline tax is relatively inexpensive to collect and has the side benefit of encouraging conservation. But it is yet another way in which the fees charged to drivers through gasoline taxes are unrelated to their use of the system.

The “user fee” argument breaks down in a more fundamental way, however. The understanding implied in describing gasoline taxes as user fees is that the money an individual motorist pays in gasoline taxes will come back to pay for the roads he or she uses. In practice, however, this has never been the case—the Interstate Highway System, for example, was built largely using gasoline taxes charged to drivers on other roads.

Moreover, the direct linkage between user fees and user benefits that is a hallmark of true “user fees” is an almost impossible standard to meet with regard to highways, for the simple reason that some transportation investments are inherently more costly than others or their benefits are more diffuse. Adding a lane to a crowded urban

Interstate, or reconfiguring that highway to have less impact on the surrounding community, may be a reasonable, if expensive, investment, even if the amount of money generated from gas taxes paid by motorists who use that highway cannot possibly cover the cost.

Over the years, however, some public officials have tried to attain a direct linkage by aligning the amount residents of a given area pay in gasoline taxes with the amount they “get back” in road services. The equity bonus program at the federal level, for example, ensures that states each get back at least a 92 percent share of the money their drivers pay into the highway account of the Highway Trust Fund.⁷ Some states take this impulse even further by dividing highway spending proportionally within geographic districts of their states.

In their efforts to create a more accurate link between user fees and user benefits, however, these public officials have created another problem: wasteful allocation of public resources. There is a term for doling out government money with little consideration of the benefits to the public: pork-barrel spending. Treating gasoline taxes as user fees encourages unnecessary spending in some areas, while starving other areas of needed resources for projects that could deliver far greater benefits to society as a whole. This includes the prospect of spending money to build new highways in one region while ignoring the need to rebuild or repair decaying infrastructure in another area.⁸

In short, from the perspective of the individual motorist, there is not a clear connection between the “fees” he or she pays in gasoline taxes and his or her use of the gas-tax supported highway system. And there is very little connection between the amount of money a person pays in gasoline taxes and the resulting impacts on the roads they use. Because the relationship between the taxes drivers pay and their use of the facilities that benefit from those fees is so

tenuous, intellectually honest observers often have a hard time calling gasoline taxes “user fees.” In a recent study of government user fee policies, for example, the federal Government Accountability Office (GAO) referred to gasoline taxes as “excise taxes with a ‘user pays’ element.”⁹

Are Gas Taxes For “Something Extra”?

That fascinating GAO study also states that: “In general, a user fee is related to some voluntary transaction or request for government goods or services above and

beyond what is normally available to the public.”¹⁰ Visitors to a park might enter free, for instance, but pay extra to enter the zoo. In the earlier examples, persons seeking to get married, win Food and Drug Administration approval for a new prescription drug, graze their cattle on government land, or camp in a national park obtain special services from the government. In most cases, “users” pay a fee to the government for these services that is over and above their normal tax burden.¹¹ With a true “user fee,” in other words, users *pay* something extra to *get* something extra.

But are gasoline taxes really an extra payment that drivers make for the extra

Figure 1. States that Dedicate Gas Tax Revenue to Highways and Those That Exempt Gasoline Sales from Sales Taxes¹³

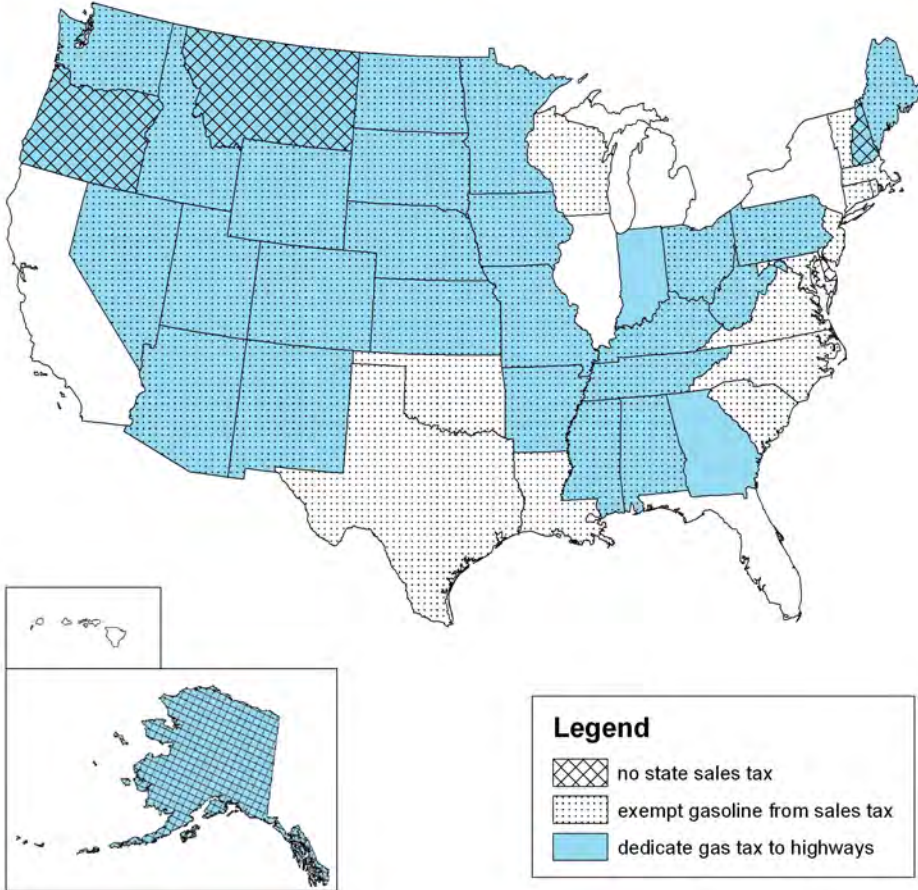


Table 1. Value of the Sales Tax Exemption on Gasoline vs. “Extra” Amount Drivers Pay in Gasoline Taxes Over and Above the Amount Exempted from Sales Tax¹⁴ (Table Includes States that Both Assess a State Sales Tax and Exempt Gasoline from It. Italicized States Dedicate Gas Tax to Highways)

State	Value of the sales tax exemption on gasoline, per gallon.	“Extra” amount paid by drivers per gallon over and above what they would have paid if the sales tax were in force.
<i>Alabama</i>	\$0.09	\$0.09
<i>Arizona</i>	\$0.13	\$0.05
<i>Arkansas</i>	\$0.13	\$0.09
<i>Colorado</i>	\$0.06	\$0.16
Connecticut	\$0.13	\$0.29
<i>Idaho</i>	\$0.14	\$0.11
<i>Iowa</i>	\$0.13	\$0.08
<i>Kansas</i>	\$0.11	\$0.13
<i>Kentucky</i>	\$0.14	\$0.08
Louisiana	\$0.09	\$0.11
<i>Maine</i>	\$0.12	\$0.18
Maryland	\$0.13	\$0.10
Massachusetts	\$0.14	\$0.07
<i>Minnesota</i>	\$0.15	\$0.12
<i>Mississippi</i>	\$0.15	\$0.03
<i>Missouri</i>	\$0.09	\$0.08
<i>Nebraska</i>	\$0.12	\$0.15
<i>Nevada</i>	\$0.16	\$0.07
New Jersey	\$0.15	(\$0.01)
<i>New Mexico</i>	\$0.11	\$0.06
North Carolina	\$0.12	\$0.20
<i>North Dakota</i>	\$0.12	\$0.11
<i>Ohio</i>	\$0.12	\$0.16
Oklahoma	\$0.10	\$0.06
<i>Pennsylvania</i>	\$0.13	\$0.19
Rhode Island	\$0.16	\$0.16
South Carolina	\$0.13	\$0.03
<i>South Dakota</i>	\$0.09	\$0.13
<i>Tennessee</i>	\$0.15	\$0.05
Texas	\$0.14	\$0.06
<i>Utah</i>	\$0.11	\$0.13
Vermont	\$0.14	\$0.05
Virginia	\$0.11	\$0.07
<i>Washington</i>	\$0.15	\$0.22
<i>West Virginia</i>	\$0.14	\$0.19
Wisconsin	\$0.11	\$0.20
<i>Wyoming</i>	\$0.09	\$0.04

privilege of using highways?

To answer that question, one needs to look at taxes together. If people who pay more in user fees simultaneously get a break on another tax, they can hardly be described as paying “extra” for the additional privileges they receive.

Yet, that is exactly the situation in many states that charge drivers gasoline taxes but simultaneously exempt the sale of gasoline from the state sales tax. In 37 states and the District of Columbia, drivers do not pay state sales taxes on their purchases of gasoline.¹² Instead, they pay a gasoline tax which, in 24 of these states, is statutorily or constitutionally designated to be used on highways.

In other words, by dedicating money raised through the gasoline tax to highways, many states are actually diverting money that could otherwise flow into the

state’s general fund to instead be used for the exclusive benefit of drivers. (See Table 1.) In most of these states, the amount of money that is diverted from the general fund (as a result of the sales tax exemption on gasoline) exceeds the “extra” amount that drivers pay over and above the amount they would pay under a sales tax.

Seen in this context, the idea of diverting sales tax revenue to improve highways because these taxes were paid during the course of using highways is an odd one. It would be akin to devoting the tax revenue from the sale of televisions solely to pay for improved network programming, or using revenues from the sale of clothing to provide scholarships for budding fashion designers.

Two important points arise from this discussion. First, the notion that drivers pay “extra” into the system through state

What About Tolls?

There are, of course, real “user fees” assessed on some American roads: tolls. Unlike gasoline taxes, tolls are true user fees—users pay them, non-users don’t, and users generally pay in proportion to the amount of the service they consume.¹⁷

The problem with tolling, however, is that only a small portion of the nation’s highways could truly “pay for themselves” in this way. In other words, if the true cost of building, say, Boston’s Big Dig or a rural highway in Idaho were to be charged to its users, the tolls would be so high that they would deter some or all drivers from using them—defeating the purpose of building the highway in the first place.

