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Restoring TRUST in the Highway Trust Fund

by Robert W. Poole, Jr. and Adrian T. Moore

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Executive Summary

Federal surface transportation policy is at a fateful crossroads. Since the completion of the Interstate system, the federal program has lost its focus and its sense of purpose. And the users-pay/users-benefit funding mechanism which built that system (dedicated fuel taxes) has gradually been transformed into a public works tax for Congress to spend on its own—rather than highway users'—priorities. Most proposals to reformulate the federal transportation program would further break faith with highway customers. While appearing to advocate simplification and program consolidation, they would add costly new non-highway programs, increasing highway use taxes but diverting much of the proceeds to still more non-highway programs, from passenger trains to energy subsidies to federalized land-use planning. Yet it is thanks to these very trends that American taxpayers no longer have trust in the Highway Trust Fund. Instead of welcoming an expanded federal program, most oppose increases in fuel taxes as unlikely to improve their own transportation situations.

This study argues that the federal program needs to be rethought. The federal transportation program is notoriously politicized, failing to make the best use of existing funds and failing to focus on the most important national transportation goals. Every serious study in recent years has concluded that America is under-investing in highway infrastructure; indeed, we are not even investing enough to maintain its current mediocre performance and condition, let alone enough to produce major improvements. But rather than simply putting larger sums of money into a seriously flawed process, the better course is to rethink and refocus the federal role, in order to spend more on core federal purposes and less on peripheral concerns. Some reauthorizations have brought big changes to the federal transportation program. This one should as well, not by moving further away from a user-fee funded system designed to improve mobility, but by moving back toward it.

While the federal government may have an *interest* in a wide range of transportation issues and concerns, direct federal involvement is both unwise and inappropriate in many of these areas. The facilitation of inter-state travel and commerce and international trade are clearly federal responsibilities, so a larger emphasis on inter-state and international transportation should be at the core of a rethought federal role. The Interstate highway system was laid out more than 60 years ago, and begun 50 years ago. Increasing portions of it are reaching the end of their design life and need complete reconstruction. Most urban Interstates need major additions to eliminate bottlenecks and reduce congestion, and as the lifeblood of goods movement, many inter-city Interstates need more lanes to handle projected growth in truck traffic.

A major federal effort to rebuild and modernize the Interstate system for the 21st century (Interstate 2.0) would give new focus to the federal highway program. It offers the opportunity to restore the original user-fee nature of highway user taxes. Ever since the ISTEA legislation of 1991, each federal reauthorization has expanded the eligible uses of federal highway user taxes to an ever-larger array of non-highway programs. Indeed, this diversion ultimately goes back to the 1970 PL 91-605, which first permitted Highway Trust Fund monies to be used for transit facilities, undercutting the users-pay/users-benefit principle. Subsequent reauthorizations steadily increased non-highway uses, such that today urban transit, bikeways, scenic trails, "enhancements," and numerous other programs consume about one-quarter of all current federal highway user tax revenues.

Congress could dramatically increase funding to reduce the very large backlog of cost-effective highway projects via two changes: (1) shifting non-highway programs either to general revenues or to the states, and (2) narrowing the federal Highway Trust Fund's focus to rebuilding and modernizing the Interstate system, both urban and inter-city. This Interstate 2.0 approach would increase federal investment in the nation's most important arteries by nearly $10 billion per year. Refocusing the federal gas tax on rebuilding and modernizing these vital roadways would restore the kind of trust in the Highway Trust Fund that was present during its early years. Making this change is also probably the best hope we have for gaining political support, not for all-purpose transportation tax increases, but for significantly improving the performance of the nation's most critically important highway infrastructure.

This proposal should be attractive to the traditional highway community, which in recent decades has accepted diversions of highway-user taxes to non-highway purposes in exchange for a larger total program. That trade-off appears to be coming to an end, thanks to strong public opposition to increasing the gas tax. This proposal would lead to genuine increases in needed highway investment, targeted to the most urgent national needs.

Friends of mass transit should understand that in today's political climate, it is not necessary to tap into the gradually shrinking pool of petroleum-based highway taxes in order to have high-quality transit systems. State and local jurisdictions, where the benefits from transit occur, have been more willing to invest in transit in recent years. We don't think there is any *national* interest or benefit from local transit systems or reason for the federal government to help fund them. For now though, Congress seems keen to continue funding transit and is increasingly willing to spend general fund monies on transportation. Since transit is unable to generate significant user revenues the way highways can, it is a far more appropriate candidate than highways for general-fund support.

