Eno Center for Transportation

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DECEMBER 2014

HOW WE PAY FOR TRANSPORTATION

The Life and Death of the Highway Trust Fund

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TABLE OF CONTENTS

ACKNOWLEDGEMENTS

The challenge of how to fund the federal surface transportation program in the United States has been stymying policy makers and analysts for over a decade. But the default solution – raising the gas tax – seemed so obvious and simple that no further analysis was necessary. However, as the value of the gas tax continued to fall and the trend of infusing the Highway Trust Fund (HTF) with general funds became the norm, it was time to take another critical look at the program to determine if there were viable, alternative methods for sustainably funding the federal surface transportation contribution in the United States.

The premise of this research was inspired in part by one of the most creative thinkers in transportation – former Louisiana and Rhode Island Department of Transportation head Bill Ankner. Since the early 1990s, Bill has been exploring the concept of funding the HTF with revenues from income tax. As the use of general funds for federal transportation became more persistent, it became harder to ignore Bill's logical ideas. More work was needed, however, to flesh out this idea and others for moving beyond our existing structure.

Thankfully, in 2013 the Rockefeller Foundation generously agreed to fund this research. Without their support, and particularly the open mind of Nicholas Turner, this research would not have been possible and we thank them profusely. This paper also could not have been written without extensive volunteer support from transportation experts from across the globe. While gathering the details of how each of our peer countries fund their surface transportation proved to be a laborious task, our generous global colleagues offered their time, free of cost, to help us compile the most accurate data possible. We would like to thank Heiner Bente, David Hammond, Micah Himmel, Craig Hutton, Phillip Lipscy, Brendan Lyon, Ryan Nalty, Judith Ritchie, Shugo Shinohara, Taguchi Yoshiro. Our international case studies would not have been possible without their support.

We would also like to thank those who reviewed our entire report, bringing their expertise of the history of surface transportation funding policy. Many thanks to Jeff Davis, Doug Holtz-Eakin, Richard Mudge, Eric Peterson, Bob Poole, and Brian Taylor. Your insights and interpretations of the experience in the United States and abroad were instrumental in shaping our final document.

Thank you to everyone that played an integral supporting role in making this publication a reality. The staff of the Eno Center for Transportation are the authors of this paper. We hope that this work will help to inform the surface transportation funding conversation at the federal level, and help to guide U.S. policy makers down the path of developing a sustainable funding solution.

Sincerely,

Dr. Joshua L. Schank, President and CEO


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EXECUTIVE SUMMARY

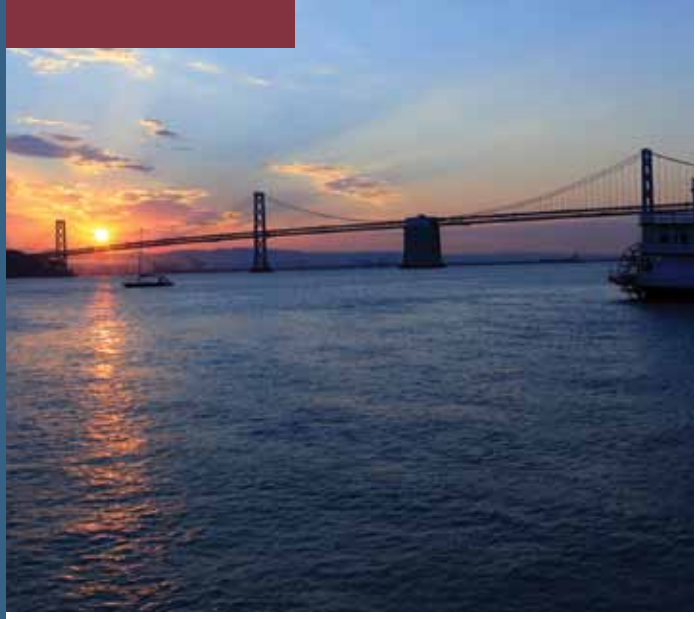
The current federal program for funding surface transportation infrastructure in the United States is broken. Since 2008, the U.S. Highway Trust Fund (HTF) has repeatedly been on the brink of insolvency, necessitating five infusions from the U.S. Treasury's General Fund. Many solutions have been proposed to stabilize funding for the federal surface transportation program, but each has confronted substantial political barriers. This study details the circumstances that have led the U.S. transportation program to its current funding situation and explores how other nations have created sustainable mechanisms for ensuring adequate national-level investment in surface transportation systems. The findings indicate that while there are reasons the HTF structure in the United States has persisted, other nations have successfully developed durable programs financed through general funds. This research also suggests that embracing a funding model similar to that of other countries could help restore funding consistency to the U.S. program.

Currently, excise taxes on gasoline and diesel fuel are deposited into the HTF; grants from the HTF are then distributed to state and local transportation authorities through the federal surface transportation program. Historically, fuel taxes were occasionally increased by Congress, and these increases, combined with steady growth in vehicle miles traveled (VMT), helped to ensure funding growth. Since 1993, however, the federal gas tax has remained unchanged at 18.4 cents per gallon. And while many transportation stakeholder groups have been vocal in their support for an increase in the gas tax, Congress and two presidential administrations have demonstrated an unwillingness to raise the tax.

In 2008, the HTF was on the brink of insolvency for the first time in its history. This situation was in part caused by an explicit policy decision to spend down the remaining HTF balance to support a robust spending level in the surface transportation reauthorization bill passed in 2005. In addition, in part due to the recession and rising gasoline prices, Americans were driving less. With these changes, Congress was in a position where they would have to reduce transportation spending, increase gas tax revenues, or identify an alternative solution and doing so in more fuel-efficient vehicles. Congress responded with a stopgap measure, infusing $8 billion from the General Fund into the HTF. Similar infusions were made in 2009, 2010, 2012, and now 2014.

Beyond these funding challenges, fundamental problems also remain in the way the U.S. government makes transportation investment decisions. Many of these well-documented problems are rooted in the relationship between the way funds are raised and the way they are spent. A tendency to approach transportation planning and investment in terms of modal divisions (e.g., public transit vs. highways) and tensions over how much federal funding is returned to states relative to how much they pay into the HTF in gas tax revenues (also known as the donor–donee issue) are two examples of systemic problems with the existing surface transportation program that are directly related to the way the program is funded. Instead of allocating funds to states or programs that target a particular federal interest or goal, federal funds are distributed to states and transit authorities by formula and are designated for use on specific modes. At the same time, the donor–donee issue leads to persistent battles among members of Congress over whether their states are receiving a "fair" share of HTF funding relative to their gas tax contributions. These challenges have historically overshadowed substantive arguments over policy and hindered the tying of federal funds to national goals or performance measures.

Even though the current structure is not working, Congress and stakeholders have little incentive to change it. In fact, many groups have worked tirelessly to maintain the status quo. Within Congress there are eight committees between the House of Representatives and the Senate that influence how transportation money is spent. And while a moratorium on earmarks has diminished



individual members' ability to send money home to their districts, those who currently hold the power of the purse are unlikely to support reforms that would diminish their control over federal transportation funds. The stakeholder community, which includes state departments of transportation, transit agencies, construction and engineering firms, and trade associations, among others, has a strong interest in ensuring a steady flow of federal funding to state projects. A departure from the current funding structure poses a disruptive threat to a system that has delivered billions of dollars since 1956.

Supporters of the current trust fund structure can also point to economic theory, which has long endorsed the core principle of user pay. User pay is the idea that equity and efficiency objectives are best served if the users of a system—who are presumably the primary beneficiaries of the system (in this case, transportation infrastructure)—pay as directly as possible for the construction, operation, and upkeep of the system. Theoretically, the fee sends a price signal to users that discourages overconsumption and helps minimize externalities, such as congestion and emissions. From a policy perspective, users' willingness to pay the fee also sends a useful signal about how they value the system. Thus, the total amount of funding collected through the fee defines the appropriate amount to spend on the system. Finally, user fees can be seen as a more equitable means of funding transportation compared to other revenue mechanisms.

While these theories have merits, they fall short in practice, at least in the context of the current federal surface transportation program. The gasoline tax is an indirect user fee and at its current level, which is low relative to the price fluctuations consumers regularly see at the gas pump, has virtually no effect on demand. Moreover, since 1991, Congress has repeatedly violated the principle that revenue collections through the gas tax should define an overall floor and ceiling for federal transportation spending (in the sense that no more and no less than the full amount of cumulative motor fuel and truck tax proceeds should be directed to transportation projects). Congress first violated this principle by dedicating a portion of gas tax revenues to deficit reduction in the 1990s and, then more recently, by bailing out the HTF with infusions from the General Fund. Finally, in the context of a highly complex and interdependent transportation network, efforts to promote equity in the distribution of HTF funding have encouraged a fragmented approach to transportation investment in which the focus is on modal divisions and geographic formulas rather than on funding the projects that would most effectively advance national transportation objectives.

The current crisis in the U.S. program raises the question of whether peer countries face similar issues in funding their transportation systems at the national level, and whether there is anything that can be learned from their experiences. Research conducted for this study included an exploration of national-level surface transportation programs in Australia, Canada, Germany, Japan, and the United Kingdom to see 1) how these countries ensure adequate, sustained transportation investment and 2) how their funding approach influences their investment decisions.

While these countries vary from the United States in terms of physical size and population, the results indicate that these countries have reasonably effective methods for distributing funding to states and localities; in addition, they all fund their national transportation programs through their general national government budget. No fuel taxes are directly hypothecated for transportation. Comparing the U.S. model to international norms makes it clear that a trust fund is not the only viable option for sustainably and predictably funding surface transportation at the national level. This analysis demonstrates that a hypothecated trust fund is not the only option for consistently funding surface transportation, and that peer countries have demonstrated that alternative options may be just as sustainable and effective.

Given the current situation in the United States, it is clear that maintaining the status quo will lead to continued uncertainty about future transportation funding and will do nothing to address the structural challenges inherent in the existing federal program. Accordingly, the findings of this study highlights three potential solutions:

1. Adjust spending to match revenues;
2. Adopt a hybrid funding approach that relies on both general funds and gas tax revenues, or;
3. Eliminate the HTF and pay for surface transportation exclusively through the General Fund.

Solution 1: Adjust spending to reflect revenues

To align transportation spending with gas tax revenues, Congress has two choices: either 1) reduce spending to no more than current HTF receipts or 2) increase user fee revenues by as much as necessary to cover the desired level of spending. There is little indication that the current Congress or President (or for that matter any future Congress or President) has the appetite for either approach, with both parties vocally opposing an increase in the fuel tax. Adjusting spending to meet revenues, thus creating a smaller, more focused federal role in surface transportation, would shift a much larger share of financial responsibility onto the states and metropolitan areas. Previous research has demonstrated that reducing the federal role in transportation funding would likely diminish overall transportation investment (since it is unlikely that states would be able to replace all lost federal revenue) at a time when there is broad agreement that the United States should be investing more in transportation infrastructure, not less.

Solution 2: Adopt a hybrid funding approach that relies on both general funds and gas tax revenues

A second solution would be to codify the hybrid system that Congress has unintentionally created, but in a way that provides for predictable, long-term General Fund commitments. Politically, this approach would probably be the easiest lift. It represents the smallest change to the existing system but provides some potentially substantial benefits, including a sustainable funding stream and the opportunity to better target funding for transportation investments toward national goals.

Solution 3: Eliminate the Highway Trust Fund

A more permanent solution could be to move toward a system that is more in line with the approach taken by other developed countries that do not rely on gas taxes to fund transportation. Under this solution, the HTF would be dissolved and the entire surface transportation bill could be funded through the appropriations process. This scenario does not preclude the use of dedicated revenues—income or sales taxes for example—but those revenues would cease to be user fees and would no longer be deposited into a trust fund.

Any of the options above could represent a dramatic improvement over the existing system. However, based on our analysis Solution 3 deserves fair consideration as an effective long-term solution to our national transportation funding problem.

The patchwork of "fixes" that Congress has made to the HTF five times in the last six years should be taken as a clear sign that the United States needs a more sustainable method for funding its national transportation needs. By offering a comprehensive analysis of the current program's challenges and by reviewing the experience of peer countries, this paper offers a starting point for the substantive policy debate that will be needed to find a practical, politically pragmatic, and ultimately successful solution.

INTRODUCTION

The federal program that funds investments in the nation's surface transportation infrastructure—including highways, bridges, and public transit—is broken. The federal Highway Trust Fund (HTF), which provides grants to state and local transportation agencies for road and transit transportation projects, has faced regular funding shortfalls since 2008. This situation has created a state of perpetual uncertainty surrounding federal transportation funding. Substantial research and analysis has been conducted to explore potential solutions, but every effort to remedy the current situation has encountered considerable barriers.[1] Transportation system users and stakeholders have waited more than six years for Congress to find a long-term solution, but no current proposals appear promising.

This study begins from the premise that perhaps not all of the options for funding the federal surface transportation program have been fully explored. The solutions that have been proposed have typically assumed that the existing structure—a trust fund with dedicated revenues—would continue. Funding options that alter this fundamental structure have rarely been considered, despite the fact that the U.S. approach to funding transportation infrastructure is actually unique among developed nations. Most other industrialized nations use general funds to invest in their transportation programs and do not dedicate gas taxes to transportation.

For this study, Eno explored the circumstances that have led to the current funding crisis and analyzed the experience of several peer countries to better understand how other governments have or have not managed to create sufficient and reliable funding for their national surface transportation programs. The results of this analysis indicate that while there are reasons that the current HTF structure has persisted, and that there are perceived benefits to the current structure, there are alternative funding models that could provide clear and sustainable funding streams for the nation's surface transportation program. Further, this analysis suggests that acknowledging the role that general revenues already play in funding surface transportation needs would provide greater investment flexibility, strengthen federal transportation policy, and provide greater funding sustainability for the federal transportation program.

Methodology

The analysis in this report has three components. It begins with an overview of how the U.S. surface transportation program arrived at its current funding crisis, describing the recent history of funding shortfalls at the federal level and the attempts to remedy those shortfalls.