The recent track record of privately financed toll roads in the United States—which includes the financial struggles of roads such as California’s SR-91 express lanes and Texas’ Camino Columbia toll road—underscores just how iffy a proposition it can be to self-finance modern highways with toll revenue—especially since the private companies have relatively high capital costs and must skim off a profit share to investors.¹⁸

The inadequacy of tolling for building a truly national system of highways was recognized by the architects of the Interstate Highway System. A 1938 federal report found that the amount of expected long-distance traffic was insufficient to support toll highways.¹⁹ In the 1950s, experts estimated that no more than 9,000 miles of highway (compared with the more than 3 million miles of highway in existence at that time) could support themselves with tolls.²⁰

gasoline taxes is vastly overstated. Second, the shuffling that allows drivers to shift a part of their tax burden to a fund that largely benefits themselves is something extremely rare in our tax system. It is an exception—not the realization of some universally accepted principle of public finance.¹⁵

To be fair, in a few states drivers pay both the gasoline tax and the sales tax, and drivers generally wind up paying somewhat more in gasoline excise taxes than they would if the state sales tax were imposed on gasoline instead. But even this isn't universally true. Had New Jersey, for example, charged its 7 percent state sales tax on motor gasoline purchases in June 2010, it would have generated approximately 15.4 cents per gallon in general revenue for the state, compared to the 14.5 cents per gallon the state actually took in through its gasoline tax.¹⁶ In other words, the tax system in New Jersey actually *encourages* the consumption of gasoline vis-à-vis other consumer goods by charging a lower tax rate for gasoline sales. If gas prices continue to rise faster than inflation while gas taxes lag behind inflation, then this net tax subsidy for gasoline will become more common.

Origins of the Gas Tax: Sorting Historical Fact from Fiction

Even if gasoline taxes are only loosely related to drivers' use of the gas tax-funded highway system and even though the sales tax exemptions often divert money from general funds into funds for the benefit of drivers, highway advocates nonetheless often portray the dedication of gas tax revenues to highways as part of an historical grand bargain made between government and highway users.

To some highway advocates, the grand bargain through which highway users agreed to pay gasoline taxes in exchange for using those funds solely to improve roads takes on the aura of great societal compacts like the Magna Carta or the Declaration of Independence. But is it true? Was there a “grand bargain” or founding principle for future generations, in which citizens agreed to taxation of gasoline only if the revenues were spent on roads?

The answers to these questions are a little different depending on which gasoline tax you are talking about. If one is talking about state gasoline taxes the answer in many states is “sort of.” For the federal gas tax, the answer is a clear “no.” Just asking this question, however, raises another: why should any bargain about highway finance made as much as 80 years ago dictate how America invests in transportation under very different circumstances today?

The Federal Gas Tax

Highway advocates often begin their history of the federal gasoline tax in 1956. That is the year that Congress enacted the Federal Aid Highway Act of 1956, which created the Interstate Highway System, and the Highway Revenue Act of 1956, which funded it.

Robert Poole and Adrian Moore of the Reason Foundation, for example, advocate that the federal gasoline tax should be devoted to the Interstate system “as was intended when the federal gas tax was created.”²¹

There is just one problem with this history of the federal gas tax—it starts a quarter-century too late.

It was President Herbert Hoover who, in 1932, proposed a federal gas tax—not to raise money for roads, but to pay down the federal deficit. For the next 24 years, federal gasoline taxes were deposited into the general fund. According to the Federal Highway Administration, “Although taxes on motor fuels and automobile products

Did Congress Establish a Gas Tax/User Fee “Policy”?

Highway advocates sometimes point to the text of a 1934 law to claim that the U.S. Congress intended for gasoline taxes to be strictly devoted to highways. The text of the Hayden-Cartwright Act seems plain enough, stating: “Since it is unfair and unjust to tax motor vehicle transportation unless the proceeds of such taxation are applied to the construction, improvement or maintenance of highways, after June 30, 1935, Federal aid for highway construction shall be extended only to those States that use at least the amounts now provided by law . . . for the construction, improvement and maintenance of highways and administrative expenses in connection therewith . . . and for no other purpose.”²⁵

The American Highway Users Alliance—a highway advocacy trade group—claims that the law “declared congressional policy against diversion of highway funds for non-highway purposes.”²⁶ However, this distorts the historical record. It is unlikely that Congress meant for the law to establish this “policy” for two reasons:

First, establishing a policy against “diversion” of gas tax revenue was not the Hayden-Cartwright Act’s primary purpose. Rather, it was to fund a massive federal investment in highways as a response to the Great Depression. Policy-makers understandably wanted to ensure that states would not meet this increase in federal investment with reductions in highway spending from their own revenue sources. Hence the requirement that states spend the amounts “now provided by law” on highways—allowing states that were already using gasoline taxes for non-highway purposes to continue to do so without penalty.²⁷ Thus, the measure was not meant to change how new revenues were allocated; it was intended to prevent a reduction in existing state spending in the face of those new revenues.

Second, the federal government was, *at the very moment the Hayden-Cartwright Act was enacted*, using taxes on gasoline for non-highway purposes, namely, reducing the federal deficit. Congress could hardly have intended the law as a general statement of principle when it was in the midst of violating that very principle itself.

were in existence, they were not linked to funding for highways. At the time, financing for the highway program and revenues from automobile and related products were included under the public finance principle of ‘spend where you must, and get the money where you can.’”²²

The 1956 laws diverted the two-cent gas tax that had previously funded general government operations to the new Highway Trust Fund and added an additional penny that was also deposited in the fund. Such began an exceptional 17-year period during which revenues were used exclusively

for highways, a period that lasted until 1973, when states were first permitted to reallocate money from discontinued urban highway projects to transit.

The highways-only era was a mere blip in the 78-year history of the federal gas tax. The last two major increases in the federal gasoline tax—in 1990 and 1993—were dedicated in whole or in part toward deficit reduction, the original purpose of the federal gasoline tax when it was adopted in 1932.²³

There are good reasons to believe that Congress, in passing the 1956 law, did not

intend to link the gas tax and highway expenditures on a permanent basis.

Indeed, the 1956 Highway Revenue Act dedicated the federal gasoline tax to the Highway Trust Fund explicitly only until 1972, by which time the Interstate Highway System would presumably be complete. Beyond that point, the 1956 law left the gasoline tax to revert to one-and-a-half cents and again be deposited again into the general fund.²⁴

In short, funding roads was not the “original purpose” of the federal gas tax when it was created in 1932. Nor did Congress ever promise that all federal gasoline taxes would forever after be dedicated to roads. Nor has dedicating federal gas taxes exclusively to roads even been the historical norm.

State Gas Taxes

Where highway advocates stand on somewhat sturdier historical ground is in the assertion that state gasoline taxes have been promised to highways. Indeed, the need to raise money for highway expansion was the stated rationale for the creation of most state gasoline taxes.

In 1919, Oregon adopted the first state gasoline tax, which was legislatively dedicated to highway improvements.²⁸ By the time the federal gasoline tax was adopted in 1932, every state had adopted a gasoline tax.²⁹

Many states followed Oregon’s example and adopted statutory or constitutional limitations requiring gas tax revenue to be spent on highways—as of 2003, 22 states had constitutional provisions that earmark vehicle fees to highway construction, while eight states had similar statutory earmarks.³⁰ (See Figure 1 on page 8.)

Even so, there remain many states that do not promise gas tax revenue to highways. In some of these states—such as Maryland, New York and Wisconsin—gasoline taxes can be used for a variety of

transportation purposes. In other states, gasoline tax revenue is deposited into the general fund. Texas even dedicates part of its gas tax to a non-transportation purpose: public education.³¹

The larger question with regard to these dedications of tax revenue is whether decisions made by legislators in a very different era should still hold sway today. In many states, constitutional earmarking of gasoline tax revenues dates back more than three-quarters of a century—a constitutional limitation was adopted in Minnesota in 1923, in Colorado in 1934, in New Hampshire in 1938, and in Washington state in 1944, for example.³²

These decisions to dedicate gas tax revenues to highways came at a time when America was a fundamentally different country. Between 1910 and 2000, the share of Americans living in metropolitan areas ballooned from 28 percent to 80 percent.³³ As late as the mid-1960s, America still produced the majority of our oil domestically and dependence on foreign oil was not a major worry.³⁴ As late as the post-War years, most streetcar and other urban mass transit systems remained privately owned. Most importantly, America had not yet invested trillions of dollars in its highways, at the expense of other, long-neglected modes of transportation.

In rapidly urbanizing or suburbanizing states, the existence of these difficult-to-undo constitutional provisions straitjackets government as it considers the most effective means of providing transportation for its citizens. In New Hampshire, for example, a 2004 court decision prevented the state from using gasoline tax revenue—which is constitutionally dedicated to highways—to extend a Boston-area commuter rail line to the southern portion of the state, a move that would have benefited drivers by reducing congestion on a gridlocked highway used largely by commuters to Boston.³⁵ The state of Washington now faces a lawsuit seeking to prevent the state

from building a light rail line in the median of Interstate 90, despite the fact that the interstate was specifically designed to allow for future light rail, no state gas tax money is being used for the rail line, and the light rail project was approved by the region's voters. The case hinges on whether the use of a small share of state gas tax revenue for the original construction of Interstate 90 decades ago precludes the construction of light rail using other funds now.³⁶

These restraints on lawmakers' ability to dedicate tax revenue to the most important public priorities—or even, in the Washington case, to build transit systems using other sources of revenue—are often

opposed by public policy experts. The National Conference of State Legislatures, for example, frowns on earmarking funds for particular uses, noting that it “often imposes rigidities into the budgeting system that do not permit flexible allocations of general revenue among competing uses.”³⁷

In truth, negotiation with regard to the allocation of societal resources and responsibilities is an ongoing process. While some principles are eternal—including freedom of speech, freedom of religion, and equal rights under the law—the dedication of gas tax revenue to highways isn't one of them.

Highways Don't Pay For Themselves

“By any measure, highways are one of the most successful government programs in America. They are heavily used for very valuable purposes and they pretty much pay for themselves.”³⁸

– American Dream Coalition

“Because most of the costs of highways are paid out of gas taxes, subsidies to driving are very low and mainly by local governments for local roads.”³⁹

– Randal O'Toole,
Cato Institute

“[H]ighways and aviation ... are essentially self-supporting. You're talking about using general tax revenue to create a new mode (high-speed rail) to compete with user-fee-supported modes whose infrastructure is 100 percent paid for by user fees.”