Most states would be better off with the proposal presented in this paper. All would benefit from the major reconstruction and modernization of their most important highwleays, the Interstates. They would gain new freedom to manage their non-Interstate highways, freed from costly federal requirements and priorities, and instead could focus on their own transportation needs and goals. On the funding side, although they would no longer receive federal funding for non-Interstates, they would gain new freedom to use tolling and public-private partnerships to shore up their programs. If they decided to replace some former federal revenue, states could find savings by aggressive efforts to improve efficiency, prioritizing projects that will produce the largest benefits, and embracing tolling to pay for new roads and improvements to existing ones, preferably via public-private partnerships that shift financing and risk away from taxpayers and onto the private sector.

The urgent need to rebuild and modernize vital Interstate highway infrastructure is bogged down by a system that prioritizes politics and ribbon-cutting. The federal gas tax has become a general-purpose public works tax instead of a true highway user fee. Refocusing the federal program on Interstate 2.0, and restoring the true user fee nature of the federal fuel tax, offers a way to cut the Gordian knot.

Table of Contents

Part 1

Introduction: The Case for Highway User Fees

How should we pay for highways in America? Relatively unique among developed countries, the United States from the beginning has employed the user-pays principle. This means for the most part the users of the highway system pay for it with fees that are more or less directly related to their use. The idea is that those who benefit directly from the highway system are also the ones who pay for it.

In the 19th century, prior to motorized transportation, most inter-city roads were toll roads, usually developed and operated by private companies under state charters.[1] When the automobile led to a demand for paved roads in the early 20th century, Oregon legislators enacted a tax on motor fuel in 1919.[2] In the following decade, the remaining 47 states and the District of Columbia all enacted motor fuel taxes. In order to ensure that the revenue would be used solely to benefit those paying these taxes, most states created dedicated highway funds, many of which were given constitutional status and often called "trust funds." Toll roads and bridges proliferated in the first half of the 20th century, generally in cases where the large size of the investment needed made toll finance the best way to fund such large "lumpy" investments. Toward the end of the 20th century and the first decade of the 21st, a new generation of toll roads and toll lanes has been emerging.

There are many advantages to the users-pay/users-benefit principle. Among them are the following:

- Fairness: Those who pay the user fees are the ones who receive most of the benefits, and those who benefit are the ones who pay. This is the same general principle America employs with respect to other network utilities, such as electricity, water, gas and telecommunications.
- Proportionality: Those who use more highway services pay more, while those who use less pay less (and those who use none pay nothing). And cost allocation studies can determine which users are responsible for which portion of costs, so that rates can be set accordingly.
- Self-limiting: The imposition of a user tax whose proceeds may only be used for the specified purpose imposes a de-facto limit on how high the tax can be: only enough to fund an agreed-upon need for investment. In contrast, Europe's motor fuel taxes are a general revenue source, and hence tend to be three to five times as high as those in the United States (though highway investment in Europe is the same or less than in this country).
- Predictability: A user fee produces a revenue stream that can and should be independent of the vagaries of government budgets.
- Investment signal: The user-pays mechanism provides a way to answer the question of how much infrastructure to build, assuming that the customers have some degree of say. With respect to toll roads, the value of the facility can be judged by how many choose to

> use it and what level of tolls they are willing to pay. This mechanism is less direct with fuel taxes, though there does appear to be a connection between motorist/taxpayer confidence in a government's highway program and their willingness to support increases in fuel taxes. Prof. Eric Patashnik, in his book on federal trust funds, notes that "Taxpayers will only demand an increase in services if they perceive the benefits of the service increment to exceed the cost."[3]

These points about the advantages of user fees hold true regardless of the details of the user-fee mechanism. In highways, America has used tolls, fuel taxes, excise taxes on tires, weight-distance taxes (for trucks) and several other minor sources, and is considering a shift from fuel taxes to a charge or tax per vehicle mile traveled.[4] In deciding whether any such mechanism is essentially a user fee or essentially a tax, the critical question is the use of the revenues. If the revenues from a charge are strictly spent on services and infrastructure for the users/payers, it is a user fee. If the proceeds can be spent on beneficiaries *other* than those who generated the funds by making use of the infrastructure, then the mechanism is more of a tax. In the case of utility bills, the charge that is based on services the customer has used is a fee, paid to the infrastructure provider to cover the costs of building, operating and maintaining the infrastructure. (This is true regardless of whether that infrastructure is provided by a public-sector or private-sector utility.) If government seeks to make those utility customers fund other beneficiaries, it may impose a tax for that purpose on utility bills (e.g., the tax that is used to fund rural telephone services).