The next phase of the analysis provides a thorough account of the historical and political reasons why the current HTF structure—which was created to fund the construction of the Interstate Highway System on a cost-to-complete basis—persists despite recent failings. Though the Interstate Highway System was officially completed in 1991, the "user-pay" model created to fund its construction has persisted because of three key factors (beyond general inertia): committee structures in Congress, the power of existing stakeholders, and the influence of economic theory.

The third part of the analysis explores a set of international case studies. Based on a broad review of peer nations, Australia, Canada, Germany, Japan, and the United Kingdom were selected for further analysis as part of this report. Each of these countries is sufficiently similar to the United States and provides relevant insights into the following questions:

1. Are these countries able to ensure adequate investment in surface transportation? If so, how?
2. Are these countries able to ensure funding for surface transportation over a sustained period of time? If so, how?
3. How does the source of their investment revenues influence a nation's decision-making processes with respect to transportation infrastructure investments?

For this study, data from each of the selected countries was analyzed with the aim of providing substantive answers to each of these questions. The answers can help inform efforts to develop policy for the United States regarding a potential move to greater reliance on General Fund revenues to support surface transportation investments.

Background

There was a time when the U.S. interstate highway system, and the mechanism to finance it, was considered the "envy of the world."[2] In 1956 Congress created the HTF specifically to complete the Interstate Highway System while continuing some federal investment in the non-Interstate road system. Congress set federal excise taxes for gasoline, diesel fuel, and the trucking industry, and revenues from the taxes were deposited into the trust fund and distributed to states to construct the Interstate Highway System. This system worked fairly well for a time as Congress periodically increased the tax to account for investment needs, and a long period of steady growth in vehicle miles traveled ensured that the fund kept expanding.[3] Eventually, however, the Interstate was completed and the program and its purpose became less clear. Congress began to see the HTF primarily as an opportunity to bring home money to their districts, either by formula or earmarked for specific projects. When they started running out of money, without a specific purpose such as building an Interstate to point to, insolvency was hard to avoid.

As with many of the crises vying for attention in Washington, D.C., the problems of the federal surface transportation program have partly been created by Congress and are partly a product of larger societal changes. With no clear resolution in sight, the result is not only a substantial deficit in national infrastructure investment but also continued uncertainty about future funding among entities charged with planning, building, and maintaining the surface transportation system. This means the United States is underinvesting while also curtailing its ability to make effective long-term planning decisions based on expectations of sustainable funding.

The most consistently recommended solution to this chronic funding problem has been for Congress to increase the federal excise tax on gasoline, which has remained at 18.4 cents per gallon since 1993; 18.3 cents of this tax is dedicated to the HTF while 0.1 cent is dedicated to the Leaking Underground Storage Tank (LUST) Fund.[4] As many analysts and observers have pointed out, even a modest increase of ten cents per gallon would go a long way toward restoring sustainable funding at the federal level, at least in the short run.[5] While many reports, commissions, trade associations, and (typically former) elected and appointed officials have publicly supported a gas tax increase, prospects for implementing this solution continue to appear dim.[6] Since 2008, Congress has chosen to maintain surface transportation spending levels by supplementing gas tax revenues with General Fund revenues to make up the shortfall.[7] While this stopgap solution has not provided long-term certainty, it has prevented the drastic reduction in investment that would occur if transportation spending were brought in line with HTF revenues.[8]

Numerous other funding sources and solutions have been floated, but all have eventually run up against similar political barriers. Proposals such as implementing a VMT fee, creating and indexing a wholesale tax on gasoline, or introducing a carbon tax, would all require Congress to raise taxes for the explicit purpose of funding transportation. Getting Congress to vote for—and the President to sign off

on—an increase in taxes of any kind is challenging enough on its own, but raising taxes specifically to fund transportation has not been accomplished in over 30 years.

The United States is unique in its approach to funding transportation programs at the federal level. While most other developed countries have much higher fuel taxes, they do not typically dedicate the revenue from these taxes to transportation. Instead, other developed countries usually appropriate transportation funding from general revenues and do not tie the amount of funding appropriated to how much fuel tax revenue is collected. Historically, the advantage of the U.S. model has been that the federal government has been able to provide sustainable and increasing transportation funding over multiple decades, in part because of these dedicated fees. However, as recent events have demonstrated, the "user fee" trust fund model no longer provides the advantage of sustainable funding.

This observation naturally raises the idea that moving away from the current U.S. approach toward a funding model that is more in line with the rest of the world could potentially yield a more sustainable funding solution. Given that most of the developed world does not rely on dedicated user fees to finance its transportation needs, it is useful to look more closely at how other countries avoid underinvesting or overinvesting in transportation, continue to make long-term capital investments, and ensure fairness and equity.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OVERVIEW OF THE FUNDING PROBLEM

The Roots of the Shortfall

In the summer of 2008, the HTF was on the verge of being unable to meet its obligations on a timely basis.[9] Congress resolved this crisis by transferring $8 billion from the General Fund of the Treasury into the HTF, postponing the problem briefly. Faced with similar shortfalls in subsequent years, Congress repeated the process, transferring a total of $65.3 billion in other federal revenues to the HTF over the period from 2008 to the present.[10] Additional funds were also spent on transportation through the American Recovery and Reinvestment Act of 2008 (ARRA), but these were meant as a one-time infusion of General Fund dollars. Congress justified some of these transfers as repayments of monies owed to the HTF from the temporary use of gas tax revenues for deficit reduction and interest that had been diverted from the trust fund, both in the 1990s.[11] But the transfers were more accurately viewed as bailouts of a trust fund that Congress had not effectively managed.

The 2008 shortfall was the manifestation of an explicit policy put in place by Congress when it enacted the Safe Accountable Flexible Efficient Transportation Equity Act—A Legacy for Users (SAFETEA-LU) in 2005, which was developed with the expectation that, unless user fees were increased, the HTF would reach a shortfall by 2009 at the latest. That legislation reflected two conflicting objectives on the part of lawmakers. One was the desire to pass a large, six-year funding bill for highways and transit. From a policy perspective, the bill had to be large enough to meet the appropriate federal contribution to the nation's perceived transportation investment needs. From a political perspective, it had to be large enough to provide increased funding to the states and districts of a sufficient number of members of Congress. The second objective—of particular importance to then President George W. Bush—was to avoid increasing the gas tax.[12] Since Congress did not want to pass a smaller bill and President Bush would not approve a gas tax increase, a compromise was necessary. That compromise, eventually reached after several years of delay, was to pass a bill that authorized transportation spending at levels sufficient to satisfy members of Congress despite the lack of available funds to do so.

To make the numbers add up, at least temporarily, Congress employed two primary accounting tricks. One was to spend down the balance in the HTF. The Fund had maintained a balance for some time. Many experts recommended maintaining some balance to prevent a possible future funding crisis.[13] But Congress justified the balance spend-down on the grounds that the trust fund balances had been paid by motorists and truckers for the clearly stated purpose of surface transportation construction. The second gimmick was to "rescind" funding for the last year of SAFETEA-LU in hopes that the resulting shortfall would force a future Congress to raise the gas tax rather than cut highway funding in 2009, the last year of the bill.[14] This meant that SAFETEA-LU, while it was a six-year bill, only included funding for the first four years. In other words, Congress in 2005 created a problem for a future Congress by deliberately spending down the HTF and including funding cuts that a future Congress would never be able to accept. But putting the rescission into the bill allowed spending to continue at the levels needed to secure passage of SAFETEA-LU while avoiding an increase in gas tax revenues that would not have been acceptable to the President.

Not surprisingly, this plan did not work very well, but other developments further exacerbated the problem. First, raising the fuel tax actually became more difficult politically, rather than less difficult. As part of SAFETEA-LU, Congress created two commissions to study the revenue and funding issue in the hopes that an outside group could come up with a politically feasible solution. The National Surface Transportation Policy and Revenue Study Commission recommended that the federal fuel tax be increased by five to eight cents per gallon per year for five years and afterward be indexed to inflation, eventually moving towards a vehicle miles travelled charge.[15] The

National Surface Transportation Infrastructure Finance Commission recommended a larger increase of 10–15 cents per gallon.[16] Both recommendations were ignored by several Congresses and two Presidential administrations. President Bush remained steadfastly opposed to any increase in the gas tax, and when he left office, the United States was in a deep financial crisis. President Obama's subsequent campaign promise not to raise taxes on the middle class during a recession essentially ruled out a gas tax increase for several more years. By the time the recession was abating, the rise of the anti-tax Tea Party and the Republican takeover of the House of Representatives in 2010 further diminished prospects for an increase in the gas tax, even if the President had supported such an increase (which he did not).[17] In fact, President Obama is on record opposing a gas tax increase as recently as June 2014.[18]

Further exacerbating the problems of the HTF were a set of larger transportation-related factors. For one, VMT on a per capita basis peaked nationally in 2005.[19] It is not yet clear why this occurred or what will happen to VMT trends in the future, but the result has been a substantial downturn in HTF receipts. A second factor was the magnitude of the economic downturn that began in late 2007, which could not have been anticipated by revenue forecasters and which further diminished driving and HTF revenues. Finally, more fuel-efficient vehicles accelerated the decline in HTF revenues. These developments did not cause the HTF funding shortfall, but they did exacerbate it such that the Fund ran out of money in 2008, a year earlier than Congress had anticipated.

Recent Attempts to Raise the Gas Tax

Since 2008 there have been some glimmers of hope for those who support a gas tax increase. In 2009, Congressman Jim Oberstar (D-Minn.), then the Chair of the House Transportation and Infrastructure (T&I) Committee, proposed a $450 billion, six-year transportation bill with the hope that the House Ways and Means Committee might propose a gas tax increase to pay for it.[20] Instead, the Administration proposed an 18-month extension of current spending levels, rather than a gas tax increase, in line with President Obama's promise not to increase taxes during the recession. The extension eventually became law. By the time it expired, Mr. Oberstar had lost his election, the Democrats had lost their majority, and President Obama was no closer to proposing a gas tax increase as he looked towards his own re-election campaign.

Another glimmer of hope emerged when the Simpson-Bowles Commission, which was created by the President to develop strategies for reducing the deficit, included in its recommendations a gas tax increase to pay for transportation investment.[21] However, one key member of that Commission, Senator Max Baucus (D-Mont.), did not sign on to the Simpson-Bowles proposal and specifically cited the gas tax increase as the reason.[22] Senator Baucus' opinion on the matter carried particular weight because at the time he chaired both the Senate Finance Committee and the Highway Subcommittee of the Committee on Environment and Public Works; thus his support for an increase would likely have been necessary for the idea to gain political traction.

Nonetheless, the transportation community continued to hold out some hope that if Congress and the Administration could reach agreement on a "grand bargain" to tame the deficit, a gas tax increase might be included in such a deal. The timing seemed potentially auspicious because both Senator Barbara Boxer (D-Calif.), Chair of the Senate Environment and Public Works Committee, and John Mica (R-Fla.), then the new Chair of the T&I Committee,

were working on new transportation bills. Ultimately, however, efforts to reach a grand bargain on deficit reduction failed, largely for partisan political reasons that had little to do with transportation.[23]

In 2012, optimism about the prospects for a more durable funding solution emerged during legislative deliberations over a new two-year transportation bill, titled "Moving Ahead for Progress in the 21st Century" or MAP-21 (MAP-21 is the law governing federal surface transportation policy that, through the vehicle of a temporary extension, is in effect at the time of this writing). During debate in the Senate Finance Committee, two Republican senators indicated that the long-term funding problem for surface transportation should be addressed. They noted that indexing the fuel tax could address this problem, and Senators Mike Enzi (R-Wyo.) and Tom Coburn (R-Okla.) even submitted an amendment to that effect. But the amendment was withdrawn and the idea never gained traction. Since then, there has been no indication that Congress is capable of achieving a "grand bargain" or voting to index the gas tax. While at least four members of Congress—Earl Blumenauer (D-Ore.), Tom Carper (D-Del.), Bob Corker (R-Tenn.), and Chris Murphy (D-Conn.)—currently support action to increase the gas tax, their proposals have not gained momentum.[24] Meanwhile, the HTF has been bailed out numerous times since 2008, as shown in Table 1.

Numerous government, non-governmental, and corporate groups have expressed substantial concern regarding how existing revenues are being spent. Both of the national commissions that looked at surface transportation funding in recent years recommended major reforms aimed at making federal investments more performance-based, as did numerous other reports issued since the passage of SAFETEA-LU. Some of these reforms were included in MAP-21, which contained provisions calling for the adoption of national goals and performance measures, the consolidation of programs, and the expansion of innovative financing programs.

Table 1: Transfers to Highway Trust Fund from General Fund and Other Sources, 2008–2014[25]

Year	2008	2009	2010	2012	2014	Total
Transfer to HTF (in billions)	$8.017	$7.0	$19.5	$19.977	$10.765	$65.259

The Relationship Between Federal Transportation Funding and Spending

The gas tax and trust fund structure that served as a capable mechanism to construct the Interstate Highway System is no longer functioning effectively. Congress has been unable to pass a long-term surface transportation-funding bill since 2005 and the HTF has been bailed out numerous times due to repeated shortfalls. However, the funding side of the equation is only part of the problem.

However, these provisions were largely seen as initial steps toward a much-needed overhaul of the current system.[26] Fundamental challenges remain in the way that the federal government makes transportation investment decisions. This is due in part to the relationship between how funds are raised and how they are spent, and this relationship is well documented.[27] The following are two examples of large systemic problems with the existing program that may be directly related to funding.

Problem 1: Division of Federal Transportation Dollars Across Modes

In the 1980s, President Ronald Reagan and others described the gas tax as a "user fee" rather than a tax.[28] The user fee terminology in part reflects a desire to avoid using the loaded term "tax" but it also reflects the idea that road users are paying—through their purchases of gasoline and diesel fuel—to maintain and expand the transportation system they use.

A problem arises with this theory, however, when there is disagreement over how to define the "system" that the federal fuel tax is intended to support. One could interpret the system definition to mean strictly the system of highways that are funded in part by the federal government, also known as the federal-aid system. This includes the Interstate Highway System, the National Highway System, and numerous other roads and bridges. However, some portion of the gasoline and diesel that is purchased and subject to the federal fuel tax is used for driving on non-federal-aid roads. Fortunately, this distinction has rarely caused any serious political or fiscal challenges.