– Robert Poole,
Reason Institute, on proposed
federal high-speed rail
investments⁴⁰

The notion that highways “pay for themselves” through gas taxes and vehicle charges is a key part of the transportation funding mythology crafted by highway advocates. Most intellectually honest advocates of this point of view add caveats to this conclusion—highways, they say, “mostly,” “almost always” or “pretty much” pay for themselves. But the implications of the argument are the same: highways come with their own source of revenue that defrays most, if not all, of the cost of their construction and continued operations.

Highways, however, have never fully “paid for themselves” through user revenue and are more dependent today on subsidies from general taxpayers than at any time in recent history. The fees drivers pay also don't even begin to pay for the many costs that highways impose on non-drivers, and are unlikely to be sufficient in the future to fuel the increase in highway capacity favored by highway advocates.

Highways Have Not Historically “Paid for Themselves”

Gasoline taxes and other charges on drivers have not come anywhere close to paying for the cost of constructing and maintaining America’s roads. And, with a few historical exceptions, they never have.

The case most often cited of highways “paying for themselves” is the Interstate Highway System. Robert Poole of the Reason Institute, for example, states that “the Interstate system was paid for 100 percent by its users.”⁴¹ The construction of the Interstate system was more or less entirely paid for by federal gasoline taxes and vehicle charges. But it was not—as Poole asserts—paid for by *users* of the Interstate system, which, after all, did not

yet exist when the gas taxes that paid for its construction were created. Instead, the Interstate system was paid for largely by drivers using other roads under the assumption that they (or perhaps their children) would someday benefit from the future Interstate system.

The Interstate Highway System currently constitutes only 2.5 percent of the nation’s total roadway lane-miles.⁴² As a result, touting the Interstate highway system as exemplifying the larger system is highly misleading. What happens if we look at the system as a whole?

If one compares all spending on highways by all levels of government with total revenue from so-called user fees, it quickly becomes apparent that America’s highways do not now—and, except for brief periods, never have—“paid for themselves” in the aggregate. Since 1947, America’s spending

Figure 2. Cumulative Net Difference Between Spending on Highways and Highway “User Revenues”⁴⁴

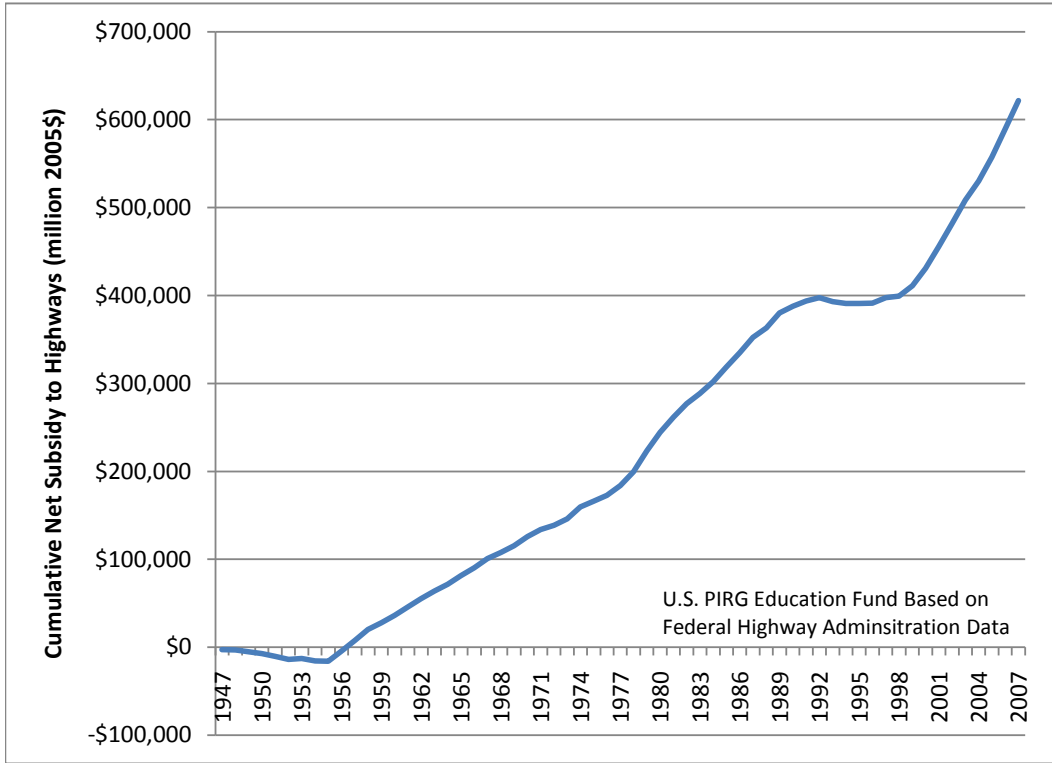
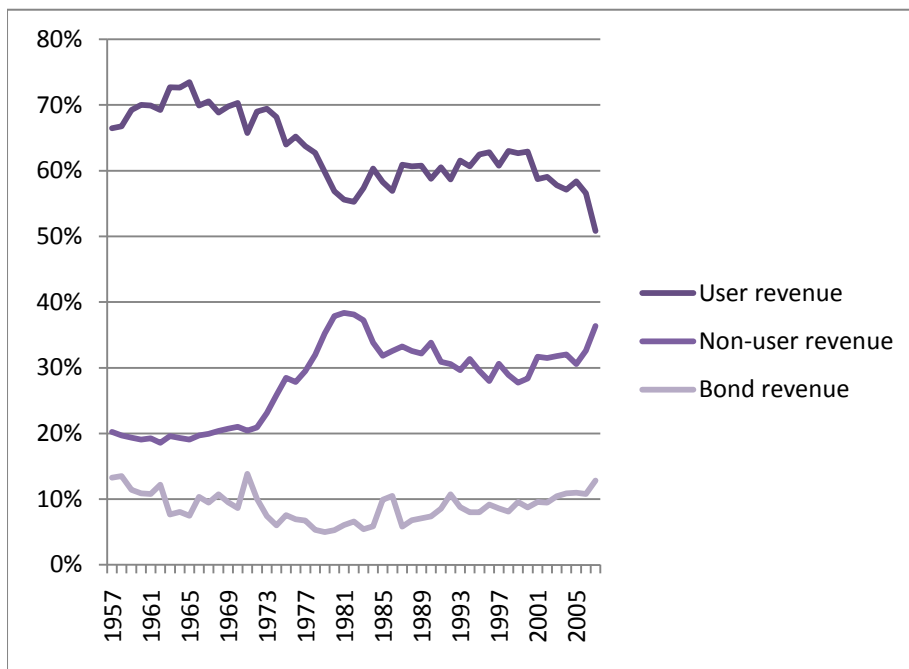


Figure 3. Percentage of Highway Spending from Various Sources, All Levels of Government⁵³



on highways at all levels (federal, state and local) has exceeded the amount of money collected in gasoline and vehicle taxes and tolls by more than \$600 billion (2005 dollars).⁴³

Historically, much of this net subsidy of highways has come in the form of local spending on streets and secondary roads, which are largely paid for from property tax or general tax revenue.⁴⁵ In 2008, local governments spent more than \$31 billion on highways raised from property taxes, assessments, and general fund revenues.⁴⁶

There have been few studies of whether individual highways “pay for themselves.” A 2008 study conducted for the state of Texas evaluated seven sample highways, finding that none of them would likely pay for their full costs, with the percentage of costs paid for by user revenue ranging from 13 percent to 93 percent.⁴⁷

Highways Pay for Themselves Less than Ever Today

In recent years, state and federal governments have diverted even more resources from general forms of taxation toward roadways. In 2007, so-called “user fees” paid for a smaller share of the cost of highways than at any time since the launch of the Highway Trust Fund in 1956. According to the Pew Charitable Trusts’ SubsidyScope project, user fees paid for only 51 percent of highway costs, down 10 percent over the course of a single decade.⁴⁸

Even if all “user fee” revenues were devoted to highways, they would still pay less than two-thirds of the nation’s highway bill.⁴⁹

General fund subsidies of highway spending have become even larger in the

last few years. The SubsidyScope analysis was conducted with the most current data, which at the time extended to 2007. In 2009 the federal Highway Trust Fund was poised to go into deficit for the first time in its history—triggering a series of ongoing bailouts from the general fund. To address this looming shortfall, in September 2008, the federal government transferred an emergency \$8 billion from the general fund to the Highway Trust Fund.⁵⁰ There were further infusions of money from the general fund of \$7 billion in July 2009 and \$19.5 billion in March 2010.⁵¹ In addition, the American Recovery and Reinvestment Act allocated \$27 billion to highway infrastructure investment.⁵²

The reasons for the decline in the share of highway costs covered by gas taxes and other “user fees” are not mysterious. The federal gasoline tax and most state gasoline taxes are not indexed for inflation, and the federal gasoline tax has not been increased since 1993. In 1999, federal gasoline and diesel taxes collected \$29.8 billion for highways, and in 2008, the same taxes collected \$30.6 billion for highways.⁵⁴ Adjusted for inflation, the yearly taxes collected between 1999 and 2008 shrank 32 percent, even though we continued to build more new roads and bridges.⁵⁵

At the same time, vehicle travel—which increased at a more or less steady rate for decades—began to level off in the mid-2000s, and has actually declined from the all-time peak in 2007.⁵⁶ As Americans drive fewer miles, they pay fewer gasoline taxes, even as the number of lane-miles of highway that require maintenance remains the same or increases. Meanwhile, vehicle fuel economy—which had been stagnant or declining since the late 1980s—began to increase in the late 2000s in response to rising gasoline prices and tighter federal fuel economy requirements, reducing the amount of gasoline taxes Americans pay for every mile they travel. Vehicles sold in model year 2009 were the most fuel-effi-

cient of any model year in U.S. history.⁵⁷

In short, American drivers are paying lower gas taxes (in terms of purchasing power) on relatively fewer gallons of gasoline. Whereas at one time gasoline taxes and other fees on drivers raised much of the money needed to build and maintain highways, these sources of revenue presently barely pay for even half of highway costs.