Historically, therefore, highway advocates were correct in calling motor fuel taxes highway *user fees*, since most state fuel taxes were dedicated to the state highway system. The federal fuel tax, when the Interstate highway program was launched in 1956, was likewise dedicated to building that nationwide system, via the newly created federal Highway Trust Fund.

Part 2

History of the Highway Trust Fund

Early proposals for funding of the Interstate highway system included the issuance of long-term bonds, based in some version on toll revenues (modeled after mid-century superhighways such as the Pennsylvania Turnpike and the New York Thruway) and in others on federal taxes. There was strong opposition in Congress both to bonding and to the large federal tax increases that were estimated to be necessary to fund the system. Neither alternative prevailed in 1955.

Hence, the following year, "The object . . . was to find a way to finance the system that more stakeholders thought was fair, and to reassure stakeholders and legislators that the receipts of the increased taxes would be dedicated towards highways."[5] The proposed solution was a set of federal highway user taxes (largely on motor fuel) whose proceeds would be deposited into a new Highway Trust Fund. The Republican members of the House committee that recommended this approach wrote that "The existence of this fund will insure that receipts from the taxes levied to finance this program will not be diverted to other purposes."[6] The final bill embodying these provisions was passed by both houses of Congress and signed by President Eisenhower in June of 1956.

The pure users-pay/users-benefit principle was not breached until 1970, when PL 91-605 allowed federal highway monies to be used for bus lanes, bus facilities and park-and-ride lots. Many urban and transit advocates wanted to open up the Highway Trust Fund much further, being dissatisfied with the extent of funding available from the Urban Mass Transportation Administration (UMTA), created by 1964 legislation. (UMTA was originally located within the Department of Housing & Urban Development—HUD—but was shifted to the Department of Transportation when the latter agency was created.) Several years later, in 1973, Congress enacted PL 93-87, which (1) allowed Highway Trust Fund monies to be used for capital expenditures for buses and fixed rail facilities and (2) permitted a state to petition the U.S. DOT for permission to withdraw a planned urban Interstate project and build a public transit system instead, using federal general fund monies up to the amount that the Interstate segment would have cost.

President Carter proposed consolidation of the highway and transit programs, merging the Federal Highway Administration (FHWA) and UMTA, as part of the 1978 highway bill. But that bill ended up making only minor program changes. And that status quo prevailed until the early years of the Reagan administration. DOT Secretary Drew Lewis accepted the need for increased federal highway investment, but had difficulty persuading President Reagan to support the corresponding federal fuel tax increase. To build transit groups' support for the measure, "He promised to create a mass transit account in the Highway Trust Fund that would receive 20 percent of the revenue from a five cent per gallon tax hike (the 'transit penny'). This convinced many big city Democrats and liberals to support the measure, despite their concern over the effects of the tax on the poor."[7] After first promising to veto the bill, after the 1982 elections Reagan changed his mind, and signed the bill after it finally passed, in January 1983.

That bill, the Surface Transportation Assistance Act of 1982 (PL 97-424), established the Mass Transit Account within the Highway Trust Fund, to receive "one-ninth of the amounts appropriated to the Highway Trust Fund" from all federal motor fuels taxes. As Jeff Davis's "History of the Highway Trust Fund" notes, the changes from 1973 through 1982 "represented a shift away from the 'benefit taxation' model . . . whereby user fees are levied on system users in proportions that are as close as feasible to the direct benefit that the users get out of the system." He adds that, "although the votes brought to the table by the transit lobby were the key to getting the biggest-ever increase in the 'user fee' on drivers and truckers, the addition of mass transit to the Trust Fund made the gas and diesel taxes resemble true 'user fees' much less."[8]