A more significant issue arises when user fees from drivers are used to fund other modes besides highways. Fuel purchased to operate transit buses, for example, is typically exempt from the federal gas tax and does not contribute to the HTF.[29] But transit buses do use the roads, and more importantly, some of them are purchased or maintained in part with federal funds from the HTF. Similarly, federal funds from gas taxes are used to build and maintain rail transit, bicycle paths, pedestrian facilities, parking garages, and ferry boats.[30] While these facilities are all arguably part of the surface transportation system, they are not necessarily part of the highway system and they do not generate gas tax revenues. Thus highway users and others have often complained about the "diversion" of their user fees to non-highway investments.

Despite these long-standing complaints, the allocation of roughly 80 percent of trust fund dollars to highway and 20 percent non-highway modes has remained relatively constant since the 1980s.[31] Attempts to return user fee dollars only to highways have consistently failed, in part because the highway and transit lobbies have agreed to stick together rather than fight one another on this issue.[32] A recent attempt by conservative members of the House of Representatives to move transit spending out of the HTF was soundly rebuffed.[33]

However, the problem for the federal surface transportation program continues to be a system divided into modal divisions in competition with each other for scarce public resources. States and transit authorities receive funding by formula that may only be used on specific modes. Very few existing federal programs provide the flexibility to direct funds to projects, regardless of mode, that can provide the greatest return on investment for the transportation system. This leads to substantial inefficiencies in the system and unnecessary differentiations between modes that, ideally, should function together to accomplish a set of common objectives.

The persistence of these modal barriers and funding battles over time can be linked in part to the structure of the HTF. Any attempt to make funding mode-neutral and more focused on outcomes would be met with resistance by highway users, such as truckers, who do not want to see their fuel tax contributions "diverted" to other purposes. Such reforms might also be resisted by non-highway interests, such as public transit authorities, that have carved out their own dedicated funding streams and do not want to risk losing them. As long as a user fee structure remains in place it will likely be more challeng-

ing to create an approach to transportation spending that directs investments on the basis of maximum effectiveness, regardless of mode.

Problem 2: Division of Federal Transportation Dollars Among States

An even greater impediment to performance-based reforms of the federal transportation program is the persistent battle among members of Congress (particularly in the Senate) over how much funding their state receives from the HTF relative to how much their state contributes in gas tax revenues. This tension is often referred to as the donor-donee issue because historically some states contributed more in gas taxes than they got back from the HTF (donors) while other states contributed less than they got back (donees).[34] During reauthorization debates, donor states argued that they should get a larger share of federal resources and donee states argued that they should not. This argument has often overshadowed substantive debates over the appropriate federal role in transportation policy.

In fact, the donor-donee fight has often meant that what passes for transportation policy-making in Congress comes down to a negotiation over how funding should be distributed among states and localities, instead of a nuanced discussion about how to maximize returns on federal transportation investment. While arguments over the distribution of federal funding would occur regardless of the revenue source being used, the current program's reliance on a user fee exacerbates the problem because the amount of money paid in and the amount of funding returned to each state is publicly available. Each state knows if it is getting back more or less than its constituents put in, and by how much, which is not the case in other program areas where federal support is drawn from General Funds.

In recent years, transfers from the General Fund to the HTF have rendered the donor-donee debate moot.[35] While funds are still distributed to states and localities based on formulas that reflect the donor-donee debate, transfers from the General Fund have turned all states into "donee" states because all states receive more transportation funds than they contribute in gas taxes.

Interestingly, this change likely prompted a greater focus on policy improvements during the development of MAP-21. Partly because there was no new money and therefore little basis for a battle over funding allocations, Congress was able to concentrate more attention on policy reforms.

However, achieving policy reform by starving the nation of adequate transportation investment is probably not an effective strategy for creating and maintaining the 21st century transportation infrastructure needed to ensure the United States' long-term economic prosperity. A better alternative would be to consider how to reform the way the U.S. government raises funds for transportation and how a new approach could support and facilitate needed reforms in how those funds are spent.

The Need to Consider Alternatives

With the HTF in a state of chronic shortfall, it becomes extremely difficult to pass long-term legislation for federal transportation investment. This situation further hinders good decision-making because it forces states and localities to make transportation investment decisions in the absence of certainty about future federal contributions. However, existing modal divisions and donor-donee structures also hinder good investment decisions. If current funding problems cannot be addressed by raising the gas tax, it is worth considering alternatives to the current funding structure that could potentially increase the resources available for transportation and encourage reform in how those resources are used.

Surprisingly, alternatives to the current funding structure have rarely been considered or proposed in the United States. While Congress has repeatedly used General Fund transfers to shore up the HTF, the assumption has been that a future Congress will increase the gas tax or index the tax to inflation.[36] No member of Congress has yet to seriously promote a permanent move away from the Trust Fund. Given the repeated and substantial funding challenges of recent years, it is useful to ask why that is the case. The next section discusses three possible explanations for the reluctance to consider changes to the HTF: committees in Congress, existing stakeholders, and economic theory.

Barriers to Replacing the Current Funding Structure

Most attempts to repair the current federal transportation funding structure on a permanent basis have focused on raising the gas tax or implementing another equivalent user fee. While there have been proposals to use general funds to prop up the HTF, these proposals have involved one-time revenue infusions through unrelated offsets such as corporate tax reform rather than permanent fixes under the assumption that the HTF would remain in place.[37] Since the current structure is clearly not working, why have there been so few specific proposals from Congress, from stakeholders, or from policy experts and academics to move away from the HTF model? This section explores potential answers to that question by looking at three barriers to funding reform. The first part of the section provides insight into committee structures and Congress, how they regard the HTF, and why they often act to protect the existing system. The discussion next turns to the question of why existing stakeholders are working to protect the current system despite its limitations. The section concludes by listing arguments from the relevant academic literature that are often used to bolster support for maintaining the existing system.

Part One: Committee Structures and Congress

Many Americans might be surprised to discover how much committee structures in Congress, and the rules that go along with them, can influence policy. There are two reasons why this is particularly true for transportation policy.

First, responsibility for different aspects of transportation policy is divided among several different congressional committees, as shown in Table 2. While authority over transportation issues is somewhat more consolidated in the House of Representatives than in the Senate, the need to satisfy multiple constituencies from multiple committees in both houses of Congress to win support for a bill can often influence the final outcome of transportation legislation.

Second, because of the HTF, Congress can use "contract authority" to make long term funding commitments. This results in an unusual relationship between transportation authorizers and appropriators. Authorizing committees that have enjoyed substantial power over transportation funding decisions may prefer to maintain this power because it is viewed as directly useful for re-election (in fact, in the past parties often placed potentially vulner-

Table 2: Transportation-related Committees in Congress

Committee	Role in Surface Transportation Legislation
Senate	
Environment and Public Works	Highways
Banking, Housing, and Urban Affairs	Public Transit
Commerce, Science, and Transportation	Rail, Safety
Finance	Funding
Appropriations	Spending Confirmation
Budget	Budget Cap and Rules
House of Representatives	
Transportation and Infrastructure	Highways, Public Transit, Rail, Safety
Ways and Means	Funding
Appropriations	Spending Confirmation
Budget	Budget Cap and Rules

able members of Congress on transportation committees where they could bring money home to their districts). Appropriators also benefit from their ability to make funding decisions and to set obligation limits, and are often reluctant to hand this power to other committees.

The next section focuses on the relationship between congressional authorizers and appropriators under contract authority. This will help explain why the existing funding system would be challenging to replace. Both the laws that establish contract authority and the power tensions between transportation authorizers and appropriators are relevant to this discussion.

CONTRACT AUTHORITY

Compared to other federal programs, the surface transportation program is unusual because the existence of a trust fund gives transportation authorizing committees "contract authority." In policy terms, contract authority means that federal grantees, mostly states and transit agencies, have the ability to make long-term funding decisions while relying on the federal government for a significant portion of their budgets.[38] Transportation projects by their nature take a long time to plan and build, and the federal government is primarily in the business of funding large capital improvements. States and other grantees have some assurance from the federal government, because of contract authority, that the annual appropriations process will not result in a sudden loss of federal funding for their planned projects. Politically, this means that contract authority enables the authorizing committees to essentially bypass the appropriations committees and allocate federal funds.[39]

Now that the HTF has been experiencing regular funding shortfalls, the concept of contract authority is less effective in terms of providing funding certainty for states and other grantees. While grantees have no reason to believe the federal government will default on its obligations, lack of certainty about whether Congress will continue to fund the federal program at current levels in the future inhibits their ability to plan for long-term investments. So even though Congress will honor its pre-existing commitments, short-term funding fixes undermine the effectiveness of contract authority.

Contract authority has also come under criticism because it protects the transportation program from the hard choices that must be made elsewhere in the federal budget. This is not a new concept—in 1970, Senator William Proxmire (D-Wisc.) outlined his perspective of some of the potential pitfalls of trust fund financing:

"When we shield a program behind a trust fund, we give it an inside track in the competition for money. More importantly, we deny ourselves the ability to weigh all our programs and reorder national priorities consistent with our national needs. Trust Fund financing ties up Federal revenue and makes it extremely difficult to shift funds to where they are needed the most. Another serious problem with trust fund financing is that the program it finances tends to become immune from the requirements of fiscal policy. Because of overall conditions in our economy, it does become necessary from time to time to cut back on Federal spending. Programs financed through trust funds tend to become exempt from this process on the grounds that the revenues are earmarked for a specific purpose and they cannot be reduced."[40]

A contrasting viewpoint, however, is that trust fund revenue should not be considered "Federal revenue," and instead inherently belongs to the users of the system. Reflecting each of these concerns, the 1974 Budget and Impoundment Control Act explicitly prohibited the creation of new contract authority unless this authority was drawn from a trust fund account that was at least 90 percent funded by excise taxes on the users of the services provided by the trust fund. In other words, the HTF could continue to provide the basis for new contract authority only if user fees funded it. In the case of the HTF, those user fees are primarily levied through motor fuel taxes.[41] At the time, this requirement was not seen as a potential problem for the HTF, which was enjoying steady growth in revenues as the result of an upward trend in VMT nationwide and occasional increases in the federal fuel tax. But now that the HTF has faced repeated shortfalls, the user fee requirement is becoming a problem—by continuing to use contract authority despite recent transfers from the General Fund to the HTF, Congress already appears to be violating the terms of the 1974 Budget Control Act (see sidebar).

Violation of the Budget Control Act

Based on the available evidence, Congress—through its continued use of contract authority to fund the federal surface transportation program—has already violated the 1974 Budget Control and Impoundment Act and is simply choosing to ignore it. Since 2008, Congress has authorized five transfers of General Fund money into the HTF that together have totaled about $65.3 billion (not including funds for stimulus under the ARRA). This sidebar provides an explanation for how the HTF found itself in this predicament and how these transfers, which effectively break the 90 percent rule, were allowed to occur while still allowing the HTF to retain contract authority.

In 1990, the 101st Congress passed the Omnibus Reconciliation Act of 1990 (OBRA 90), which, among other provisions, increased the gasoline tax by $0.05 per gallon and specified that half the revenues from this five-cent increase would go to the General Fund to reduce the deficit.[45] The language of the legislation also expressed the sense that "to the extent taxes are used for deficit reduction during the five-year period beginning with FY1991, the Congress should return to the dedicated user fee principle no later than the end of FY1995."[46] With this statement, Congress expressed its desire to adhere to the principle of not diverting user fees away from the trust fund (just as it was taking action to divert fees from the trust fund). OBRA 90 was passed in an era when gas tax revenues were plentiful and could be diverted to other uses on a temporary basis without detriment to the amount of funds available to invest in surface transportation.

In 1993, the 103rd Congress passed another Omnibus Reconciliation Act (OBRA 93). This legislation increased the fuel tax by $0.043 per gallon and dedicated the revenues gained from the entire increase to the General Fund, with no expiration date.[47] It also included an extension of OBRA 90, providing that the entire five-cent-per-gallon increase introduced under that bill would also be directed towards the General Fund until 1995 (except for revenues collected from specific alcohol fuels).[48] The Taxpayer Relief Act of 1997 sought to return to the user fee model by stipulating that the $0.043-per-gallon gasoline tax increase introduced under OBRA 93 would be directed to the HTF.[49]

Throughout this period, despite the diversion of some gas tax revenues to the General Fund, the HTF was accruing a positive balance—rather than spending down the HTF, some of the collected fees were staying in the Treasury. Congress remedied this situation in 1998 with a new highway bill—TEA-21—which stipulated that, in exchange for tying future highway spending levels directly to estimated HTF receipt levels, the HTF would stop earning interest as of September 30, 1998 and all cash amounts in the HTF in excess of an $8 billion balance would be transferred to the General Fund.[50]

These events are all related to more recent actions taken by Congress to manage transportation funding shortfalls. When the HTF was carrying a balance and had plentiful revenues, it was tempting to divert transportation funds. However, in a matter of a decade the situation was reversed and Congress found itself using earlier diversions from the HTF to the General Fund to argue that transfers from the General Fund back to the HTF did not violate the Budget Control and Impoundment Act.