How high would gasoline taxes need to be to cover the gap? A 2007 study estimated that “user fee” payments to governments fall short of government expenditures related to highways by the equivalent of 20 to 70 cents per gallon.⁵⁸ That estimate is overly conservative because since that time gas taxes have remained stagnant and the number of gallons taxed has fallen. The figure also omits the additional unpaid-for costs that drivers impose on each other and non-drivers.

Driving Doesn't Pay its Full Costs

The reason the accounting of road costs and taxes is so politically charged and consequential is because the issue nests within broader questions about fair taxation. To some extent, judgments about whether the highway system or gas taxes should be expanded hinge on whether highways are viewed as net contributors to society at current tax levels. The issue isn't just whether taxes and fees levied on driving cover the costs of construction and maintenance. It's whether the contributions paid through highway system cover the costs imposed on society.

The user fee/highways pay for themselves argument is rooted in the idea that those who benefit from a given government investment should be responsible for paying for it through taxes—a framework economists call the benefits principle of

taxation (as in “those who reap the benefits should pay”).

Highway advocates conclude that if drivers were paying for the full cost of highway construction and maintenance with gasoline taxes, they would be “paying their own way.” Nothing could be further from the truth.

Indeed, for the benefits principle of taxation to apply, the amount that people pay for highways (or other forms of transportation infrastructure) would have to match their net benefit from the infrastructure. This would mean compensating those who are harmed by construction and operation of the infrastructure.

Interestingly, during the 1940s (a time when the federal gas tax was still deposited in the general fund) the highway lobby argued that federal aid to support state highway networks should *not* come from user fees, but rather from general revenue, given the tremendous perceived national benefits of those investments, even to non-users. As the head of the National Highway Users Conference (the forerunner to today’s American Highway Users Alliance) argued:

The Federal Government should pay for such aid from sources of general taxation, because the benefits of that spending—to the national defense, to interstate commerce, to mail delivery and to the general welfare—are not limited to any special taxpaying group.⁵⁹

The cost of building and maintaining highways has long been recognized, therefore, as just one cost of driving. “Users” are not the only people who benefit or are harmed by transportation investments. There are many ways in which the decision to build transportation infrastructure—or the decision of an individual driver to use that infrastructure—can impose costs or

deliver benefits to people other than users. Among the other potential costs and benefits are:

- Impacts on the efficiency of other transportation modes—for example, the degree to which a new highway lane speeds up bus trips, or makes pedestrian crossings more difficult.
- Changes in the risk of accidents, including injuries to non-drivers and damages to property.
- Air pollution impacts, including emissions of pollutants that contribute to the formation of health-threatening smog and soot as well as greenhouse gases.
- Other environmental impacts, including water pollution from highway runoff, impacts on wildlife (habitat disruption, road kill, etc.), and impacts to recreational enjoyment of the outdoors.
- Energy policy impacts, including the economic impacts of changes in fossil fuel demand as well as the national security implications of protecting access to imported fossil fuels.
- Impacts on development, recognizing that different transportation investments contribute to different development patterns. Highway construction might support more spread-out forms of development with higher infrastructure costs for water, sewer, electricity and flood control, as well as impacts on community cohesion, public health and aesthetic values.
- Costs and benefits to businesses, including changes in land value and accessibility, as well as the costs imposed on businesses to provide access to the

new infrastructure (such as the cost of providing parking spaces, bike racks, or shuttle buses to transit stations).

- Costs of maintenance and operations that will be incurred in the future.
- Impacts on specific sub-populations, including those who may not have direct access to the infrastructure. For highways, this includes populations that cannot drive, including some of the elderly, the severely disabled, children, and those who cannot afford an automobile. Infrastructure decisions can also impact the efficiency and effectiveness of government programs designed to assist these populations, such as the ability of the infrastructure to provide access to jobs or to support the ability of the elderly to remain in familiar surroundings as they age.
- Impacts on private investment in transportation vehicles—e.g., the need for residents of a given community to own and maintain a private vehicle in order to live their daily lives, and the impact of infrastructure investments on the wear and tear on those vehicles.
- Broader economic benefits, including agglomeration economies, expanded access to jobs and markets, and tourism.
- Quality of life, including the impact of the investment on the potential for active transportation, such as walking and biking, which provides health benefits, as well as access to community institutions, aesthetic values, and other, difficult-to-quantify benefits.

The list goes on and on.

The point is that highways (as well as other forms of transportation infrastructure)

impose significant external costs—that is, costs to non-users—or deliver significant external benefits. These costs and benefits are not accounted for in gas taxes or other user fees.

The costs of driving begin to add up quickly. A 2009 study by the Victoria Transport Policy Institute (VTPI) estimates that 35 percent of the cost of driving consists of external costs. VTPI estimates that the full cost of a mile of driving—including fuel, ownership and external costs—ranges from 94 cents per vehicle mile for rural driving to as much as \$1.64 per mile for urban rush hour driving.⁶⁰ Another 2007 study, by researchers at Resources for the Future, estimated that the external costs imposed by driving amounted to approximately \$2.10 per gallon.⁶¹

We do not suggest here that fuel taxes ought to rise to cover the entire external costs of driving. What is important is that when highway advocates claim or suggest that highways “pay for themselves,” they are not only factually wrong from the narrow perspective of users paying for the cost of building and maintaining highways, but they also miss a large part of the picture: the costs imposed by drivers on others.

Will Highways Pay for Themselves in the Future?

Highway advocates frequently harken back to the experiences of yesteryear in suggesting that highways can or should pay for themselves in the future. Yet, the America of the early 21st century is not the America of the 1950s, and the assumptions that led to the gasoline tax being considered a stable source of income for highway expansion at that time likely do not apply today.

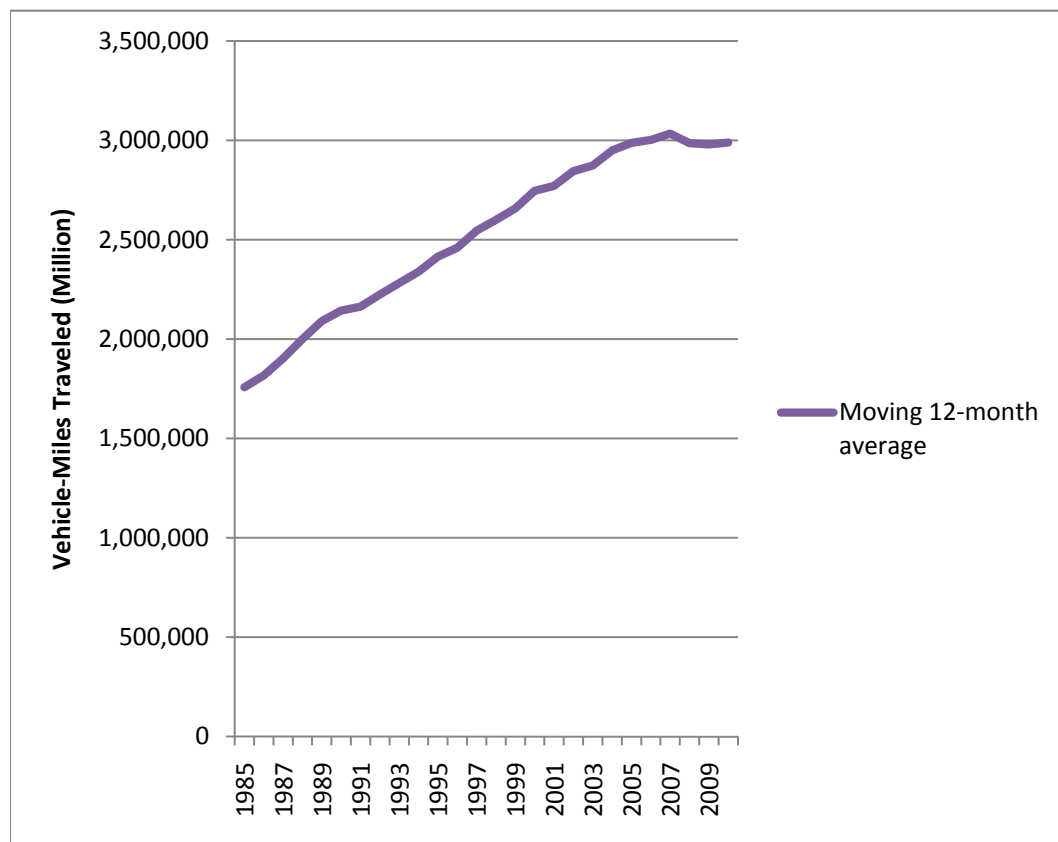
The question of whether new or expanded highways can be expected to pay for themselves creates a Catch-22 for highway advocates. On one hand, for a new or expanded highway to “pay for itself,” it must result in a significant overall increase in miles driven and fuel consumption. On the other hand, however, increasing the number of miles driven on a highway undercuts the most common rationale for highway construction: reducing congestion. Indeed, if a highway expansion project truly succeeds in reducing congestion, motorists will sit less in traffic and burn less fuel—reducing gasoline tax revenue.

Historically, however, highway expansion has been shown to increase the amount of driving by inducing new trips and changing land-use patterns in ways that lead to more driving.⁶² If those historical trends remain in force, new or expanded

highways would pay for at least some of the costs of their construction through new gasoline tax revenue. But those increases in revenue would also come with substantial additional costs—more cars on the road, increases in air pollution and global warming emissions, increased congestion on other roads, and increased dependence on fossil fuels. How those costs and benefits would balance out for any particular proposed highway is anyone’s guess.

The problem is exacerbated when it comes to the cost of repairing or reconstructing existing highways. As Interstate highways reach the end of their useful lives, along with countless other roads and bridges built from the Great Depression to the post-War years, America faces a large bill for highway maintenance and reconstruction. These maintenance and rebuilding projects are unlikely to “pay

Figure 4. Rolling 12-Month Average of Vehicle-Miles Traveled, United States⁶⁵



for themselves” through gas tax revenue created from increased driving—indeed, to the extent that drivers switch to other forms of travel during lengthy construction periods, they may result in decreased revenue, at least for a time. These maintenance and rebuilding projects will come to make a growing claim on existing sources of gasoline tax revenue, leaving less money for expansion projects that raise additional revenue by increasing driving. In other words, if so-called “user fees” aren’t raising enough revenue to pay for adequate maintenance of these highways now—before the hefty bill for reconstruction comes due—they are highly unlikely to do so in the future.