Since the 1982 legislation, every subsequent reauthorization of the federal program has led to further departure from the users-pay/users-benefit principle. The most sweeping change occurred with enactment of the Intermodal Surface Transportation Efficiency Act (ISTEA) in 1991. It created two new programs within the Highway Trust Fund, both of which were to be "flexible," allowing states and metro areas to switch funds from highway to non-highway uses. The Surface Transportation Program (STP, funded at $23.9 billion over six years) allowed highway funds to be spent not merely on transit projects but on bike paths, sidewalks, recreational trails, landscaping and historic preservation—all under the rubric of "transportation enhancements." The Congestion Mitigation and Air Quality Program (CMAQ, funded at $6 billion) funded a wide variety of projects intended in some manner to reduce emissions and/or reduce congestion.

ISTEA also imposed extensive new transportation planning requirements on Metropolitan Planning Organizations (MPOs). As political scientist James Dunn notes, "The increased complexity of planning infrastructure investments reflects so many goals (air quality, promoting public transit, historic preservation, wetlands protection, environmental justice) that moving cars can get lost in the shuffle."[9]

Subsequent reauthorization measures—TEA-21 in 1998 and SAFETEA-LU in 2005—have expanded the extent of "flexibility," and increased both the number of specific transportation programs and the complexity of transportation planning requirements.

As of this writing, the only draft reauthorization bill—the House's Surface Transportation Authorization Act—would complete the transformation of what used to be called the highway program into an overall transportation program, and convert the former highway user taxes into general transportation taxes. The Congressional Research Service's impartial analysis notes that the bill "reflect[s] policies that favor alternatives to the automobile, such as transit, bicycles, and walking."[10] The CRS analysis notes that "STAA would allow for a major expansion of funding transferability between highway and transit programs and a broadening of direct project funding eligibilities to allow an increase in direct highway funding of transit projects or direct transit funding of highway projects."[11] Although as of spring 2010, STAA still had no funding provisions, CRS interprets the wording of the bill to imply that STP "could be substantially expanded by STAA in dollar terms." Moreover, it would shift several of the non-highway programs (including Safe Routes to Schools, Transportation Enhancements, Recreational Trails, Scenic Byways and the U.S. Bicycle Route System) into a new FHWA Office of Livability. It would also "specifically require that ten percent of STP funds must be obligated for Transportation Enhancement activities."[12]

Even this is not enough for some opponents of highways and automobiles. The Smart Growth Partnership is promoting a measure called the Complete Streets Act, which would require state DOTs and MPOs to adopt new traffic-calming street designs with full sidewalks and bikeways, if necessary at the expense of traffic lanes.[13] The two before-and-after photos on the Complete Streets website both show four-lane urban streets reduced to two lanes to permit the addition of raised

medians, bike lanes and traffic-calming bulb-outs. The "Policy Elements" discussion on the coalition website says the bill would apply to "all agencies and all roads," though it would allow for exceptions such as Interstate highways. And it would apply to all new roads and road-improvement projects.[14]

All of this perfectly exemplifies the loss of national purpose and focus in the federal transportation program. When legislation in 1956 expanded the federal government's role in transportation in order to create the Interstate system, the Interstates were a clear national project with national benefits. Traffic calming in Tampa or Boise, or bike paths in Buffalo or Phoenix, do not provide national benefits and should not be federally funded. Paying for them with highway user fees also increasingly abolishes the users-pay/users-benefit principle and increasingly transforms fuel taxes from user fees to transportation taxes paid by one group to provide for benefits for other groups.

The federal transportation program needs to refocus on the national transportation system and leave local projects with local benefits to local governments. At the same time, state and local governments need to quit seeking federal funding for their local projects that are not critical parts of national networks. A crucial part of this is restoring the users-pay/users-benefit principle. If there are non-highway transportation projects with national benefits and scope, they should be paid for with general fund tax revenue, not highway user fees.

Part 3

The Need for Increased Highway Investment

Some of those supporting expanded diversion of highway user revenues, or even the termination of the users-pay/users-benefit principle, argue that since the Interstate system is long-since completed, the federal government should shift its focus to other priorities, such as promoting intermodal transportation, reducing Americans' "dependence" on automobiles, and shifting as much freight as possible from truck to rail.[15] They see the current reauthorization effort, coming as it does at a time of distress over greenhouse gases and concern over petroleum imports, as a historic opportunity to make such a shift.