In September 2008, Congress passed H.R. 6532, "To Amend the Internal Revenue Code of 1986 to Restore the Highway Trust Fund Balance." This legislation provided for the transfer of $8.017 billion from the General Fund into the HTF to prevent insolvency.[51] The transfer was 'justified' because that was the amount of HTF balances that were transferred to the General Fund in the TEA-21 legislation of 1998, as determined by the Federal Highway Administration.[52]

In 2009, the 111th Congress passed H.R. 3357, "To Restore Funds to the Highway Trust Fund." President Obama signed the bill into law on August 7, 2009. The legislation amended the Internal Revenue Code of 1986, "relating to the determination of trust fund balances after September 30, 1998" and appropriated $7 billion from the Treasury into the HTF.[53] The

debate around these provisions, as recorded in the Congressional Record, referenced the transfer of FY2008, suggesting that this transfer was simply paying back the HTF for amounts paid to the General Fund in 1998 plus interest. However, this time Representative Jeff Flake (R-Ariz.) raised the question of how many times the General Fund could pay back the HTF, while Senator Kit Bond (R-Mich.) pointed out that the transfer assumed interest was paid, which he called "totally bogus."[54]

In 2010, Congress passed H.R. 2847, "Hiring Incentives to Restore Employment Act" (HIRE Act). The new law transferred $19.5 billion into the HTF from the General Fund "to reimburse the trust fund for interest payments not received since 1998."[55] However, the Republican staff of the Senate Budget Committee alleged at the time that, "No one has any idea how much interest might have been credited to the HTF if TEA-21 had not been enacted. Only the Bureau of the Public Debt can do such calculations, and the Bureau has not done one in this case and is not planning to do one."[56] This is the point where the accounting used to support further transfers on the basis of "lost revenue because of TEA-21" became substantially more questionable. The HIRE Act also restored certain contract authority to the HTF that had been rescinded in 1998 under TEA-21 and reauthorized the HTF to begin collecting interest on deposits.[57] Prior to passage of the HIRE Act, the HTF shut down for two days in March 2010 when its spending authority expired—the first shutdown in the HTF's history.[58]

In 2012, Congress passed MAP-21, which included a transfer of almost $20 billion primarily from the General Fund, but was also augmented by $2.4 billion from the LUST Fund.[59] Unlike the transfers that occurred in 2008, 2009, and 2010, the transfers authorized under MAP-21 were not justified on the basis that the HTF was being repaid for lost interest or for previous transfers into the General Fund. A similar approach was made in 2014 when Congress passed H.R. 5021 "Highway and Transportation Funding Act of 2014", which appropriated $10.8 billion from the General Fund with a hodge-podge of obscure pay-fors, including pension smoothing.[60]

Until 2014, Congress had simply chosen not to enforce its own 1974 Budget Control and Impoundment Act. Enforcing the 1974 Act would entail raising a budget point of order, a mechanism introduced within the same legislation that was designed to uphold "parameters of budgetary legislation."[61] According to Jeff Davis of *Transportation Weekly*:

> "The final interpretation of section 401 will come from the House and Senate Parliamentarians, in close consultation with the chairmen of the Budget Committees. In the House, the majority party leadership can overrule the Budget chairman but almost never does so. In the Senate, the chamber votes to waive Budget Act points of order, and section 401 is one of those points of order than can be waived by a simple majority (not a three-fifths majority)."[62]

Further, section 401 does not allow the "surgical" removal of the portion of the bill that is in violation of the 1974 Act. Instead, it prevents the entire bill from coming to the floor.[63] Since surface transportation bills are broadly popular, legislators are hesitant to kill the entire bill. Accordingly, in July 2014, the House of Representatives voted to adopt H. Res. 669, which explicitly waived section 401's applicability to the latest HTF bailout and MAP-21 extension (H.R. 5021). When that bill reached the Senate, none of the 100 Senators bothered to raise that point of order that would have applied under section 401.[64]

H. Res. 669 was the first acknowledgement by Congress that they were skirting their own rules. However, because a budget point of order was not called, even though both chambers did not waive 401, MAP-21, the Highway Transportation Funding Act of 2014, and the exemption in the 1974 Budget Control and Impoundment Act can function in parallel. On the other hand, the link between highway users and highway investment has clearly been fractured. At this point it would be inaccurate to claim that the United States is employing a true "user-fee" trust fund structure for surface transportation. It is highly plausible that unless the gas tax is increased at some point both Chambers might have to address this fact.

Senator Proxmire's concerns were further magnified by a loophole in the statutory budget enforcement mechanisms adopted in the 1985-1990 period, the end result of which is that "the only on budget programs in the entire federal government that are exempt from both the statutory [pay-as-you-go] PAYGO calculations and statutory discretionary spending are the HTF and the Airport Improvement Program."[42] This system effectively shields the HTF from budget cuts and sequesters, an attractive proposition for transportation interests and authorizing committees alike.

Due to its extensive tenure and robust protection from budget cuts, contract authority has strong support from the infrastructure industry as a mechanism for making long-term federal funding commitments. However, contract authority is not the only budgetary mechanism available for ensuring multi-year expenditures. Since the mid-1970s, federal support for the Corporation for Public Broadcasting has been appropriated two years in advance of availability.[43] Given this precedent and the lack of any legal barriers to creating a similar funding scheme for surface transportation, appropriations to the federal transportation program could potentially be made even further in advance.[44]

THE POWER OF CONGRESSIONAL COMMITTEES

Although the 1974 Budget Act has essentially been violated, and even though many elements of the user-fee trust fund system are now gone, the authorizing committees in Congress still hold the cards when it comes to distributing federal surface transportation dollars. Appropriating committees also hold power over trust fund expenditures, but to a lesser extent. This power dynamic tends to flare up when there is funding available, but in recent years has dissipated, as there is little new revenue to control. However, any change in the trust fund structure would represent a threat to the existing power dynamics, and any threat to that status quo is likely face opposition from one or both types of committees.

Tension between authorizers and appropriators in transportation is nothing new. It was brewing well before Congress began transferring General Fund revenues into the HTF. One classic example of this tension that emerged during the development of SAFETEA-LU was the program known as Projects of National and Regional Significance (PNRS). PNRS was a "discretionary" program, and funding under this program was not supposed to be distributed by a pre-existing formula. Its purpose was ostensibly to provide discretionary federal funding for large projects that served a national purpose. However, creating a new discretionary program meant that authorizers were setting aside a substantial amount of funding that could potentially be earmarked by appropriators for projects in their districts or by the Administration. So as not to cede this spending power to the appropriating committees, the authorizers earmarked PNRS funding themselves, thus negating the larger purpose of the program. This was possible because, under SAFETEA-LU, PNRS was funded through the HTF and employed contract authority.[65]

The Transit New Starts program provides a more positive example of cooperation between authorizers and appropriators. New Starts is an older discretionary program that provides funding for fixed-guideway transit projects. However, because of the nature of the program, it requires annual appropriations to be sent directly to the agencies that are constructing the projects. New Starts does not use contract authority to provide guaranteed funding to grantees: since SAFETEA-LU it has been funded by the General Fund and uses Full Funding Grant Agreements (FFGAs), which are recommendations from USDOT that allow the government to promise, although not legally commit, funding for the future provided that certain agreed-upon criteria are met.[66] The appropriations committee then chooses whether to fund the projects recommended under FFGAs, giving appropriators a role in final decision-making.

In March 2010, Congress placed a moratorium on the use of earmarks, ensuring that neither authorizing committees nor appropriations committees would have the ability to earmark future transportation projects. This ban influenced the way that MAP-21 was structured in 2012, particularly with respect to the PNRS and New Starts programs. The authorizing committees renewed both programs, but did not give them contract authority so that it was then up to appropriators to designate funding. Ultimately, the appropriators funded New Starts through

the General Fund (as in previous years) but PNRS was not funded, primarily because PNRS funding could be distributed exclusively by USDOT and New Starts required the appropriations committee to act based on USDOT recommendations.[67] Without the ability to directly earmark either program, the authorizers did not grant contract authority and the appropriators only funded New Starts.

While the experience with PNRS and New Starts highlights the power of the authorizing committees through the use of contract authority, the appropriating committees can also influence how money is spent from the Trust Fund. Authorizers set contract authority levels when multi-year surface transportation authorization legislation is written, such as MAP-21. However, appropriators set obligation limitations, generally in annual appropriation acts, which cannot exceed the amount that was authorized through contract authority. In recent years obligation limits have been set slightly below the amount that is authorized. For example, in 2014 $51 billion in contract authority was authorized, while the obligation limit was set at $50 billion.[68] While appropriators have not chosen to substantially exercise this power in recent years, this does not mean that this cycle will necessarily continue, and appropriators could flex their obligation limit muscle to address HTF solvency or to combat earmarks if the moratorium were to be lifted.

The historical tensions between the authorizing committees and the appropriating committees bring up three important questions regarding the future use of the HTF:

1. Without the HTF, would appropriators have a better opportunity to make discretionary transportation investment decisions?
2. Would the authorizing committees be willing to give up their power to distribute transportation funding?
3. If the authorizers were willing to give up this power, would the appropriators be willing to take it?

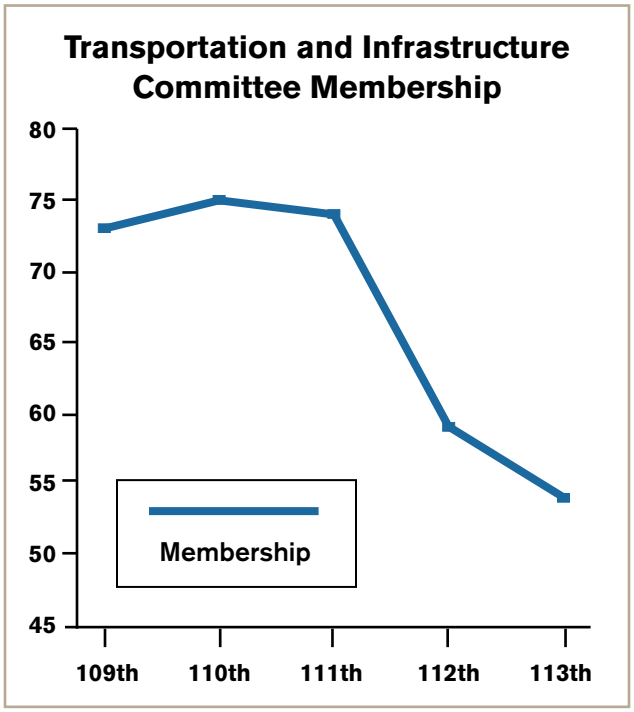
First, a discretionary program funded through the General Fund has the potential to be discretionary in a more meaningful sense, and therefore include some rigorous analysis in the project selection process. While some discretionary programs work better than others, virtually all of them include greater analysis of investment decisions by the federal government as compared to formula programs. In the case of the PNRS program during the SAFETEA-LU era, tension between authorizers and appropriators led a potentially useful program, which was intended to be focused on national investment needs, to be fully earmarked. By contrast, tensions between authorizers and appropriators have worked effectively in the case of New Starts because General Funds were used, eliminating the contract authority and particularly the donor-donee aspects of the program. New Starts is instead designed to enable USDOT to introduce rigorous analysis into decisions about federal investment in transit, while maintaining a role for Congress through the appropriations committee. The fact that New Starts was supported

by General Fund revenues and was not under the complete control of the authorizers may have allowed analysis to play a role in that program's funding decisions.

Second, while the case of SAFETEA-LU showed authorizers' resolve to retain power over spending decisions, the case of MAP-21 suggests that the current moratorium on earmarks may have loosened their grip. In SAFETEA-LU, the authorizers asserted their spending power through the PNRS program. However, in MAP-21, the authorizers could not find spare contract authority to fund the program, and had less of an incentive to do so since they could not earmark any projects. While the public generally holds a negative view of earmarks, from a political perspective it can be argued that earmarks are useful because—by allowing Senators and Representatives to directly send funding to their states and districts—earmarks make it possible to build constituent support and provide a means to barter for votes.

Within the House of Representatives, and specifically within the Transportation and Infrastructure Committee, earmarks have played a noteworthy role in increasing the size of the committee and providing committee members a means to bring money to their home districts.[69] This dynamic is less evident in the Senate due to rules that govern their absolute committee member numbers. The benefits associated with earmarking historically made the T&I Committee an appealing committee to serve on, as demonstrated by the large number of representatives who historically served on the committee. But as Figure 1 demonstrates, membership on T&I has been falling. This may be due to the committee's diminished spending power under the current earmark moratorium.

Figure 1: Membership of the Transportation and Infrastructure Committee[70]



Nonetheless, authorizers might still be reluctant to relinquish their power over funding distributed through the large formula programs that dominate HTF spending. Therefore, it is not surprising that they would continue to advocate for a user-fee-based trust fund system.

Finally, it is unclear how interested the appropriations committees would be in taking on the added responsibility of distributing transportation funding. Thus far, appropriators have not shown any interest in dismantling the current system. Creating large transportation bills every several years is a substantial amount of work for a committee, and it may be that appropriators do not want to create an additional jurisdictional conflict within Congress at a time when partisan conflict is so rampant. As it becomes clearer that the current system is not actu-

ally user-funded in any meaningful sense, appropriators may seize an opportunity to gain greater control over the distribution of General Funds for transportation projects. But to date they have not attempted to do so.

Part Two: The Power of Stakeholders

In surface transportation, as in most other federal government programs, stakeholders have a strong interest in preserving the status quo and engaging closely with policymakers. First, many transportation stakeholders are direct or indirect recipients of federal grants—distributing funds to state and local transportation projects is the primary purpose of the federal program. This means that stakeholders are not only affected by federal policies—as might be the case in other areas—but they are also often directly dependent on federal monies to fund their operations. This is not unique to transportation, as other programs, such as defense, have direct stakeholders with businesses dependent on government spending levels. What is different in transportation is that the directly affected stakeholders are mostly government entities—state and local authorities that receive federal transportation dollars. This means that the transportation interests of every state and every district are represented by stakeholder entities that have a direct connection to members of Congress. These factors lead to a strong stakeholder focus on preserving current funding structures and reducing the risk of funding losses above all other objectives. These inherent barriers to reform are discussed in more detail in the following sections.

POLICY CONSIDERATIONS FOR FEDERAL GRANTEES

Stakeholders in any regulated industry have a strong incentive to get involved in policy. For example, oil companies are active in energy policy, railroads care about rail safety regulations, and insurance companies are involved in health care policies. While some of these industries may also receive direct funding from the federal government—typically in the form of tax incentives or even grants—their business interests, in most cases, will be affected more by policy decisions than by the government's funding choices.