Moreover, in recent years researchers have begun to question a central assumption of the “user fee” model: the belief that the number of vehicle-miles traveled (VMT) per capita will continue to rise steadily over time. A 2008 Brookings Institution study found that national vehicle miles traveled hit a plateau in 2004 and began a decline in 2007 that was unprecedented since World War II.⁶³ While VMT has bounced back slightly in recent months, it remains well below 2006 levels.⁶⁴

Much of the growth in VMT over the past half century has been connected to the increasing availability of cars; evidence shows that once someone owns a car, he or she is likely to use it.⁶⁶ Today, however, there are few American households without a car, so there are few prospects to increase vehicle penetration. Per-capita vehicle ownership hit a plateau in 2000 after decades of consistent growth.⁶⁷ In 2009, the number of motor vehicles in the United States actually dropped as more existing vehicles were scrapped than new ones purchased.⁶⁸ So increased vehicle ownership is likely out as a potential trigger for future increases in driving.

So, too, are massive increases in the driving-age population. According to the U.S. Census Bureau, between 1969 and 2010,

the number of Americans between 25 and 64 years of age—the period of maximum per-capita VMT—nearly doubled from 89 million to 164 million.⁶⁹ However, over the next 40 years, the number of prime driving-age Americans is projected to increase by only another 21 percent.⁷⁰ Meanwhile, the population of older Americans—who drive fewer miles per year than younger Americans—is projected to explode in coming decades, more than doubling by 2050, suggesting that stagnation in per-capita VMT is likely to continue for years to come.⁷¹

Finally, there are indications that today’s younger Americans are less likely to drive than their counterparts in earlier generations. The percentage of teenagers with driver’s licenses—which peaked at 71 percent in 1983—has since declined to 56 percent in 2007.⁷² The proportion of vehicle-miles driven by people aged 21-30 has also declined in recent years.⁷³ While many of these changes are likely due to economic and demographic shifts, there is also evidence that young people are seeking out less car-dependent lifestyles. Demand has increased for housing in walkable communities with access to transit and a variety of amenities and the potential for shorter commutes.⁷⁴ Some analysts suggest that changing lifestyles—particularly the increased importance of digital technology in the lives of young people—make driving long distances less appealing. According to a recent analysis of real-estate trends by a Canadian consulting firm:

There is also growing research that younger generations do not relate to the automobile as enabling “freedom.” Instead, their electronic and social media devices—whether a smart phone, small lap top computer, music player, etc.—provide an alternate means for self expression and being free to do what they want.

... Younger generations seem to have less interest in automotive use, making apartment living in dense, walkable and transit-oriented urban areas a more natural fit for their lifestyles.⁷⁵

In short, highways have never fully “paid

for themselves” through gasoline taxes and other user fees, are doing so less than ever today, and there is good reason to believe that they will be unable to do so in the future, at least in the absence of a dramatic increase in user fees that will make alternative modes of travel even more attractive than they are today.

A Useful Fiction

If gasoline taxes are not truly “user fees” and if those fees fail to pay much more than half the cost of highway infrastructure—never mind compensate society for the many external costs of driving—just why do these myths continue to arise in the transportation debate?

The myths are extremely useful to backers of a highway-oriented transportation system in the struggle to obtain a large share of a scarce resource (tax revenue) for their preferred public policy ends.

The user fee myth is often invoked to make investments in alternative forms of transportation appear more “expensive” than investments in highways. Highway advocates often contrast the share of costs paid by highway users with the share paid by users of other forms of transportation to make highways appear to be a less expensive solution to transportation problems.

Here is the Cato Institute’s Randal O’Toole, discussing federal transportation spending: “House Transportation Committee Chairman James Oberstar, Minnesota Democrat, wants to increase transit’s share of federal surface transportation funding from 15 to nearly 30 percent. But transit riders pay only a third of the

operating costs and none of the capital costs of transit, while *highway users pay 80 to 90 percent of highway costs.*”⁷⁶ (emphasis added)

And here is a report from the Reason Institute: “Since transit is *unable to generate significant user revenues the way highways can*, it is a far more appropriate candidate than highways for general-fund support.”⁷⁷ (emphasis added)

The contrast between the supposed ability of highways to generate user revenue and the inability of transit to do so—never mind non-motorized forms of transportation such as bicycling and walking—is raised again and again in arguments over transportation policy. From the perspective of deciding which projects to build, such distinctions are (or should be) meaningless—America should invest in transportation projects that bring the greatest net benefits to the greatest number of people, regardless of how they are paid for.

Highway advocates also employ the user-fee argument to preserve privileged access for highways to funding from the gasoline tax, which, despite recent decreases in purchasing power, remains a potent generator of revenue. Advocates of

highway-centered transportation policy deploy the user-fee argument to ensure continued first dibs on a dedicated revenue source. Dedicated funding is immensely valuable to advocates of any social agenda because it ensures access to (at least) a steady stream of funding without requiring repeated pleading to elected representatives in the annual appropriations process.

Ken Orski, author of the *Innovation NewsBriefs* newsletter, recently wrote, for example: “Those who urge restoring the Trust Fund to its original purpose are not necessarily against streetcars, bicycles or ‘walkable communities.’ ... But let those amenities be funded by state and local governments, they say, or by general revenues, as are a host of other social programs that are deemed worthy of federal support.”⁷⁸

Orski knows, as do all highway advocates, that funding from a dedicated source is far easier to secure than funding in an annual appropriations process—particularly in difficult budgetary times. By granting dedicated funding to a particular social aim, government prioritizes that activity over and above other social aims. Those who would advocate for dedicating all gasoline tax revenue to highways are, in essence, arguing that highways are more important than investments in other alternatives—especially since these advocates are rarely to be found arguing for similar levels of general federal spending on other transportation modes.

The “user fee” argument becomes, in other words, an argument about the preferred direction of transportation policy by other means.

Highway advocates also tend to make two other arguments for dedicating federal gas taxes to highways.

(1) Interstate highways are cast as national priorities—worthy of federal support—while transit and other alternatives are declared to be merely local issues.

The Reason Foundation, for example,

recently argued that funds from the federal gasoline tax should be dedicated only to Interstate highways—eliminating funding both for transit and for aid to states for their own highway systems. The assumption at the core of this argument is that there is something special about the Interstate Highway System that makes it—and it alone—worthy of dedicated federal support from the gasoline tax. The idea is that the Interstate system is, at its core, about the movement of people and goods across state lines—a truly federal function—while transit and other transportation alternatives are about moving people around metropolitan areas, which represents a state or local function.

For example, the Reason Foundation argues that “Traffic calming in Tampa or Boise, or bike paths in Buffalo or Phoenix, do not provide national benefits and should not be federally funded.”⁷⁹

This line of argument is a throwback to the original vision of the Interstate Highway System as providing long-distance highway connections. But it is consistent neither with how the Interstate system was actually built out, nor with how the system it is used today. Indeed, Interstates play as significant a role in metropolitan-level transportation as they do for the interstate movement of people and goods. Two out of every three vehicle-miles traveled on the Interstate system are on urban Interstates, which presumably serve local or metropolitan mobility needs—just as do transit systems.⁸⁰ While urban Interstates certainly play an important role in the interstate movement of goods, their primary function—as evidenced by the massive traffic jams on urban Interstates any weekday morning—is to get people to and from their homes, jobs, schools, and places of recreation.

Moreover, it is legitimate to ask why the long-distance movement of cars or freight should be any more of a national priority than providing efficient transit and inter-

city rail access to the core of our major financial, political and cultural capitals; reducing America's crushing dependence on oil; facilitating transportation in metropolitan areas, which are the engines of our national economy; alleviating highway congestion through other means (such as investments in transit or car-pooling); or even, for that matter, promoting improved health and mobility through investments in bicycling and pedestrian infrastructure.

The federal government could have chosen to fulfill its "interstate commerce" role under the Constitution by simply paying for the construction of small segments of highway that cross state borders. It didn't. Instead, the federal government has historically taken a more expansive view, demonstrating an understanding of the importance of transportation links within metropolitan areas and the need to link various transportation modes effectively.

(2) Highway investments are touted as "transportation" investments; everything else is "social policy." Highway advocates often argue that highway expenditures represent investments in transportation, as opposed to investments in other transportation alternatives and programs, which are pigeonholed as "social policy." For example, the recent Reason Foundation report asserts that:

[A]sking *federal* highway users to pay substantially more in order to fund expanded programs for sidewalks, bikeways, recreational trails and more transit is unlikely to succeed, since the large majority of highway users do not use, and would not benefit from, these mostly localized urban projects. Principles of federalism suggest that these kinds of projects are more appropriately funded at state or local levels of government. But if Congress sees fit to continue them at the federal level, they should be supported by

all taxpayers, as the kind of social infrastructure funded by federal agencies concerned with urban amenities (HUD) and outdoor recreation (Interior).⁸¹

Leaving aside both the fact that federal gasoline taxes are paid by all drivers (not just users of federal highways), and the federalism argument, Reason's argument—mimicked by other highway advocates—is that highways are essentially the only reasonable "transportation" investments government can make. Any other investments—from transit to sidewalks—are forms of "social policy."

This inherent bias against non-automotive forms of transportation as legitimate transportation options sometimes emerges in the form of condescension and sometimes in the form of virulent rhetoric, such as this post from Randal O'Toole's *Anti-planner* blog: "Supporters of more subsidies to transit, cycling, and other programs bristle when opponents use terms like 'socialism' and 'social engineering.' But it is pure socialism when government agencies can spend billions of dollars without any worries about whether user fees will cover those costs."⁸²

The highway advocates' argument is rooted in their obsessive focus on the abstract notion of "mobility," which often surfaces in their desire to compare the number of passenger miles traveled on various transportation modes as the measure of their value. Observers such as Wendell Cox and Ronald Utt of the Heritage Foundation make much of comparing the federal dollars spent on transportation per passenger mile, arguing that riders of transit and other modes are more subsidized.⁸³

Yet, what most individuals strive for is not to maximize their "mobility" as measured by the number of miles traveled each year. People value the simple ability to get where they need to go, whether that destination is around the block, on the

other side of a metropolitan area, or across the country. An urban dweller who rides a light rail line a single stop to a favorite restaurant gains the same utility from that trip as a suburban resident who drives 10 miles to his or her favorite eatery. Sidewalks, bikeways and transit are not simply “urban amenities,” but are also legitimate forms of transportation.