But the age of highways, automobiles and trucks is far from being over. Trucks haul the large majority (by value) of all goods moved in America—and FHWA projections show that this truck volume will increase 2.5-fold by 2035.[16] All responsible projections, based on continued growth in both population and GDP, show continued growth in driving, as measured by vehicle miles of travel (VMT), in coming decades—even though the rate of increase in VMT has been slowing down.[17] Decades of spending far more per transit rider than per highway user in our major metropolitan areas has not halted the decline in transit's market share of travel. People expect, and our economy depends on, improving mobility. We need a system that makes it easier for more people to connect to more places, and it remains roads and personal vehicles and trucks that provide that mobility. Consequently, the need for highway investment will continue.

There are five fundamental reasons why America must continue large-scale capital investments in its highway system.

- First, highways and bridges wear out over time, yet limited preservation investment in recent decades has allowed the accumulation of huge backlogs of deferred maintenance and rehabilitation, leading to faster deterioration.
- Second, when highways and bridges do wear out they must be replaced; much of the Interstate system will be in this situation in the next two decades. And the cost of replacement, 50 years after original construction, is many times that original cost.
- Third, the places where Americans live and work have changed dramatically since the Interstate system was planned in the 1940s; hence, some new highways are needed to connect places that scarcely existed 70 years ago (e.g., the missing Interstate link between Phoenix and Las Vegas).

- Fourth, given the enormous growth in both population and affluence since the 1950s, significant portions of our major highways are under-sized for current, let alone future, travel demand. Improved performance (e.g., reduced congestion) therefore requires additional capacity.
- Fifth, Americans continue to consume more, and goods move in this country mainly by roads. Almost 70% (by weight) of domestic freight moves by truck.[18] And a great deal of the freight moved primarily by rail also moves by truck for part of its journey. Continuing to move more goods more quickly will require better performing roads.

A number of organizations have made serious estimates of highway capital investment needs in recent years. They include the American Association of State Highway and Transportation Officials (AASHTO),[19] the National Surface Transportation Policy and Revenue Study Commission,[20] the National Surface Transportation Infrastructure Financing Commission,[21] and the Federal Highway Administration (FHWA). All four use the same underlying database, but make somewhat different assumptions for their analysis.

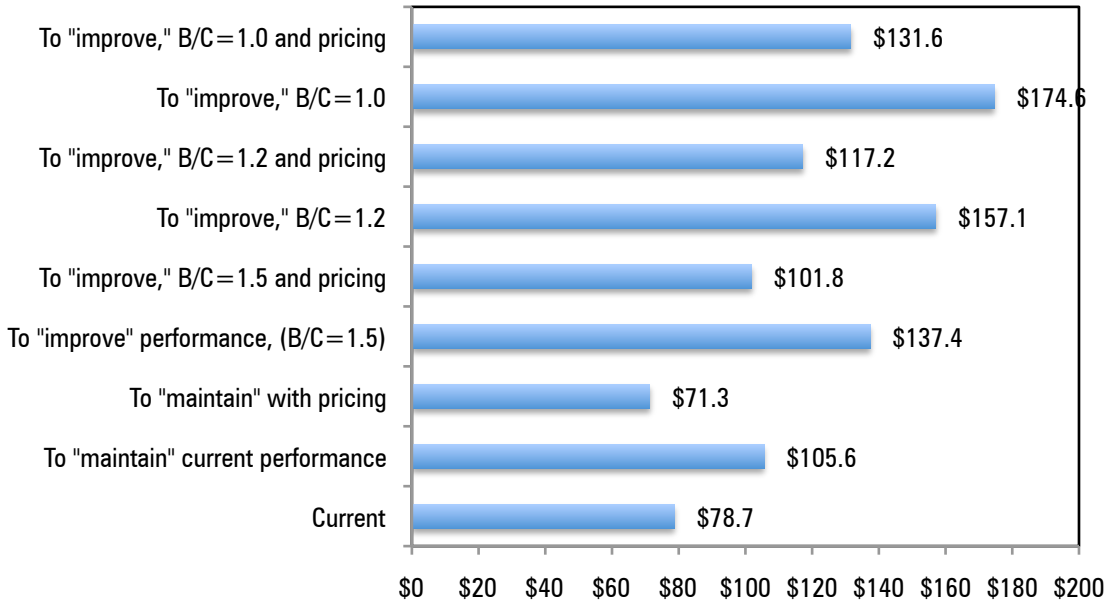
Congress requires the FHWA to make estimates, every two years, of the capital costs needed to "maintain" and "improve" the existing highway and transit infrastructure of the United States, accounting for federal, state and local funding sources. Their biennial report is called the Conditions and Performance (C&P) Report. The 2008 edition was released early in 2010.[22]