The difference in surface transportation policy is that making grants is the primary function of the federal program. The federal government does not own or operate the surface transportation system, and while it does directly regulate surface transportation and interstate, this is typically done through administrative actions rather than legislative requirements. Surface transportation legislation, on the other hand, is the vehicle through which Congress authorizes federal grants to states and localities. Congress then attaches numerous requirements to these grants, and this is how federal surface transportation policy is created.

The direct and indirect recipients of these grants often shape their entire business models around federal money. Direct grantees tend to be state and local governmental authorities; on average, these grantees depend on federal money for approximately 27 percent (as of 2011) of their capital investment programs.[71] Without that federal money, many of these agencies might have to substantially scale back their investments, and would be likely reduce their workforce. Therefore, direct stakeholders must pay close attention to the periodic reconsideration of transportation legislation.

Indirect stakeholders must be equally vigilant because they too are directly affected by federal transportation policy. Private-sector transportation engineers, planners, consultants, and contractors could be economically devastated if the federal government cuts funding for transportation projects—and an increase in federal funding may be needed to allow their businesses to grow. Users of the transportation system are also important indirect stakeholders: the trucking and shipping industries, for instance, depend heavily on the existence of the federal program. Other indirect stakeholders include companies that make components or materials for the transportation system (such as highway signs, pavement materials, etc.) and even truck stop owners.

While direct and indirect stakeholders may be focused on funding levels, they also care about stability. In some ways, funding stability and certainty is more important from a stakeholder perspective than the overall level of funding in absolute terms. Without stability in the federal program many transportation stakeholders would find it difficult to plan ahead and make business decisions and

investment commitments. The risk of moving away from a dedicated, user-fee trust fund structure for transportation funding is therefore seen as very high. This is one reason why transportation trade associations go out of their way to support user fee funding. For example, the former Executive Director of the American Association of State Highway Transportation Officials (AASHTO), in commenting on the passage of MAP-21, positively highlighted provisions in the bill that kept funding levels constant and extended user fees.[72]

AASHTO has stressed the need for user fees on multiple occasions and its position on this issue is shared by a number of other transportation-focused trade associations.[73] The American Automobile Association (AAA), American Trucking Associations (ATA), Associated General Contractors (AGC), American Road and Transportation Builders Association (ARTBA), the U.S. Chamber of Commerce, labor unions, and numerous others are all on record in support of user fees for highways.[74] This view is not mode-specific—the American Public Transportation Association (APTA) has also consistently supported user fees.[75]

These stakeholder perspectives help to explain why the HTF has proved to be so durable and why stakeholders have not proposed alternative, non-user-based methods of paying for transportation over the long term. In an effort to minimize risk and avoid competing with other government programs, transportation stakeholders have argued for maintaining dedicated user fees despite the inability of those user fees to meet investment needs. As gas tax revenues continue to decline in real terms, stakeholders may need to come up with an alternative plan, but they have not yet reached this point.

Part Three: The Influence of Economic Theory and the Principle of "User Pay"

Academic theory can play a role in shifting public policy. For example, historians have recognized the role that academics, particularly economists, played in pushing for airline deregulation. In fact Alfred Kahn, widely recognized as the architect of airline deregulation, was a professor at Cornell.[76] While this sort of direct involvement may be unusual, especially today, academic theory can still influence policy in more subtle ways.

In the case of federal funding for surface transportation, elected officials and stakeholders alike will cite economic theory to justify the dedication of user fees to transportation investment. Typically they refer to the "user-pay" principle. As far back as 1956, President Eisenhower's Treasury Secretary testified before Congress on the pending highway revenue bill, saying the "the user tax is far better than to pay for the highways out of income taxes."[77] Stakeholders such as ARTBA have often voiced the need to adhere to the user-pay principle when supporting calls to increase the fuel tax.[78]

But what exactly is the user-pay principle? And does it actually justify the policies it is often used to justify? A closer examination of the user-pay principle is helpful to understand whether this academic theory, at least in the transportation context, aligns with real-world results.

The academic literature typically cites three major benefits from applying user fees in transportation:

1. ***Managing demand***—User fees can help manage demand by sending a signal to users. If set appropriately, fees can prevent overconsumption and minimize externalities.
2. ***Setting a floor and a ceiling on investment levels***—User fees also send a signal to policy makers about how much to spend. If demand for transportation drops, available funds to spend will go down, and vice-versa.
3. ***Promoting equity***—User fees can be a more equitable method of funding transportation than other revenue mechanisms, as users are the direct beneficiaries of the system.

Each of these benefits, and their relevance to the federal gasoline tax, is explored in the following sections.

TRANSPORTATION DEMAND MANAGEMENT IN THEORY

The demand management concept is a familiar one in economics. William Vickrey, a Nobel Prize winning economist at Columbia University, noted that roads were one of the few types of facilities with peak load capacity problems where users were not charged according to de-

mand.[79] His work led to the development and popularity, at least within transportation policy and planning circles, of the idea of pricing transportation to more effectively manage demand.

The concept of pricing road use is simple in principle. Road users are typically charged far less than the marginal cost they impose by driving. This is especially true during peak congestion times, when the marginal cost of one added vehicle on the road is very high. In the United States—where the use of most roads is not associated with direct fees—drivers are paying less than the marginal cost of using the roads at virtually all times. Charging road users a price closer to true marginal cost, through a method such as tolling, would affect their behavior. They would potentially switch to off-peak times, use other modes of transportation, or perhaps forgo a trip.[80]

Given that direct user fees apply to relatively few roads in the United States, gasoline taxes are the closest thing to a demand management structure for roadways that exists in this country. In theory, gas taxes discourage fuel consumption and driving. Thus, the negative externalities associated with gasoline consumption and driving, such as pollutant emissions, injuries and fatalities, and sprawl, could be mitigated if gas prices were set at a level that accounted for these impacts.[81]

While not as effective as direct user fees in terms of managing demand for use of the roads, gas taxes have been used effectively in other countries to discourage gasoline consumption.[82] The most obvious result of higher fuel taxes in these countries has been to promote the use of more fuel-efficient vehicles.[83] It is more difficult to draw a direct causal connection between high gas taxes and lower ownership rates for private vehicles.[84]

TRANSPORTATION DEMAND MANAGEMENT IN PRACTICE

In practice, federal fuel taxes in the United States have never been set high enough to significantly influence demand, and most economists would likely not consider the U.S. federal gas tax to be a true user fee. Gasoline is, by its nature, a relatively inelastic good, meaning that demand is not very responsive to price.[85] This makes sense given that the choices that influence demand for gasoline, such as where to work and where to live, are generally made on a long-term basis and are relatively difficult to change in response to changing transportation costs. Thus, most people have limited near-term options for altering their transportation habits should the price increase. Also, fuel taxes do not influence what facilities are used and they are not related to time of day, making them a poor proxy for use.

The current federal gasoline tax is 18.4 cents per gallon. Meanwhile, the average price of gasoline in the U.S fluctuated between $3.13 per gallon and $3.63 per gallon between May 2013 and May 2014.[86] In other words, the price of gasoline changed within a year by an amount that was more than twice the level of the tax, and this is not atypical.[87] In other words, at current levels, fuel taxes have minimal influence on demand when compared to natural price fluctuations in the fuel market.

As a result, fuel taxes also have minimal influence on the negative externalities associated with gasoline consumption. Because it does not substantially influence demand, a tax of 18.4 cents per gallon does not meaningfully reduce congestion, encourage more fuel-efficient vehicles, cut down on injuries and fatalities, or discourage sprawl. It is also unrealistic to expect that fuel taxes could be increased to levels that would produce these results. Recent proposals for raising the gas tax, to be considered realis-

tic, have typically involved increases in the range of 5 to 15 cents per gallon. Even doubling or tripling the existing tax would be unlikely to have a substantial influence on demand, especially relative to normal fluctuations in gasoline price.[88]

A FLOOR AND CEILING ON INVESTMENT LEVELS IN THEORY

User fees are perceived to be a good tool for funding transportation needs in part because they provide an implicit measure of demand. The more the transportation system is being used, the greater the revenues available for maintaining the system to meet future demand. This means that, in theory, user fees can be an effective means of providing a floor and/or a ceiling on future investment levels. They can operate as a floor to prevent underinvestment because, if they are dedicated to the transportation program, elected officials theoretically have no choice but to spend the money as intended. Similarly, user fees can act as a cap on investment by forcing policymakers to limit their spending to the revenues collected through those fees. In theory this helps prevent overinvestment in, for example, pet projects for purely political purposes.

Without a system of user fees dedicated to transportation, making decisions about appropriate investment levels becomes more challenging. Leaving aside political considerations, it would be extremely difficult to implement a purely objective approach to balancing the need for investment in transportation infrastructure against all other federal priorities. Transportation stakeholders would inevitably want more investment, while other stakeholders and budget hawks might argue for less. Dedicated user fees serve to buffer decisions about the appropriate size of the transportation program from these potential battles and help keep investment levels relatively stable regardless of changing political currents.

A FLOOR AND CEILING ON INVESTMENT LEVELS IN PRACTICE

Dedicated fuel taxes at the federal level have a mixed record in terms of providing a floor and ceiling on public investment in transportation. From its inception in 1956 and for several decades thereafter, the HTF concept generally worked well in this regard. As long as there was a specific project to fund, one that everyone essentially agreed was necessary—the Interstate Highway System—the HTF functioned in exactly the manner intended. The Interstate Highway System was constructed on a cost-to-complete basis; funding the System through the HTF served to cap the investment and prevented widespread use of federal gas tax monies for other purposes. Congress subsequently increased the fuel tax when funding needs increased and to adjust for inflation, often on a vote of unanimous consent with minimal discussion.

Problems with the HTF as a funding mechanism began to emerge in the late 1970s when the Interstate Highway System was nearing completion. However, in 1982 President Reagan was able to rescue the Trust Fund by pushing through a gas tax increase, which was possible in part because he argued that the increase was a user fee and not a tax.[89] Reagan subsequently vetoed the Surface Transportation and Uniform Relocation Assistance Act of 1987 because it contained too many earmarks, among other issues.[90] Congress overrode Reagan's veto, indicating some dissension between the legislative and executive branches regarding the appropriate investment levels for transportation.

The real trouble began in 1990 when the gas tax was increased for the explicit purpose of reducing the federal deficit. This meant that the "floor" on investment that should theoretically be guaranteed by dedicated user fees was now gone because a portion of these fees was now being diverted for other purposes. The same thing happened in 1993, and while the gas tax revenues diverted on both these occasions were eventually restored to the HTF (with interest), it had become clear that members of Congress were willing to ignore the theoretical floor on investment created by a dedicated user-fee trust fund when doing so suited their purposes.

By the 2000s, gas tax revenues no longer served to create a ceiling on federal transportation spending because the General Fund was being used to bailout the HTF. While some of these transfers were justified on the basis that they served to reimburse the HTF for interest on gas tax monies that were diverted out of the Fund in

the 1990s, there is no doubt that the theoretical ceiling on investment has been breached. As the latest surface transportation bill has been extended and the Trust Fund was re-infused with General Fund revenues, there is no indication that Congress will change its recent policy of supplementing user fees with General Funds.

While few would argue that the United States is overinvesting in transportation—in fact, most studies indicate quite the opposite—it is also difficult to argue that the HTF is limiting transportation investment.[91] It could be reasoned, however, that the HTF acts as a floor on investment, as it has so far ensured that the federal government invests at least as much in transportation as it collects in highway user fees.

In any case, the events of the last decade suggest that the user-fee trust fund structure no longer provides stability in federal transportation funding. To the extent that the federal transportation budget has remained stable, it is because Congress has been willing to use General Fund revenues to supplement the Trust Fund.

EQUITY IN THEORY

Equity is a complex concept and the term itself is often loaded because it can be understood in different ways when applied to funding structures. In the academic literature, the equity of a user-fee funding structure is typically analyzed by comparison to other methods of funding transportation investment. According to economic theory, the equity and fairness of a fee depend on how directly it connects to the use it is intended to support.[92] This means that direct charges for road use based on time of day are viewed as the most equitable way to pay for roads, while indirect user charges such as gas taxes are viewed as slightly less equitable, and general fees such as sales taxes are viewed as least equitable. Thus one might conclude from the literature that using a gas tax to fund transportation infrastructure is more equitable than using General Fund revenues.[93]

However, this interpretation would be missing the other side of the equation. Whether a given funding mechanism is equitable depends not only on how it raises revenues but also on how those revenues are spent.[94] For example, if money is raised from direct road user charges but then spent on something from which those users derive minimal or no benefit, this is inequitable. The reason that sales taxes appear to be a less equitable way to pay for transportation than gas taxes or road charges is because many people pay sales taxes that may not directly benefit from investments in highways (though they may benefit indirectly through the lower cost of transportation of goods they consume). Everyone pays sales taxes—but not everyone drives, and lower-income people tend to drive less and use transit more. But in theory, a sales tax could be as equitable as a direct user fee if revenues from the tax were spent in a way that directly benefitted those who paid it. For example, if some portion of local sales taxes were to be dedicated to transit rather than highways, many transit-dependent individuals would benefit more directly. Or if a portion of a sales tax were dedicated to a national freight network almost all individuals who would pay into the tax would benefit.

EQUITY IN PRACTICE

In Congress, theoretical notions of equity are essentially ignored. In the context of transportation funding, equity is typically used in legislative debates to refer to the notion that states should get back as much in highway funding as they pay into the HTF through the gas tax. Consistent with this notion, the "Equity Bonus" program in SAFETEA-LU essentially guaranteed that all states would receive back at least 90.5–92 percent of their contribution to the HTF in percentage terms (in other words if revenues from one state accounted for 30 percent of total revenues in the fund, that state would be entitled to 27–28 percent of distributions from the fund).[95] This notion of equity appeals most strongly to the states that account for relatively larger shares of gas tax revenues; it is less appealing to states that might be in a position to lose funding that they believe is necessary to meet their investment needs. Either way, this notion of equity is not directly relevant to the notion of equity that is typically invoked in support of user fees in the economic literature.