The decision to pursue policies that maximize the volume of distances travelled—without the consideration of other social contexts and imperatives—is *itself*

an exercise in social policy. No reasonable observer would argue that the decision to build the Interstate Highway Network did not have major ramifications for social policy—fueling the growth of suburban communities, bringing opportunities for jobs and recreation closer to many Americans, and imposing massive changes on the environment and America’s urban fabric. There is simply no way to separate transportation policy from social policy—they are intertwined.

A Smarter Way to Pay for Transportation

So far, we've established that gasoline taxes are not true "user fees," that they have historically funded purposes other than highways, that they have never paid the full freight for nation's roads, and that they represent a shrinking share of the transportation funding pie. We have also examined some of the uses to which the highway financing myths have been put in decisions regarding transportation policy.

But if highway users aren't currently paying the full cost of roads, shouldn't they?

It is tempting to resort to simple maxims such as "drivers should pay for the roads they use" in describing the ideal policy for transportation funding. But to even ask the question this way is to put the cart before the horse.

Sound transportation decision-making begins by understanding that the issues of what we should build and who should pay for it are separate—if intimately related—questions. When we let the ability of a transportation mode to "pay for itself" shape what types of infrastructure we build, then we miss opportunities to build

transportation systems that provide the greatest benefit to society as a whole.

Choosing What to Build

The first step towards developing a sensible system of transportation finance is to develop a sensible system for deciding which transportation projects to build. These decisions must be made independently of the question of the mix of revenues that pay for those projects.

To understand why, consider the situation states currently find themselves in when choosing between investments in various transportation modes. If a state wishes to expand a highway, it receives an 80 percent federal match and can use federal transportation funds for that purpose with virtually no questions asked. The remaining 20 percent of the funds can come from state gasoline taxes.

On the other hand, a state seeking federal support for a new transit line must compete against projects from other states

through the New Starts process. While transit projects technically can receive an 80 percent federal match, in practice the match is typically around 50 percent, since the New Starts process favors application in which state and local governments provide a greater share of the funds.⁸⁴ In many states, finding those local funds is extremely difficult since gasoline tax revenue is off-limits for transit projects.

It is not hard to see how this system skews transportation decision-making—making it far easier for states to expand highways than to invest in transit, even when the transit investment will deliver greater benefits.

The United States should invest in transportation infrastructure that delivers the greatest possible net benefits for society, regardless of how the money to pay for those investments is raised. It may be, for example, that particular types of transportation investments cannot—or should not—be counted upon to “pay their own way” through user fees, but that these investments should be pursued because of the broad benefits they deliver to society.

To make the proper investments for America’s future—and to protect taxpayers from the temptation to spend money on boondoggle projects while other urgent needs remain unaddressed—the nation should compare potential transportation infrastructure projects based on their costs and benefits both within and across modes. In so doing, we must do cost-benefit analysis the right way. That means incorporating all of the many costs and benefits (see page 19) that result from transportation investments and evaluating those investments for their impacts during the lifetime of the investment. Projects should be assessed across the long-term; not just as short-term budget choices.

Some states have taken important steps in the right direction. Washington state, for example, requires regional transportation planning agencies to develop

transportation plans based on least-cost principles. The state defines least-cost planning as “[a] planning analysis that identifies the most *cost-effective, multimodal project* and *program* investment strategies, while taking into account *supply and demand, full life cycle costs* and project and program *externalities*.”⁸⁵ (emphasis in original) Importantly, Washington’s approach does not value “mobility for mobility’s sake” but rather requires the consideration of both programs to increase transportation supply and those that reduce demand as legitimate solutions to transportation challenges.

Tying transportation investments to the availability of so-called “user fee” revenue distorts transportation decision-making, ignoring the broader and indirect benefits and costs from different transportation investments, and asserting the primacy of only one consideration: the ability to raise money for the project through user-related fees.

Deciding How to Pay for Transportation

Transportation investments should ideally be financed based on a broad assessment of the costs and benefits of the investment. Gasoline taxes, transit fares, license fees and tolls, among other “user fees,” are part of the picture. So too, however, are general government revenues, parking fees, impact fees on developers, value-capture mechanisms that reap some of the increased value of land near transportation infrastructure, and revenues from programs that put a price on greenhouse gas pollutants.

But divvying up the bill for transportation investments solely on the basis of the benefits received by various constituencies is not likely to be a perfect solution. Government may choose, for example, to subsidize some forms of transportation in-

frastructure to achieve other public policy ends. These subsidies may take the form of free transit passes for students, dial-a-ride service for the disabled, the improvement

of a road that provides access to an isolated rural community, or improvements in transportation infrastructure designed to attract job-creating industries. In other

How Best to Price Transportation

The questions of how to pay for transportation and what price to put on transportation services are usually linked in the minds of the public and decision-makers. They shouldn't be. When setting prices on transportation services, the primary concern must be getting the best possible use out of the public's investment in infrastructure, not necessarily maximizing revenue from users.

Economic principles suggest that in a competitive market, the price of a good or service will align with its "marginal cost"—that is the cost of producing one additional unit of the good or service. Transit service provides a good example of how this works in practice. For a transit service that is operating near its capacity on a busy weekday morning, the costs of serving an additional passenger may be very high—the transit agency may need to run more buses and hire more drivers or even invest in a new rail line to serve the additional demand. The price that the agency charges for these trips should ideally be higher than the price charged for trips in the middle of a weekday afternoon, where there may be idle capacity just waiting to be used and where the cost of accommodating an additional passenger on a half-empty bus is close to zero.

In addition, prices should reflect the total costs imposed by additional users—including costs on the rest of society. A weekday afternoon bus rider may impose little in the way of external costs, but a weekday afternoon driver will, in the form of air pollution, oil consumption, and a range of other impacts. In this situation, it is societally beneficial to encourage people to use transit in the form of lower fares for off-peak transit riders—even if doing so violates common notions of charging people for their "fair share" of the cost of the infrastructure.

In the case of automobile travel, an optimal pricing system might include congestion pricing, fees for emissions of greenhouse gases and other air pollutants, an end to free or subsidized parking, and the shifting of some costs (such as auto insurance) from lump-sum charges to charges that vary based on the number of miles driven. For many transit systems, it might make sense to move in the opposite direction—toward pricing systems that encourage ridership through lower fares and that recognize the benefits that transit riders deliver to drivers and the remainder of society through a shifting of motor vehicle charges to transit. Under such a system, the burden of paying for transit might shift toward "lump sum" charges—tax revenue, revenues from pass sales, and subscription fees from major institutions, for example. Meanwhile, transit systems without spare capacity might raise fares on crowded lines or during rush hours.

The point in this discussion is that the notion that simply divvying up the cost of transportation infrastructure evenly among the users of that infrastructure is likely to lead to less-than-ideal results.

words, government may legitimately decide that the capacity of a particular subset of the public to pay their “fair share” of the costs of a given investment should not stand in the way of the broader benefits of that investment to the rest of society—or the realization of simple fairness in ensuring that the broadest possible cross-section of Americans is able to benefit from investments in the transportation system.

Gasoline Taxes Shouldn't Be Dedicated to Roads

In virtually any vision of the nation's transportation future, highways will continue to play a critical role in getting Americans where they need to go. With many of the nation's highways and bridges aging—and in the wake of years of deferred maintenance—there will be no shortage of worthwhile highway projects for the nation to invest in, even if the goal is simply to maintain the infrastructure we already have.

What is the harm, then, in simply dedicating revenue from gasoline taxes to highways?

The harm is that dedication of gasoline

tax revenue to highway projects inherently prejudices transportation decision-making in favor of highways. In the current atmosphere of massive state budget shortfalls and federal budget deficits, there is simply no way to ensure that other transportation priorities receive adequate investment if highways get first dibs on dedicated funding. If the choice facing local decision-makers, for example, is to build or expand a highway with federal funding or do nothing at all, those decision-makers are likely to build the highway, even if other, harder-to-fund transportation solutions would provide greater overall benefits.

If gasoline tax revenues are to be dedicated to transportation, *all* transportation modes must have the ability to compete for that funding on a level playing field with consideration of long-term benefits. Just as there are ample opportunities for meaningful investment in highway repair, so too are there many opportunities for worthwhile investments in transit, high-speed rail, and active transportation projects such as bike lanes and pedestrian facilities, as well as investment in technologies and practices—such as sound barriers and traffic calming—that ensure that our transportation infrastructure melds itself effectively into our communities.

Conclusion

To develop sensible transportation policy in the United States for the future, we need to face a few important truths.

The first truth is that the “user fee/highways pay for themselves” story that highway advocates promote to achieve their desired policy outcomes is a myth. Gasoline taxes aren’t “user fees.” And gas taxes and other vehicle charges have rarely paid the full cost of building and maintaining highways—and have never paid for the full costs of highway construction and driving to the rest of society.

The second truth is that the “user fee/highways pay for themselves” model is even less likely to work in the future—at least at the levels of gasoline taxation that have become familiar to Americans. Americans are driving less than they did a few years ago and are doing so in more fuel-efficient vehicles. There is little reason to believe that the steady growth in vehicle travel that characterized the post-War period will continue in the 21st century, due to changing demographics and shifting consumer preferences, not to mention the prospect of higher oil prices. Finally, whereas in the post-War period America increasingly built

new highways that spurred more driving and created more gas tax revenue, the most costly challenge facing the nation now is in repairing and reconstructing our existing highway network. The increasing taxpayer bailouts of the Highway Trust Fund in recent years are just a harbinger of the problems to come—the “user fee/highways pay for themselves” model, to the extent it ever worked at all, is irretrievably broken.