For the 2008 C&P report, the FHWA devised a number of different investment scenarios, using three different benefit/cost ratio thresholds for investment, and some scenarios which assumed that congestion pricing is applied to all congested highway segments. To begin with, in the reference year of 2006, federal, state and local governments invested $78.7 billion in the nation's highways, bridges and streets. This capital investment was for both preservation/rehabilitation of existing infrastructure and for additions to current capacity. Over the next 20 years, to sustain current conditions (of bridges and pavements) and performance (especially congestion), FHWA's model found that annual investment should be $105.6 billion—nearly $27 billion more than in the reference year.

To improve conditions and performance over the next 20 years, FHWA modelers analyzed scenarios in which all funded projects would have to pass a benefit/cost ratio hurdle of at least 1.0, 1.2 or 1.5. With the minimal requirement that benefits must at least equal costs (i.e., B/C = 1.0 or higher), the required annual investment would be $174.6 billion—more than double the current annual total of $78.7 billion. That number drops to $157.1 billion with a 1.2 B/C hurdle, and declines further to $137.4 billion with a 1.5 B/C hurdle. Given the enormity of the challenge involved in significantly increasing highway investment, we will use an investment threshold of a B/C ratio of at least 1.5 in this report.

FHWA also ran the same scenarios under the assumption that variable tolls (congestion pricing) would be used in conjunction with increased investment. Rather than devising an arbitrary rate at which pricing would be phased in, the modeling assumed that all congested highway segments would be priced immediately. While obviously unrealistic, these scenarios give us a lower bound on the annual investment levels needed for the various scenarios. Thus, to sustain current conditions and performance, annual investment with pricing would be only $71.3 billion, slightly less than the current total. For the nearly unconstrained "improve" scenario, widespread pricing would reduce the annual investment from (unpriced) $174.6 billion to $131.6 billion. And for our preferred B/C hurdle of 1.5, pricing would reduce the annual investment needed from the previous $137.4 billion to just $101.8 billion. That's still a significant increase from the current $78.7 billion, even though the assumption of immediate and widespread congestion pricing is highly unrealistic.

Figure 1: Annual Highway Investment Needs (from FHWA 2008 C&PP Report) ($Billions)



The bottom line of this analysis is that assuming the use of a realistic 1.5 B/C threshold for highway capital investment projects, the annual amount needed to improve highway conditions and performance nationwide is between $102 billion and $137 billion. Any number within that range would be a large increase over the reference year total of $78.7 billion.

There is some uncertainty in all this. For example, the level of need to replace worn-out highways and bridges is in dispute. A recent National Cooperative Highway Research Program (NCHRP) study included a Task 14, which concluded that current Interstate reconstruction needs are not adequately reflected in the C&P and related reports.[23] The most recent AASHTO *Bottom Line* report summarizes this finding:

> *Today large parts of the Interstate system are reaching the age where major reconstruction will be required. This work has already begun around the country and reconstruction costs have been dramatic. It is not possible at this time to estimate the costs involved in a complete reconstruction of the system. A special analysis conducted to assess how to obtain reconstruction cost estimates recommends that the states conduct a complete systematic nationwide inventory of the Interstate system to determine the future investment requirements.*[24]

But all of these reports take as given the current system for funding transportation and, more importantly, the current level of efficiency and priorities. Given the large gap between estimated needs and estimated revenue, the smart thing to do is think about how to tackle the gap from every direction. Therefore, it is crucial to note several caveats to the estimates from AASHTO, the Policy and Revenue Commission, the Infrasructure Financing Commission and the FHWA.