More relevant is whether the current user-fee-based system produces more equitable investment outcomes than the use of General Funds would, in the sense that those

who pay are also those who benefit. In practice, despite the fact that gas tax revenues have occasionally been used for deficit reduction, those who pay the gas tax—in other words, drivers—have continued to be the primary beneficiaries of transportation spending. If anything, according to the Government Accountability Office, those who pay into the HTF have received more in return than they paid in since the HTF first faced its liquidity crunch in 2008.[96]

On the other hand, the infusion of General Funds into the system has arguably diminished equity by forcing non-users to help pay for the highway system. A case could be made that, depending on the revenue sources that flow into the General Fund, the people paying for transportation may not be using it at a rate that is in any way proportional to what they are paying. This could raise equity concerns, especially to the extent that payers into the General Fund include low-income individuals.

A full analysis of the sources of General Fund revenues used in transportation and of how those funds have been spent is beyond the scope of this study (and may not be possible). However, at the national level, it is fair to say that the use of General Funds could be equitable if the funds are invested in a manner that creates clear national benefits, not just benefits for users. Investments that demonstrably improve freight flows, metropolitan accessibility, or safety have at least some larger societal benefits and therefore could be funded using General Funds without raising equity concerns.

Conversely, using General Funds in a manner that creates benefits only for a limited number of users of the system, or for purely local interests could be viewed as inequitable. An example would be if federal funds are being spent on projects that get politicians re-elected but do not produce any substantial national benefits. Therefore, if General Funds are going to be used to supplement or replace user fees, it becomes arguably more important to focus on investments of national interest that achieve clear, accountable outcomes consistent with national goals.

Finally, transportation programs that have been funded by General Funds rather than the HTF have historically been subject to greater scrutiny with respect to whether they are achieving desired outcomes. Two General Fund transportation programs, TIGER, a discretionary grant program, and New Starts, both require some form of economic analysis to select grant recipients. Though these programs have their flaws and have faced substantial criticism, they apply a level of analysis that is unmatched by any of the traditionally user-funded highway and transit formula programs.[97] One could even argue that the much-maligned high-speed rail program, which was also funded by General Funds, was unpopular and eventually zeroed out by Congress *because* it failed to demonstrate significant national benefits. This type of scrutiny is rarely if ever applied to the vast sums of HTF money that have been distributed to grantees via long-standing user-based formula funds.

Summary of the Current Situation in the United States

The surface transportation funding situation in the United States is bleak and alternatives are hard to find. Congressional Committees and industry stakeholders believe they have strong incentives to support the HTF's current structure. Further, economic theory suggests that user-pay approach to funding transportation can help manage demand, provide a floor and ceiling for investments, and encourage equitable investments. Congress and stakeholders have seized upon economic theory to justify their own arguments for the continuation of this broken system. The result is a political environment that has left the transportation system with short-term patches for over six years.

However, each of these barriers to a new funding model is losing relevance. As demonstrated, the earmarking moratorium and the uncertain future of levels of available contract authority have substantially lessened the struggle between authorizing and appropriating committees. The unpredictability of available revenues within the HTF may shift stakeholders' support from the trust fund model to a model that may be able to provide them increased predictability of annual funding streams. Finally, in practice, the economic theories that aim to support the trust fund model have illuminated the fact that the gas tax does not have the same benefits as a true user fee, and that even a true user fee may not be able to trump the funding desires at the stakeholder or Congressional level. These issues aside, an oft-cited barrier to moving away from a trust fund model is the perception that it is the only mechanism that can ensure a sustainable funding stream. This, however, is demonstrably untrue as there is a precedent for appropriating money from the General Fund multiple years in advance.

While Washington politics have led the conversation on federal surface transportation funding, players outside the beltway have put new funding streams on the table. Across the country, states and localities are increasing the revenues they have available for transportation projects, including through sales taxes dedicated to transportation spending.[98] A 2014 survey by the Mineta Transportation Institute included 16 polls that indicated public support of 50 percent or higher for the use of sales taxes and sales tax increases for transportation spending, which was much greater than support for tolls or gas taxes.[99] These developments and poll results suggest that the American public is open to the possibility of looking beyond user fees to pay for the nation's transportation needs.

AN INTERNATIONAL PERSPECTIVE

Lessons from International Experiences

Transportation funding challenges in the United States, and the need to look beyond our current funding model, raise the question of whether peer countries face similar issues and whether there is anything that can be learned from their experiences. Part of this research included an exploration of how other countries fund their transportation systems with a focus on national-level policies. Three questions helped frame this investigation:

- Are other countries able to ensure adequate investment in transportation nationally? If so, how?
- Are these countries able to ensure funding for transportation over a sustained period of time? If so, how?
- Does the way other countries fund their national programs influence their decision-making processes with respect to transportation investment?

Methodology

For purposes of this study, the 30 largest democracies in the world in terms of gross domestic product (GDP) were considered as possible case studies. The list was limited to democracies to ensure a comparable government structure to the United States. This included both unitary governments, such as the UK, and federal governments, such as the United States, but was focused on the highest national level of government.

Land area and per capita GDP for each of these countries was compared to ensure similar size and relative economic and infrastructure development. Based on these factors, countries that did not meet a threshold of US$35,000 per capita GDP and an area threshold of 100,000 square km were excluded from further analysis. This left the following nine candidates for initial review: Australia, Canada, the European Union, France, Germany, Japan, Norway, Sweden, and the United Kingdom.

The next step in the case study selection process was to evaluate, for each of these ten initial candidates, several parameters including form of government, national-level investment in surface transportation, framework for transportation, transportation funding mechanisms, major transportation programs, and relevance to the United States. Each country's rank and overall quality of infrastructure score according to the World Economic Forum's Global Competitiveness Report were also considered. The results of this review led to the selection of five countries for further study: Australia, Canada, Germany, Japan, and the United Kingdom.

These case studies were selected because they offered geographical variety as well as examples of alternative transportation funding structures. These five nations provide a cross-section of the developed world and each shares some important characteristics with the United States. While no country provides a perfect comparison, analyzing transportation funding policies and outcomes for these five nations provides useful insights for debates over future U.S. policy.

Investment at the National Level of Government

The first question applied to each of the case studies was whether the subject country was able to ensure adequate levels of investment in transportation, as this is thought to be one of the potential risks of moving away from a user-based funding structure. In an effort to determine if any of the select countries were failing to provide adequate funding of the transportation system, this analysis used the World Economic Forum's (WEF) 2013–2014 *Global Competitiveness Report* infrastructure rankings and scores. Though not a complete picture of the state of the infrastructure, it gives an idea of the condition based on public opinion surveys for individual countries. Specifically, WEF asked citizens in 148 countries the following question regarding the quality of their country's infrastructure:

> "How would you assess general infrastructure (e.g., transport, telephony, and energy) in your country [1 = extremely underdeveloped—among the worst in the world; 7 = extensive and efficient—among the best in the world]?"[100]

This analysis also gathered data on annual national level investment in surface transportation. Consistent and comparable data on total investment on transportation in the select countries was unreliable, so this analysis used national level investment for comparison purposes. National level expenditures demonstrate the relative role that national governments play in funding transportation systems, and are not necessarily indicative of total transportation investment. Sub-level governments and the private sector contribute varying funding roles to overall transportation investment; those numbers are not included in this analysis.

Data from the WEF report, along with data on national fuel taxes, annual national-level investment in surface transportation, and investment per capita, were assembled for each country for purposes of comparison with the United States. Table 3 details each country's road infrastructure investment, infrastructure rank, and infrastructure score. The countries are arranged based on infrastructure score.

The countries included in Table 3 have varied governmental structures. As the United States is a federal system, a substantial portion of U.S. transportation spending is derived from state and local governments. On the other hand, some peer nations with centralized governments, such as Japan and the UK, rely on the national government for a significantly larger portion of their country's transportation investment. Therefore the amount they spend at the national level may not be directly comparable to what is spent at the national level in the other peer nations or the United States.

This table demonstrates that despite being the only included nation with a dedicated user-fee structure, the United States is not investing substantially more at the national level compared to its peers. In fact, these data suggest that at the national level the United States is investing at levels similar to many of its peer nations, but underinvesting relative to others. This implies that the current user-based funding system in the United States does not inherently lead to higher levels of national-level investment compared to other developed nations. It is impossible to know whether national-level investment in transportation would be even lower without the user-pay structure. But it is clear that other national governments, even those with substantial investment at lower levels of government, are managing to at least match, if not exceed, U.S. federal government investment levels.

Table 3: Country Comparisons

Country	Infrastructure Rank[101]	Infrastructure Score	National Gasoline Fuel Tax (US$ per gal)	Annual National Surface Transportation Spending (US$B)	Per Capita National Surface Transportation Spending
Germany	10	6.2	$3.43	$13.6	$166
Japan	14	6.0	$2.00	$36.7	$288
Canada	15	5.8	$0.37	$ 6.2	$175
United States	19	5.7	$0.18	$52	$165
United Kingdom	28	5.4	$3.55	$15.3	$241
Australia	34	5.2	$1.29	$ 6.3	$278

Also notable is the fact that the United States has the lowest per gallon tax on gasoline of any of the peer countries surveyed, and in most cases the gap between theirs and others is quite large. While there are numerous reasons for this, it is worth considering whether the fact that the United States has treated its gas tax as a user fee to pay for transportation, rather than a tax to compensate for the externalities associated with gasoline consumption, is inhibiting its ability to raise fuel taxes sufficiently to moderate demand and reduce negative externalities.

Case Studies

The remaining sections of this report provide summary descriptions of the national-level transportation programs in each of the case study nations before offering some policy conclusions and recommendations for consideration in the United States context. It should be noted at the outset that a number of these countries, specifically Australia, Germany, and Japan, are also undergoing some policy shifts within their national transportation programs at the time of this writing.

Australia

The Commonwealth of Australia is a federation of six formerly independent British colonies. Governing powers are divided between the federal government and the governments of the six states. The Australian Department of Infrastructure and Regional Development facilitates federal transportation programs and funding while responsibility for delivering and managing infrastructure assets is under the purview of the states.[102]

Federal funding for transportation infrastructure varies from year to year, averaging AU$6.7 billion (US$6.3 billion) annually in recent years, as shown in Table 4.[103] The money is distributed through several programs, including some formula-based distributions to states and localities, and other programs that target funding to specific projects. Annual variation in funding is a result of "fluctuations in the funding profile of projects delivered" under the largest transportation capital programs.[104] Base level funding for several formula grants and smaller programs is relatively consistent from year to year, while lump sum amounts are appropriated when funding is needed for large projects within the five-year investment program.

Table 4: Total Expenditure Administered by the Federal Department of Infrastructure and Transport[105]

Budget Year	Total Funds (AU$, Billions)
2008–09	8.6
2009–10	8.4
2010–11	4.1
2011–12	8.1
2012–13	4.2
Total	33.4
Average	6.68

The budget for infrastructure investment is typically committed in five-year segments. The federal government commits a certain amount of funding to complete the five-year plan and then creates a "preliminary schedule of major projects" to be delivered over those years.[106] In 2013, the Australian government committed AU$60 billion (US$56 billion) to road, rail, and public transit projects for the five-year plan that begins in budget year 2014–15.[107] This commitment provides funding stability to grantees during project development.

Most large-scale capital projects for all transportation modes are funded directly through parliamentary appropriation earmarks based on the five-year plan. These earmarks are different from traditional earmarks in the United States in that they are partially based on an economic analysis conducted by Infrastructure Australia (IA). IA was created as an independent statutory body in 2007 to evaluate infrastructure proposals for transportation, communications, and other large-scale assets.[108] Localities, states, and the federal government propose projects to IA and, based on an internal analysis, IA's board creates a "National Priority List" of projects that are deemed to offer the greatest benefits to the national economy. Parliament consults the National Priority List when it is making decisions about project funding. It can opt to fund projects that are not on IA's priority list, but these off-list projects are subject to substantial scrutiny.[109]

For about 25 percent of its total surface transportation budget (AU$1 billion in budget year 2012–13) the national government uses a "Special Account," which enjoys a unique appropriation process that allows the Transport Minister to spend the money within the account per his or her discretion.[110] Building Australia's Future is the primary program under this Special Account—it targets investment to priority projects around the country on a mode-neutral basis and operates somewhat outside of direct Parliamentary oversight, though the Minister is also a member of Parliament.

Other programs are innovative and encourage better performance and local matches. For example, the Roads to Recovery program, with an annual budget of AU$350 million (US$329 million), funds local projects, but in order to receive funds localities must maintain their own expenditures on road projects at or above a certain level as designated by the program.[111] The Department suggests that this program has leveraged more new local investment than the minimum required. Other programs, such as the safety-focused Black Spots program, with an annual budget of AU$60 million (US$56 million), have minimum requirements for applicants such as a benefit-cost ratio greater than 2.0.[112] All other federal transportation programs are subject to performance evaluations to measure progress toward program goals.

Funding for surface transportation programs in Australia is appropriated from general revenues. While Australia's gas tax revenues have at times been dedicated to transportation investment, they have primarily been (and currently are) applied to the Consolidated Revenue Fund (CRF).[113] Currently the gas tax is levied at a rate of AU$0.38 per liter (US$1.29/gal) and generates approximately AU$15 billion (US$14 billion) per year in federal revenues.[114] Australia also employs private sector investment and toll road systems that are growing in number and size, with at least ten large interoperable systems currently in use.[115] Public-private partnerships (P3)account for a small but growing portion of transportation procurement and funding, though they are not represented within the federal programs.

Australia's federal transportation program helps encourage maintenance of the system while providing money for states and localities to implement projects that have national or regional scope. The use of legislative earmarks for large projects is kept in check through the use of IA's National Priority List. Stability for transportation funding is supported by five-year plans, where the federal government commits to funding a program of investments over a five-year period and appropriates the funding annually. Infrastructure Partnerships Australia, an industry trade organization, has called for an increase in the use of direct user fees and has highlighted the fact that gas tax revenues are greater than transportation investment.[116] In general, however, dedication of fuel tax revenues has not appeared to gain much traction politically.