The final truth is that, in many ways, the “user fee/highways pay for themselves” model is a *bad model* for transportation policy. It does a poor job of approximating the costs imposed by and benefits gained from various transportation investments. It ensures that transportation projects in general, and highway projects in particular, receive a guaranteed source of funding, regardless of whether more pressing priorities exist elsewhere. And it creates the presumption that transportation investments will be made based on geography and other factors that have nothing to do with the benefits the project will deliver for society—a recipe for wasteful, pork-barrel spending.

If America is to make the right transportation choices for the 21st century, we

need to rely less on myths and outdated assumptions and instead make clear-headed decisions about which transportation investments will deliver the greatest benefits for the nation in the years ahead.

Different transportation advocates, pundits and lobbyists will offer very different visions of what America's future transportation system should look like—and the debate among those points of view is one very much worth having. How important, for example, is creation of a high-speed rail network? Should we engage in a major program of highway expansion at a time of increasing concern about oil supplies and the environment? How should transportation and questions about the future structure of our communities intersect? These are the

types of questions Americans should be asking—particularly as the nation attempts to meet its transportation needs during economically troubled times.

We also need to have a debate about how America should fund future transportation investments, particularly given public reticence to increase the gasoline tax.

A real debate about America's transportation future is not aided, however, by outdated—and often misleading—stories about how America's transportation funding system has worked historically and works today.

The time has come to put these myths to rest, once and for all, so that the nation can have a meaningful and well-grounded debate about where to go next.

Notes

1 This argument is made by analysts such as the Tax Foundation's Jonathan Williams (see: Jonathan Williams, Tax Foundation, *Paying at the Pump: Gasoline Taxes in America*, October 2007). Evidence of public opinion from the early days of the gasoline tax is, of course, anecdotal, though there are alternative explanations for why the gasoline tax engendered little resistance at the time. According to John J. Jakle and Keith A. Sculle in their book, *Motoring*, "The gasoline tax, in several ways, proved too low to engender resistance. Social classes benefiting from the tax in the form of good roads were prosperous in the 1920s, when the tax began to be levied; thus, vehicle owners felt able to pay the new tax. ... But, most importantly ... gasoline prices declined simultaneously with the onset of the gasoline tax as the result of new gasoline-processing technologies." See: John A. Jakle and Keith A. Sculle, *Motoring: The Highway Experience in America*, University of Georgia Press, 2008.

2 Highway advocates often conflate—either deliberately or accidentally—true “pork barrel” transportation spending (i.e., earmarks) with investments of gasoline tax revenue in transit and other transportation alternatives. As described on page 28, when earmarked projects (which are just as likely to be highways as transit lines) are excluded, the

federal funding process for new or expanded highways is significantly less rigorous, less fact-based, and more open to political meddling than the funding process for new transit lines. For examples of how the “pork barrel” spending and “diversion” of funding to transit arguments get conflated, see Jonathan Williams, Tax Foundation, *Paying at the Pump: Gasoline Taxes in America*, October 2007; and Robert W. Poole, Jr., and Adrian T. Moore, Reason Foundation, *Restoring Trust in the Highway Trust Fund*, August 2010.

3 See U.S. Government Accountability Office, *Federal User Fees: A Design Guide*, May 2008.

4 Except for a few drivers of non-gasoline powered vehicles.

5 U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2008*, Table HM-260, January 2010.

6 Highway advocates sometimes make a distinction between local roads—which are said to provide access to properties—and larger highways. This is the rationale given for the use of property taxes to pay for local roads and streets and gasoline taxes to pay for other highways. It does not account for the fact that users of these local roads often “double pay” for the privilege in the form

of gasoline taxes and property taxes. Some states do transfer some state gas tax revenue to local governments to assist them with road and bridge repair—these transfers amounted to \$14 billion in 2008, but were very unevenly dispersed among states. In a few cases, local governments also assess gasoline taxes. (Source, Federal Highway Administration, *Highway Statistics 2008*, Table SF-5A, February 2010.)

7 U.S. Department of Transportation, Federal Highway Administration, *SAFETEA-LU: Fact Sheets on Highway Provisions: Equity Bonus Program*, downloaded from www.fhwa.dot.gov/safetealu/factsheets/equitybonus.htm, 3 December 2010.

8 For more details on how highway financing policies lead to the construction of new highways while ignoring repair and reconstruction of existing infrastructure, see Travis Madsen, Benjamin Davis and Phineas Baxandall, *Road Work Ahead: Holding Government Accountable for Fixing America's Roads and Bridges*, U.S. PIRG Education Fund, April 2010.

9 See note 3.

10 Ibid.

11 In some cases, regulatory fees may be deducted as necessary business expenses.

12 Note: Five states—Alaska, Delaware, Montana, New Hampshire and Oregon—do not have a state sales tax. Also, New Jersey and Connecticut assess a gross receipts tax on the first sale of petroleum products; these are not counted as sales taxes. See American Petroleum Institute, *Notes to State Motor Fuel Excise and Other Taxes*, effective 1 October 2010; John Williams, Legislative Analyst, Minnesota House of Representatives Research Department, *Survey of State and Local Gasoline Taxes*, updated January 2002.

13 Sales tax exemption: American Petroleum Institute, *Notes to State Motor Fuel Excise and Other Taxes*, effective 1 October 2010; John Williams, Legislative Analyst, Minnesota House of Representatives Research Department, *Survey of State and Local Gasoline Taxes*, updated January 2002. Highway dedication: Robert Puentes and Ryan Prince,

Brookings Institution, Center on Urban and Metropolitan Policy, *Fueling Transportation Finance: A Primer on the Gas Tax*, March 2003. Note: There may be some cases in which states listed in the Brookings paper as dedicating highway “user fee” revenue to highways may devote some revenue to transit or general purposes. In some cases (for example, New Mexico), the Brookings paper lists states as dedicating gasoline tax revenue to highways that may only dedicate a specific share of that revenue to road projects. In addition, some states may make investments in transit that fit within the precise wording of the statutory or constitutional dedications in their states.

14 Data are from American Petroleum Institute, *Notes to State Motor Fuel Excise and Other Taxes*, effective 1 October 2010, and U.S. Department of Transportation, Federal Highway Administration, *June 2010 Motor Fuel Reported by States*, 28 September 2010. “Amount ‘diverted’ from general funds” does not include supplemental fees on gasoline, such as fees that fund leaking underground storage tank cleanup or other environmental fees, or local option gasoline taxes. New Jersey’s and Connecticut’s figures includes the state’s gross receipts tax. “Amount ‘diverted’ ...” was calculated by multiplying the state’s general sales tax rate (obtained from Federation of Tax Administrators, *State Sales Tax Rates and Food & Drug Exemptions*, February 2010) by the retail price of regular unleaded gasoline in June 2010 from the Federal Highway Administration’s *Motor Fuel* report (minus state and federal gasoline tax rates) as obtained from the Federal Highway Administration and the American Petroleum Institute. “Extra fee” was calculated by subtracting the “Amount ‘diverted’” from the state’s motor gasoline excise tax rate. See note 13 for details on dedication of gasoline tax revenues to highways by state.

15 Highway advocates often trumpet the user fee conception of the gasoline tax as the realization of universally agreed-upon economic principles. Jonathan Williams of the Tax Foundation, for example, proclaims that “Gasoline taxes are often mentioned as the best form of taxation from an economic

perspective because they provide a system of road funding by simply charging road users when they fill up their tanks.” (Jonathan Williams, Tax Foundation, *Paying at the Pump: Gasoline Taxes in America*, October 2007.) As noted at various points throughout this paper, the user fee model as applied to the gasoline tax and the usage of gas tax revenues in the United States actually violates commonly held principles of public finance, including the aversion to earmarking of revenues for specific purposes and—through its failure to incorporate the full benefits and costs of highways—the benefits principle of taxation itself.

16 See note 14.

17 Even so, tolls do not cover the external costs of driving, and toll roads often benefit from low-cost public financing, which reduces the cost of toll roads versus private investment (though not other forms of public infrastructure).

18 See Kari Wohlschegel and Tony Dutzik, Frontier Group, and Phineas Baxandall, U.S. PIRG Education Fund, *Private Roads, Public Costs: The Facts About Toll Road Privatization and How to Protect the Public*, Spring 2009.

19 Richard F. Weingroff, “Federal Aid Highway Act of 1956: Creating the Interstate System,” *Public Roads*, Summer 1996.

20 “Business: Private Toll Roads Show the Way,” *TIME*, 28 February 1955.

21 Robert W. Poole, Jr., and Adrian T. Moore, Reason Foundation, *Restoring Trust in the Highway Trust Fund*, August 2010.

22 U.S. Department of Transportation, Federal Highway Administration, *The Highway Trust Fund*, downloaded from www.fhwa.dot.gov/reports/financingfederalaid/fund.htm, 3 December 2010.

23 Louis Alan Talley, Congressional Research Service, *The Federal Excise Tax on Gasoline and the Highway Trust Fund: A Short History*, 29 March 2000.

24 See: Federal Aid Highway Act of 1956, Title II, Sec. 209 (c)(1), which reads: “There is hereby appropriated to the Trust Fund, out of any money in the Treasury not otherwise appropriated, amounts equivalent to the

following percentages of the taxes received in the Treasury *before July 1, 1972*, under the following provisions of the Internal Revenue Code of 1954 (or under the corresponding provisions of prior revenue laws) — (A) 100 percent of the taxes received after June 30, 1956, under sections 4041 (taxes on diesel fuel and special motor fuels), 4071 (a) (4) (tax on tread rubber), and 4081 (tax on gasoline).” (emphasis added) See also: U.S. Department of Transportation, Federal Highway Administration, *The Highway Trust Fund*, downloaded from www.fhwa.dot.gov/reports/financingfederalaid/fund.htm, 3 December 2010.

25 Jonathan Williams, Tax Foundation, *Paying at the Pump: Gasoline Taxes in America*, October 2007.

26 American Highway Users Alliance, *Historical Milestones: Celebrating 75 Years of Advocacy*, August 2007.

27 The penalty for reducing expenditures on highways was a loss of one-third of federal highway money. Source: U.S. Department of Transportation, Federal Highway Administration, “Clearly Vicious as a Matter of Policy”: *The Fight Against Federal-Aid*, downloaded from www.fhwa.dot.gov/infrastructure/hwyhist02.cfm, 3 December 2010.