Canada

Traditionally, Canada's national government has played a smaller role in infrastructure funding at the sub-national level than the United States' federal government. However, since 2007 Parliament has expanded its commitment with several new long-term programs that have increased infrastructure investment across the country.[117] The federal programs are organized between two primary agencies: Transport Canada and Infrastructure Canada. Transport Canada is primarily involved with transportation regulation, safety, and operations, with a focus on aviation and freight. Infrastructure Canada is responsible for administering the larger federal infrastructure funding programs.

Canada's Parliament increased investment in 2007 for surface transportation by providing CA$33 billion (US$29 billion) for investment over six years. This represented a significant increase in what had traditionally been a hands-off approach to funding.[118] Six years later, the Canadian federal government further increased this funding commitment by budgeting CA$70 billion (US$61.75 billion) over a ten-year period for infrastructure investment (which included a portion of the initial CA$33 billion that had not yet been spent).

Included in the ten-year funding plan is $53 billion to be invested at the sub-national levels of government through the New Building Canada Plan, CA$7 billion (US$6.2 billion) earmarked for infrastructure for First Nations, and CA$10 billion (US$8.8 billion) for investment in federally owned assets such as bridges, ports, and roadways on

federal lands.[119] Overall average annual investment at the federal level through this funding commitment will be CA$7 billion (US$6.18 billion) for the next decade.

The New Building Canada Plan, which represents the largest component of this ten-year plan consists of three primary funding programs: the New Building Canada Fund, the Community Improvement Fund, and the P3 Canada Fund, described in this section. Together these three programs contribute approximately CA$4.7 billion (US$4.15 billion) annually to infrastructure investment. Funding for the New Building Canada Plan, as well as the programs included within the CA$70 billion commitment is from the Canadian general fund; federal gas taxes are not dedicated to infrastructure investment.

The New Building Canada Fund is a ten-year, CA$14 billion (US$13 billion), program that distributes funding to provinces for projects of regional and national importance, with an emphasis on economic development.[120] This funding is distributed by formula to provinces on a per-capita basis, and provinces must report back to the federal government to demonstrate that funded projects deliver national benefits. Eligible projects can include any type of transportation infrastructure, as well as water, wastewater, and energy infrastructure.

The Community Improvement Fund is comprised of two components: the Federal Gas Tax Fund (which paradoxically is not funded by and has no connection to gas taxes) and the Goods and Services Tax Rebate. The Federal Gas Tax Fund provides CA$2 billion (US$1.8 billion) per year for infrastructure investment, which is indexed to increase by two percent each year. The Goods and Services Tax Rebate is an earmarked CA$10.8 billion (US$9.6 billion) over ten years for infrastructure investment. Together, these funds will provide CA$32 billion (US$28.3 billion) over ten years by formula to municipalities for infrastructure investment.[121] The Canadian government uses these funds to help municipalities maintain and improve their infrastructure assets.

Canada is similar to the United States in that the majority of the highway network is toll free. However, the P3 Canada Fund has set aside CA$1.25 billion (US$1.1 billion) to encourage P3 procurement, including for use on toll

roads.[122] This funding is distributed on a competitive basis, and can fund up to 25 percent of the cost of a P3 project cost. Funding for the P3 fund, as well as for all other federal transportation programs, comes from general taxes.

As noted, all federal level infrastructure investment in Canada is from the general fund, but Canada's federal gas tax is approximately double that of the United States'—it is currently set at CA$0.10/liter of gasoline (US$0.37/gallon). Like U.S. states, Canadian provinces levy additional gas taxes for their own use. While Canada does not tie its fuel taxes to transportation funding, Canada has been able to increase funding for its transportation programs significantly in recent years because the federal government has identified infrastructure investment to be a priority.

In summary, the Canadian federal government has been able to increase its investment in surface transportation, while leaving most project selection and decision-making to localities and provinces. Under Canada's new capital expansion programs, the provinces must select projects that can demonstrate benefits for the national economy, ensuring that national investments have national benefits. None of the federal funds appear to have any modal requirements.

Germany

Though much smaller than the United States in size and population, Germany has a similar federal government structure. Specifically, Germany is a democratic federal republic, meaning that power is distributed between the federal government, 16 states, and regions/localities.[123] The federal government is responsible for planning and funding federal roadway and rail infrastructure, but in general it is up to states to construct and operate transportation infrastructure.[124] Nonetheless, a bulk of their transportation money does come from the federal purse. The German system, however, differs from the United

States in its use of general taxation for transportation investment, and the federal government's stronger role in transportation planning.

Every 10 to 15 years, the Federal Ministry of Transport Building and Urban Development creates the Federal Transport Infrastructure Plan (FTIP). This plan identifies federal road, railway, and water infrastructure projects that are calculated to be economically advantageous to the country.[125] The federal government then prioritizes and funds these projects through five-year funding authorizations, which, under current law, total more than €10 billion (US$13.6 billion) annually.[126] Of this €10 billion, approximately 56 percent is spent on system preservation, 32 percent is spent on system expansion, and the remaining 12 percent is spent on projects to improve system operations.[127] While economic analyses are used to prioritize most projects, there is some evidence of political influence in project selection, particularly when it comes to investment in eastern parts of Germany over other areas.[128] Other federal programs include several smaller formula distributions to help states and municipalities operate and maintain local roads and public transit operations.[129]

Gasoline is taxed at a significantly higher rate than in the United States. Germany's gas tax is currently set at €0.67 per liter (US$3.43/gallon) and it generates nearly €18 billion (US$24.5 billion) in annual revenues for the federal government.[130] These revenues are not dedicated to transportation funding, even though the total funds collected exceed Germany's annual overall federal investment in transportation infrastructure.

In 2004, Germany adopted a partial user-pay system by widely implementing truck tolls for the first time on federal highways managed by VIFG, a federally owned government corporation.[131] The toll is a mileage charge that applies specifically to heavy trucks. It ranges from €0.141 to €0.288 (US$0.19 to US$0.39) per kilometer, depending on the vehicle's emissions category, and generates slightly more than €3 billion (US$4 billion) in annual revenues.[132] Initially, these revenues were earmarked for federal roadway, waterway, or railway projects, but since 2011 they have been dedicated to roadway projects only.[133]

There are indications that the German federal government is increasingly interested in moving toward a user-financed system, with revenues collected through mileage fees, but to date private automobiles rarely encounter any tolls.[134] While mileage fees supply a steady stream of funding, the use of five-year authorizations likely achieves the same goal in terms of providing long-term funding stability. It is not clear whether the tolls that are in place are on Germany's highway system are adding to the total budget for transportation projects or are simply substituting for general funds. In either case, revenues from existing truck mileage fees represent about 30 percent of total federal transportation funding.

In general, Germany uses a mix of tolls and general taxes to fund investment in its network of federal roadways, inland waterways, and intercity rail. Based in part on benefit-cost analysis, the federal government creates a national infrastructure investment plan and prioritizes projects for funding around the country. Germany does receive some funding from the European Union through its Trans-European Transport Network program, but these funds are small in comparison with the federal infrastructure budget. Though there is interest, the steps that have been taken toward user-based funding, primarily through the truck mileage fee, are likely to face opposition if an attempt is made to expand them to include automobiles.[135]

Japan

As a unitary parliamentary democracy, Japan's government structure differs from that of the United States in a few key ways. While decentralization reform has been widely implemented in Japan, local jurisdictions are largely dependent on the national government for financial resources. As with other parliamentary systems, the power of the national government is divided between the executive branch (the "Cabinet") and parliament (the

"Diet"). The Cabinet is responsible for running the country and determining how taxes are spent, while the Diet is responsible for legislating and for keeping the Cabinet in check. The Diet designates the Prime Minister who appoints Members of the Cabinet. Japan is further divided into 47 administrative divisions called prefectures, however the central government retains much control.

At the national level, the Ministry of Land, Infrastructure, Transport, and Tourism (MLIT) is responsible for administering transportation policy and programs. Most of Japan's limited access expressways are tolled; the Japan Expressway Holding and Debt Repayment Agency (JEHDRA) owns the expressway facilities and leases them to private companies for operation.[136] The Japanese government owns all of the shares for these agencies and the JEHDRA is responsible for repaying any debts they might hold. [137] In addition, Japan has a limited number of free expressways that are directly funded and managed by the national and local governments—these expressways do not charge tolls.[138] Japan is also known for its extensive rail network, including its Shinkansen high-speed trains. The majority of this system was constructed prior to the privatization of the railway company in 1987. After privatization, while the system is privately operated, national and local government subsidizes construction of new lines.[139]

A recent, relevant development in Japan is the national government's termination of its version of a highway trust fund and its move towards funding surface transportation through general revenues. Formerly Japan had funded road investments through a Road Improvement Special Account (RISA) that was similar to the HTF in that its revenues derived from a gasoline tax and other transportation related taxes.[140] Like the HTF, the RISA was established as a temporary measure for the express purpose of building a national roadway network and, like the HTF, it lasted longer than originally anticipated or intended.

A set of changing political factors led to the dissolution of the RISA. Electoral reform in 1994 set the stage for a shift in political power away from rural voters and corporate lobbies, who were generally the beneficiaries of the RISA, to the urban voter. This shift made politicians more sensitive to the public opinion of urban voters, who in part felt that transportation funding was not being properly invested. [141] Like the HTF in the United States, the RISA received much of its support from specific interests, including construction interests, because it helped to ensure a continual revenue stream. [142] In contrast to the situation in the United States, however, some of the Japanese public did not share a positive view of the trust fund, and critics argued that local and national governments alike were investing too much money on unnecessary projects due to the RISA. [143]

The alignment of these factors led Japan's prime minister to "un-hypothecate" transportation related taxes in 2009—that is, to undo the legal requirement that pledged revenues from these taxes for a specific purpose. This effectively meant disbanding the trust fund model. [144] Related political tensions resulted in further reform, including the repeal of the gasoline tax in 2011 and its replacement with a carbon tax. The newly implemented carbon tax had the effect of slightly raising the existing tax on gasoline to about US$2.00 per gallon. However, unlike the initial gasoline tax, revenues from this tax are not dedicated to transportation investment.[145] In 2010, the gas tax (before its rebranding) brought in ¥2.576 trillion (US$24.7 billion) to the General Fund, while expenditures on public works totaled ¥5.773 trillion (US$55.4 billion) or 1.2 percent of GDP.[146]

Prior to these developments, MLIT's road budget was appropriated through the RISA but remained subject to Japan's general budgeting requirements, which mandate that outlays be made in the same year that they are appropriated. [147] The MLIT's budget is now appropriated through the General Fund though MLIT continues to funnel money to projects at its discretion.[148] For multi-year expenditures, there is a mechanism within the budget-

ing process, similar to contract authority that allows the government to guarantee longer-term payments.[149] MLIT expenditures since the 2008 are detailed in Table 5 (RISA was dissolved in 2009). After an initial drop, funding has stabilized at about $36 billion per year.

Table 5: MLIT Road Budget 2008–2014[150]

Year	U.S. Dollars (in millions)
2008	55,669
2009	38,684
2010	31,099
2011	30,982
2012	32,780
2013	32,956
2014	34,775
Average	36,706

Through taxes on gasoline, automobiles, and tolls, Japanese drivers typically pay substantially more for their use of transportation infrastructure than drivers in the United States. And since its central government is much stronger, national investment in Japan accounts for a greater proportion of overall transportation investment. While overall investment has decreased since the dissolution of RISA, Japan's per capita transportation investment at the national level has remained substantially higher than the other countries included in our study.

United Kingdom

The UK's government structure differs from the United States' in two important ways. First, the UK is a unitary, parliamentary democracy where the national government retains a greater share of power, and responsibility is divided between the executive branch (the "Government") and Parliament. Second, the UK includes three devolved governments aside from England: Northern Ireland, Scotland, and Wales. These governments have some independence in terms of transportation policy, but are ultimately under the purview of the central government.

The Department for Transport (DfT) is the UK government ministry that is responsible for transportation policy and funding within England. Network Rail, owner and operator of the majority of the rail in the UK, is a government owned strategic company, and operates at an arm's length from DfT. DfT's other primary transportation agency, the Highway Agency for English roads, is currently transitioning to become a government owned strategic company like Network Rail. The Highway Agency is responsible for operating, maintaining, and improving England's "strategic road network," which accounts for two percent of all English roads.[151] It is expected that its budget will be more sustainable within this new company, as its budget will not be subject to the shifting investment needs with DfT.

Central Government funding for surface transportation in the UK totaled approximately £9 billion (US$15.3 billion) in budget year 2012–13.[152] This was matched by slightly more than £8 billion (US$13.8 billion) in funding from the devolved governments of England, Scotland, Wales, and Northern Ireland, as shown in Table 6.

Over the past eight years, funding from the Central Government has averaged about £9.3 billion per year. Nearly 50 percent of Central Government funding in recent years has gone to capital improvements in the rail network, including the Crossrail project in the London area.[153]

Table 6: UK Public Expenditures on Transport from Budget Year 2005/06
(Source: DfT Table TSGB1302)

Budget Year	Central (£, millions)	Local (£, millions)
2005/06	6,667	7,996
2006/07	9,376	8,120
2007/08	9,656	8,542
2008/09	9,686	8,920
2009/10	11,009	9,694
2010/11	9,869	9,221
2011/12	9,198	8,607
2012/13	8,997	8,139

Transportation funds are appropriated every three years through the UK's budgeting process to DfT.[154] At the DfT level, the Ministry has the ability to make investment decisions based on their evaluated needs. Money appropriated to DfT flows to local governments and the devolved governments through several programs, both via formula and discretionary grants.[155] In some cases, funding is distributed directly to Network Rail and the Highway Agency for direct investment in UK's rail and road infrastructure, respectively. Other programs distribute funds to local governments based on capital investment and maintenance needs on different parts of the transportation system. Typically, some funding is set aside for "Major Schemes," a mode-neutral discretionary program that provides grants for large projects that are deemed to have national significance. An important element of the Major Schemes program is its use of "value for money" analysis to establish the costs and benefits of proposed projects. To be considered for funding, projects must demonstrate a high value for money. According to the DfT's Annual Report for 2012–2013, 100 percent of projects executed during that budget term were assessed as having a high or a very high value for money.[156]

The UK does not dedicate user fees to fund its national transportation programs. Road users do, however, pay relatively high fuel taxes. These taxes include a percentage-based, value-added tax and an excise tax that together equal approximately £3.03 (US$5.15) per gallon.[157] Fuel taxes are levied nationwide and are deposited into the UK's Consolidated (general) Fund. In 2011 fuel tax revenues amounted to £26.7 billion (US$45 billion).[158] By comparison, overall public sector expenditures on transportation, at all levels of government, totaled £19.3 billion (US$32.8 billion) in budget year 2012–13; of that total, £8.5 billion (US$14.4 billion) was spent on local and national roads.[159] In addition to funding provided at the national level, transportation funding is supplemented at the local level through further general taxes and a few user-based funding mechanisms. In particular, toll-based P3s have been used to fund the M6 Toll Road, while congestion pricing is used in London and helps fund Transport for London (TfL).[160]

The Conservative-Liberal Democrat Coalition Government, which was elected to power in 2010, has introduced

substantial reforms to the overall DfT program, including reforms to consolidate grant programs and some small funding cuts to some of the programs.[161] But the national government's approach to transportation funding continues to follow the same general principle of distributing some funds via formula to local transportation agencies, while reserving the rest for grants to major projects that can demonstrate significant value for money. This has allowed many large infrastructure projects to receive substantial and sustained funding.

Conclusions from the Case Studies

The five countries examined as part of this study offer valuable lessons for the United States in that they demonstrate alternative approaches for sustainably and effectively funding surface transportation needs. As in the United States, each of these countries has a method for distributing funding to sub-governments to preserve and maintain the existing transportation system. The bulk of these funds are distributed via formula, though in some cases performance measures or economic analysis are used to target investment or leverage local funds. For example, the UK appropriates money via formula and through discretionary programs, but large-scale projects must demonstrate a high Value for Money.[162]

As in the United States, each of these countries has developed a mechanism to enable long-term funding

commitments. Examples include, Canada's Gas Tax Fund, Australia's Special Account, and Japan's version of contact authority. However, again similar to the United States, these mechanisms are not perfect. For example, the UK has identified challenges with its funding stream to the Highways Agency and is currently in the process of implementing reform to increase funding predictability. Nonetheless, the existing mechanisms for distributing predictable levels of funding over the long-term in each of the case study countries give localities the ability to maintain and upgrade their surface transportation systems, helping these economies to compete on the world stage. The fact that each country has developed mechanisms that do not employ a user-fee structure suggests that it is possible to ensure funding sustainability within an alternative model.

For large capital investments, earmarking is prevalent in all the case study countries, demonstrating that legislators everywhere are interested in bringing projects back to their districts. This is highlighted through the use of legislative earmarks in Australia and in the influence of political considerations on the development of Germany's FTIP. However, many of the included countries employ national-level planning and economic evaluation, and in some cases controls are in place to ensure that projects that do not meet national goals or performance standards are not funded. The effort to exert discipline over funding decisions is reflected in the UK's adherence to VfM, as well as in the priority project lists of Germany and Australia. In the United States a similar approach is evident in the Transit New Starts program under which USDOT recommends projects but Congress ultimately appropriates funding for recommended projects, which is permissible under the current earmark moratorium. International experience suggests that there may be benefits to earmarking large, nationally significant projects once a priority list has been created to target funding to the most valuable projects.

Perhaps the most relevant finding for this study, however, is that all of these countries fund their national transportation programs through their general government budget, and none of these countries directly hypothecates or commits fuel taxes for transportation uses only. Of the countries evaluated, Japan is the one that most recently used dedicated gas taxes to fund transportation investments. However, elected officials in Japan found that the public did not support this approach because it was perceived that it promoted investment that was not based on actual infrastructure needs. They therefore chose to un-hypothecate fuel taxes and now use general funds for transportation investments.

Internationally, interest in P3s and tolling has been growing substantially but—as in the United States—P3s continue to account for only a small portion of overall

transportation investment around the globe.[163] In addition, there has been a trend toward an increased reliance on sales tax or other general fund revenues. Within the United States, for example, Virginia and Arkansas recently increased state sales taxes and dedicated the new revenues to transportation. Outside of the United States, other national governments have also increased the amount of general funding directed to transportation projects, in some cases with the help of strategic planning or analysis.

International experience demonstrates that the HTF model is not the only viable option for sustainably and predictably funding surface transportation needs at the national level. Further, it suggests that using general funds might increase governments' ability to target funds to the most beneficial projects. Thus international experience offers useful insights and potential examples if U.S. policymakers wish to consider moving beyond the current trust fund user-pay model.

KEY TAKEAWAYS

As a viable mechanism for funding U.S. transportation needs, the Highway Trust Fund—which has continued to operate even though the Interstate Highway System was officially completed in 1991—has run its course.[164] Since 2008, the Fund has consistently been on the brink of insolvency, resulting in periodic General Fund bailouts by Congress. While much of the stakeholder community continues to lobby for an increased gas tax to bolster the current model, a gas-tax increase has miniscule support from Congress and no support from the President. Meanwhile, the United States has already effectively shifted toward the model that is used by much of the developed world: a surface transportation program that is paid for, at least in part, by general revenues.

This research demonstrates that the U.S. government's **current approach to funding surface transportation is not working**. The challenges facing the HTF stem from its reliance on a fixed revenue source, larger shifts in the transportation ecosystem, and the established political system that goes well beyond conflicts over transportation. The gas tax, which is the primary source of revenue for the HTF, was last increased in 1993; today it remains at 18.4 cents per gallon and neither political party wants to take the political risks of increasing it. Diminishing VMT per capita and improved fuel efficiency have held down demand for gasoline, further exacerbating the HTF's funding challenges. Additionally, legislators' desire to maintain transportation spending at historic levels or greater, despite declining trust fund receipts, has necessitated continual General Fund infusions to keep the Trust Fund solvent.

In spite of these now chronic funding problems, there are reasons why the HTF structure has persisted. First, **stakeholders and congressional committees face perceived incentives to maintain the current system**. Stakeholders, including state departments of transportation, transit agencies, and construction and engineering firms, among others, have a strong interest in ensuring a steady flow of federal funding to state projects. A departure from the HTF funding mechanism could pose a disruptive threat to a system that has delivered billions of dollars since 1956. In Congress, there are eight committees between the House and the Senate that play a direct role in reauthorizing and distributing federal transportation funds. While this power has been diminished by recent limitations on earmarks, authorizing committees are still disinclined to give up their influence over significant federal resources unless they are forced to do so by appropriators. And at the moment there appears to be little incentive for appropriators to try wrestling spending power away from authorizers.

A further consideration is that **the user pay principle works in theory but has not worked in practice, at least as applied to federal transportation funding in the United States to date.** The academic arguments for the user-pay approach to infrastructure investment focus on theoretical benefits in terms of efficiently managing demand through price signals, ensuring equitable investment outcomes for the users who pay into the system, and creating a floor and ceiling for overall spending. While these arguments have merits, the HTF structure has not delivered these benefits in practice. At historic and current levels, the U.S. gasoline tax is at best a weak user fee and has virtually no effect on demand. Nor does the HTF create a predictable floor and ceiling on federal transportation spending because Congress has repeatedly blurred the line between the Trust Fund and the General Fund, dedicating a portion of gas tax revenues to deficit reduction in some years and later bailing out the HTF with General Fund revenues. Finally, in the context of a complex and interrelated transportation network, the effort to distribute funds in ways that avoid raising equity concerns promotes a tendency to invest based on modal divisions and geographic formulas that are not necessarily targeted to the most valuable investments.

Given that the current U.S. funding system is no longer meeting the nation's transportation needs, it is worth

looking to international experience for policy insights and reform options. The case studies developed for this report demonstrate that **other countries have found ways to sustainably fund their surface transportation programs without dedicated trust funds.** Each of the five countries described in this report uses general revenues to fund the greater portion of national-level surface transportation investment. None of these countries rely on dedicated fuel taxes to support their transportation spending even though their fuel-tax rates are much higher than in the United States. And finally all of the case study countries have been able to maintain and expand their transportation infrastructure to a level of service and functionality that is at least comparable to the United States. In sum, the case studies reveal that there are real, pragmatic alternatives to the HTF approach and they provide direct lessons for policymakers interested in designing new funding mechanisms that can provide predictability and stability in the nation's surface transportation program, while also increasing the value of investments undertaken through the program.

Maintaining the status quo will continue to produce funding uncertainty and perpetuate current funding problems. The results of this study point to three potential solutions:

1. Adjust spending to reflect revenues;
2. Adopt a hybrid approach that combines general funds and gas tax revenues, or;
3. Eliminate the HTF and pay for surface transportation through the General Fund.

Solution 1: Adjust spending to reflect revenues

If policymakers wish to align transportation spending with gas tax revenues, they have two choices: 1) reduce spending to the level of current gas tax receipts or 2) increase revenues by an amount that is sufficient to cover desired spending levels. However, as discussed in previous sections, there is little indication that either Congress or the President (or any future Congress or President) has appetite for either approach. Even though an increase in the gas tax has broad stakeholder support within the transportation community, the political hurdles to passing such an increase have only grown in the 21 years since an increase was last adopted. Further, even if it were possible to increase the gas tax, this step would likely complicate efforts to target funding more effectively to investments of the greatest national interest. In the United States, and in the case studies presented as part of this analysis, the programs that were most effective at targeting funding to high-value projects tended to draw on General Fund revenues.

The option to cut transportation spending is equally unlikely. There appears to be little desire to cut funding to match incoming gas tax receipts, as Congress has barely considered this option and has instead demonstrated a repeated willingness to find obscure general fund pay-fors to fill funding gaps. Moreover, if Congress were to be successful at cutting transportation spending to match HTF revenues, such cuts could have substantial negative economic consequences. Adjusting spending to match existing revenues, thus making a smaller, more focused federal role in surface transportation, would shift a much larger share of responsibility onto states and metropolitan areas. A decline in the federal contribution would almost certainly diminish overall transportation investment, since states would not be able to replace all lost federal funds. This would lead to further under-investment at a time when most analyses conclude that the United States should be investing more in its transportation infrastructure.

Solution 2: Adopt a hybrid approach that combines general funds and gas tax revenues

A second solution would be to codify the hybrid system that Congress unintentionally created when it authorized transfers between the General Fund and the HTF. Such a hybrid approach should be implemented in a way that supports consistent, long-term general fund commitments. It could function something like the following:

- Existing gas tax revenues would continue to populate the HTF and would be spent with contract authority; these revenues would fund approximately 75 percent of the transportation budget, but this percentage would diminish over the years.
- General funds would be authorized and appropriated for use on a multi-year basis to maintain or eventually increase overall transportation spend-

ing, but these funds would be used on a discretionary basis for national-scope projects.

The exact amounts that would be through the Trust Fund versus the General Fund would likely be based on political calculations, but the goal should be to maximize the total spending that is based on national goals rather than historical formulas. Politically, a hybrid approach is probably the easiest lift. It requires the least change to the existing system, but offers some substantial potential benefits including a sustainable funding stream and a greater ability to target federal transportation investments in ways that advance national goals. The biggest challenge would be to develop a means for providing stability and certainty around the General Fund portion of the program. A further challenge is that Congress is likely to resist, as it has in the past, allocating substantial amounts of funding to a discretionary grant program.

Solution 3: Eliminate the Highway Trust Fund

A more permanent solution could be to move toward a system that is more in line with the rest of the world by undoing the direct connection between gas tax revenues and transportation spending altogether. This would entail dissolving the HTF and funding the entire surface transportation bill through the appropriations process. This scenario does not preclude the use of dedicated revenues – income or sales taxes for example – but those revenues would cease to be user fees and would no longer be deposited into a trust fund. Other countries have used a variety of approaches to create funding stability for their transportation programs, including making program commitments through five-year plans, implementing multi-year appropriations, and creating mandatory (non-discretionary) national spending programs. Similar approaches could be employed in the United States, and there is a precedent for appropriating funds multiple years in advance. While this solution represents the most dramatic change from the existing system, other countries have been at least as successful, if not more successful, at providing sustainable and effective federal funding for transportation without the use of dedicated gas taxes.

To implement a funding model that consistently employs the use of general funds, such as a hybrid model or a strictly General Fund model, the federal budget would have to be adjusted to include the additional funds needed to cover transportation program needs. This could be done by creating new revenue streams or by dedicating a portion of the federal income tax to transportation. Neither of these options would be easy to implement politically, but a strong case can be made to increase available funds for investment in transportation infrastructure. This is fiscally responsible and economically justified, since a well-functioning transportation system is crucial to future economic growth and funds directed to transportation are likely to provide a clear return on investment if spent effectively. Alternatively, creating a new national sales tax for transportation could be more politically feasible than increasing the gas tax. Polls indicate that the public is less opposed to the use of sales taxes as a way to raise revenues for transportation than it is to gas taxes or road tolls.

Any of the options above would represent a dramatic improvement over the existing system. However, based on our analysis Solution 3 is at least worth exploring as a potential long-term solution to our national transportation funding problem. Politically, all of these solutions would involve a departure from the status quo, making all of them challenging to implement. However, the political challenge may be worthwhile if the end result is a more sustainable and effective surface transportation program. Recent trends and evolving national objectives have created a need for significant program reform. Congress must end the practice of kicking the can down the road and instead provide the leadership needed to face the current funding challenge head on. The rest of the world has embraced funding models that rely on general revenues to provide long-term, sustainable support for national-level surface transportation programs. The results of this analysis suggest that the United States may be able to reap similar benefits and deliver the investments needed to build and sustain a world-class transportation system by emulating their example.


45

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Eno Staff

Joshua Schank

Paul Lewis

Marla Westervelt

Pamela Shepherd

Emil Frankel

Benton Heimsath

Finn Vigeland

supported by THE ROCKEFELLER FOUNDATION

ENO CENTER FOR TRANSPORTATION

1710 RHODE ISLAND AVENUE, NW, SUITE 500

WASHINGTON, DC 20036

(202) 879-4700

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