28 N. Kent Bramlett, Federal Highway Administration, *The Evolution of the Highway-User Charge Principle*, December 1982.

29 See note 25.

30 Robert Puentes and Ryan Prince, Brookings Institution, Center on Urban and Metropolitan Policy, *Fueling Transportation Finance: A Primer on the Gas Tax*, March 2003.

31 See note 30.

32 Minnesota: Jeffrey Brown, “Reconsider the Gas Tax: Paying for What You Get,” *Access*, Fall 2001; Colorado: State of Colorado, *Colorado Ballot History, 1912 to Present*, downloaded from www.colorado.gov, 3 December 2010; New Hampshire: Supreme Court of New Hampshire, Opinion in *New Hampshire Motor Transport Association v. The State of New Hampshire*, 19 April 2004; Wash-

ington: BallotPedia, *Washington Vehicle Taxes for Road Fund, Amendment 18 (1944)*, downloaded from ballotpedia.org/wiki/index.php/Washington_Vehicle_Taxes_for_Road_Fund,_Amendment_18_%281944%29, 3 December 2010.

33 Frank Hobbs and Nicole Stoops, U.S. Census Bureau, *Demographic Trends in the 20th Century*, November 2002.

34 U.S. petroleum imports roughly doubled between 1969 and 1973: U.S. Department of Energy, Energy Information Administration, *Annual Energy Review 2009*, 19 August 2010.

35 Supreme Court of New Hampshire, Opinion in *New Hampshire Motor Transport Association v. The State of New Hampshire*, 19 April 2004.

36 Jenny Manning, “Gas Tax Lawsuit to High Court,” *Mercer Island Reporter*, 29 September 2010.

37 National Conference of State Legislatures, *Principles of a High-Quality State Revenue System*, updated June 2007.

38 American Dream Coalition, *Congestion Myths*, downloaded from americandreamcoalition.org/highways/congestionmyths.html, 3 December 2010.

39 Randal O’Toole, Cato Institute, *The Citizens’ Guide to Transportation Reauthorization*, 10 December 2009.

40 Lisa Caruso, “Is Obama on the Right Track?” *National Journal*, 15 May 2010.

41 Reason Foundation, “High-Speed Rail Hitting Obstacles,” *Surface Transportation Innovations*, November 2010.

42 U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2008*, Table HM-60, October 2009.

43 This estimate is extremely conservative and is based on the following sources and calculations. All data on user fee revenue and spending on highways were obtained from U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics* series of reports. The net subsidy to highways in any given year was obtained by subtracting

the sum of user fees and investment revenue from total disbursements for highways. This method excludes both bond issue proceeds and bond retirements. It also does not include the inherent subsidy involved in exempting gasoline sales from state general sales taxes (see page 8). Adjustments for inflation were based on the gross domestic product implicit price deflator, obtained from the Federal Reserve Bank of St. Louis, 14 October 2010.

44 Ibid.

45 Some argue that these local roads provide an “access function” and should be paid for from property tax revenue rather than gasoline taxes. However, drivers using these roads still pay gasoline taxes, which benefit users of other highway infrastructure.

46 U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2008*, Table HF-10, February 2010.

47 Cambridge Systematics, *The Highway Construction Equity Gap: Final Report*, prepared for the Texas Department of Transportation, February 2008.

48 Pew Charitable Trusts, *SubsidyScope: Analysis Finds Shifting Trends in Highway Funding: User Fees Make Up Decreasing Share*, updated 25 November 2009. Pew’s methodology raises the question of how to describe bond revenue in assessing the degree to which highways “pay for themselves.” On one hand, because bonds may have been retired with “user fee” revenue in the past, and may be retired with “user fee” revenue in the future, one can argue that bond revenue should be excluded from the calculation or incorporated with the “user revenue” category. We took the former, very conservative approach in our calculation of the net subsidy to highways over time on page 16, excluding both bond revenues and retirements from our calculation of the net subsidy to highways. However, there are also good reasons to treat bond revenue separately. First, the Interstate highway program—described by many highway advocates as the ideal of the “user fee/highways pay for themselves” model—was initially envisioned

as a pay-as-you-go system that would not be reliant on bonds. The reliance on bonds by state and local governments is, in some ways, a deviation from this “ideal” system and deserves separate treatment. Second, there is no guarantee that user fee revenue will continue to be sufficient to repay existing bonds over time (due to factors described beginning on page 20), leaving open the possibility of diversion of general fund revenues to the task.

49 Ibid.

50 Robert Puentes and Adie Tomer, Brookings Institution, *Untangling Transportation Funding*, 26 February 2009.

51 See note 21.

52 United States Government, *Recovery.gov*, Agency Reported Data for Department of Transportation, downloaded from www.recovery.gov/Transparency/Agency/reporting/agency_reporting3.aspx?agency_code=69, 3 December 2010. Incredibly, highway advocates claim that the infusion of general fund revenues into the highway trust funds does not represent a subsidy but rather a “repayment” of “diversions” previously made. An entry in Randal O’Toole’s *Anti-planner* blog states: “These supplements do not represent subsidies to highways. Congress diverts roughly 20 to 30 percent of highway user fees, or about \$8 to \$12 billion a year, to transit and other programs. Without those diversions, highways would be in better shape and no supplements from general funds would be needed.” (Anti-planner, *Federal Highway Funds Frozen*, 3 March 2010.) As described in this paper, even if all gasoline taxes and other “user fees” were used on highways, they would still fail to cover the full cost of highways. In addition, it is unlikely that an *ex post facto* reckoning of the costs of highways would be advantageous to highway advocates’ cause, as it would require not only the refunding of federal gas tax revenue collected from drivers on local streets and roads that are not eligible for federal aid, but would also include compensation for environmental, health and other damages caused by highway construction and driving.

53 See note 48.

54 Note: In 1999, \$29.8 billion went to highways because the total tax collected was \$35.3 billion, and \$5.5 billion went to public transit. In 2008, \$30.6 billion went to highways because the total tax collected was \$35.9 billion, and \$5.2 billion went to public transit. Federal Highway Administration, *Highway Statistics 2008*, Table FE-210, September 2009.

55 US Bureau of Labor Statistics, *Inflation Calculator*, downloaded from data.bls.gov/cgi-bin/cpicalc.pl, 4 October 2010.

56 U.S. Department of Transportation, Federal Highway Administration, *Traffic Volume Trends*, August 2010.

57 U.S. Environmental Protection Agency, *Light-Duty Automotive Technology, Carbon Dioxide Emissions and Fuel Economy Trends: 1975 through 2010*, November 2010.

58 Mark A. Delucchi, “Do Motor-Vehicle Users in the U.S. Pay Their Own Way?” *Transportation Research Part A*, 41: 982-1003, 2007.

59 Richard Weingroff, Federal Highway Administration, *Ask the Rambler: When Did the Federal Government Begin Collecting the Gas Tax?* downloaded from www.fhwa.dot.gov/infrastructure/gastax.cfm, 3 December 2010.

60 Todd Alexander Litman, Victoria Transport Policy Institute, *Transportation Cost and Benefit Analysis: Techniques, Estimates and Implications*, Second Edition, 2009.

61 Ian W.H. Parry, Margaret Walls and Winston Harrington, “Automobile Externalities and Policies,” *Journal of Economic Literature*, 45: 373-399, June 2007.

62 See Brad Heavner, MaryPIRG Foundation, *Paving the Way: How Highway Construction Has Contributed to Sprawl in Maryland*, November 2000.

63 Robert Puentes and Adie Tomer, Brookings Institution Metropolitan Policy Program, *The Road ... Less Traveled: An Analysis of Vehicle Miles Traveled Trends in the U.S.*, December 2008.

64 See note 56.

65 Ibid.

- 66 Jeffery Memmott, U.S. Department of Transportation, Bureau of Transportation Statistics, *Trends in Personal Income and Passenger Vehicle Miles*, October 2007.
- 67 Todd Litman, Victoria Transport Policy Institute, *The Future Isn't What it Used to Be: Changing Trends and Their Implications for Transport Planning*, 12 November 2010.
- 68 Lester R. Brown, Earth Policy Institute, *U.S. Car Fleet Shrunk by Four Million in 2009—After a Century of Growth*, *U.S. Fleet Entering an Era of Decline*, 6 January 2010.
- 69 1969 data from: U.S. Census Bureau, *Statistical Abstract of the United States 1970*, July 1970; 2010 data from U.S. Census Bureau, *Projections of the Population by Selected Age Groups and Sex for the United States: 2010 to 2050*, downloaded from www.census.gov, 29 November 2010.
- 70 U.S. Census Bureau, *Projections of the Population by Selected Age Groups and Sex for the United States: 2010 to 2050*, downloaded from www.census.gov, 29 November 2010.
- 71 See note 67.
- 72 See note 68.
- 73 Jack Neff, “Is Digital Revolution Driving Decline in U.S. Car Culture?” *Advertising Age*, 31 May 2010.
- 74 See note 67.
- 75 GWL Realty Advisors, *Drivers of Apartment Living in Canada for the 21st Century*, September 2010.
- 76 Randal O’Toole, “Rules for Infrastructure Stimulus,” *The Washington Times*, 16 February 2009.
- 77 See note 21.
- 78 Ken Orski, “Two Promising New Proposals for Solving the Fiscal Shortfall,” *Innovation NewsBriefs*, 5 August 2010.
- 79 See note 21.
- 80 U.S. Department of Transportation, Federal Highway Administration, *Highway Statistics 2008*, Table VM-202, December 2009.
- 81 See note 21.
- 82 By this logic, any form of taxation for publicly funded infrastructure other than that funded by “user fees” is “pure socialism”—an extreme position even for a libertarian. Source: The Antiplanner, *Federal Highway Funds Frozen*, 3 March 2010.
- 83 Wendell Cox and Ronald Utt, Heritage Foundation, *Federal Transportation Programs Shortchange Motorists: Update of a US DOT Study*, 8 June 2009.
- 84 See, for example, Phineas Baxandall, U.S. PIRG Education Fund, Tony Dutzik and Joshua Hoen, Frontier Group, *A Better Way to Go: Meeting America’s 21st Century Transportation Challenges with Modern Public Transit*, March 2008.
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