First, because they are the sum of federal, state and local capital spending on highways, these totals imply no specific shortfall amount at the *federal* level. Most recent reports (such as those from AASHTO and the two national commissions) assumed that the federal government should cover its "historic" share of 45% of the total. But what share should come out of *federal* funding depends critically on how the federal role is defined, which is one of the subjects of this paper. Current federal revenues are probably enough to maintain the current Interstate system and some other crucial national highways. The vast majority of the unmet needs for new roads and the unfunded maintenance are on road systems of more state and local importance and should not be federal priorities. So there may be little or no "gap" in federal funding vs. needs.

Secondly, most of the totals in highway groups' needs estimates implicitly assume that all of the highway projects involved would be un-priced, such that they appear "free" at the point of use. But economists understand that pricing can significantly affect how much of a good or service will be used, and provide better information for making decisions about what investments are needed. Hence, as in the 2008 C&P report, alternative scenarios that involve various degrees of pricing would produce lower total capital investment needs.

Third, many estimates of highway and transit needs are derived not from a performance-based prioritization process, but from a highly politicized process where projects are moved to the top based on preferences of legislators on key state or congressional committees, or to chase after "free" federal funding. Likewise, a significant portion of current transportation funds is spent on projects with popular or political appeal but little mobility benefits. The many metro areas that spend 30-50% of all transportation funds on transit, bicycle and walking paths that account for less than 10% of travel (and thus are spending only 50-70% on the road system that carries at least 90% of travel) will continue to have vast unmet "needs." Proper prioritization of the use of transportation funds will do much to close the needs gap.

Fourth, these estimates assume costs based on the current way of doing projects, rather than examining ways to reduce project costs. State and local governments could do much to reduce the costs of building new transportation projects and maintaining existing ones. Wider use of design-build project approaches would reduce project costs by 5 to 10%. Many projects that could be priced could be built with at least some of the cost from private capital in public-private partnerships (PPPs) that can reduce the costs of the project. Even PPPs that don't involve private capital, such as availability payment structures, can reduce project costs. State and local governments that contract out road maintenance typically save 10 to 20%, and that could be much more widely practiced.[25]

So how does this all add up? We would say that there is a great deal that can be done to close the needs gap with current revenue. But even if we did all that, at least for the next decade or so there is a clear case for increasing highway investment in America. The current reauthorization will be a failure if it does not address this critically important need.

Highway Funding Beyond the Fuel Tax

In 2006 a special committee of the Transportation Research Board concluded that although the fuel tax had served the nation well as the 20th century's primary source of highway funding, it was not up to the task of doing so in the 21st century.[26] This conclusion was based on plausible projections of increased motor vehicle fuel economy, a likely evolution to non-petroleum sources for vehicle propulsion, and other factors. While recommending that the nation retain the principle of users-pay funding, the TRB committee urged expanded use of tolling and a gradual transition to a more direct form of paying for highway use, based on miles traveled. (It also called for developing broad-based tax support for transit, rather than increasing the extent of transfers from highway user revenues.) Finally, it called for further research on the impact of finance arrangements on transportation system performance.

Those concerns and recommendations set the stage for Congress to create the National Surface Transportation Infrastructure Financing Commission. Its 2009 final report recommended that the nation begin planning now to transition from motor fuel taxes to road-use charges based primarily on vehicle miles traveled (VMT charges).[27] Our premise in this report, despite its near-term emphasis on federal fuel taxes and the Highway Trust Fund, is that replacing fuel taxes with VMT charges is the preferred way forward, for 21st-century highway funding.

In advocating this shift, however, we emphasize that what the nation should adopt are VMT *charges*, not VMT taxes. This is not mere semantics. This paper has stressed the many advantages of the users-pay/users-benefit model for highway funding. As noted in the main text, this means of paying for highway use is analogous to bills (based on usage) for using other network utilities such as electricity, telecommunications, water, natural gas, etc. Hence, a VMT charge should be configured as a payment for the use of roadway infrastructure. As such, its amount and structure should be based on two principles:

- Cost recovery—enabling the infrastructure provider to recover the full (life-cycle) costs of building, operating, maintaining, expanding and ultimately replacing the infrastructure in response to customer demand.
- System management—structuring the charges to manage short-term (hourly, daily) demand for best overall service to customers.

The cost recovery principle obviously means that the charge per mile traveled can be different for different categories of roads: urban expressway vs. rural two-lane highway, major urban arterial vs. neighborhood street, etc. The costs of building and maintaining different categories of roads vary enormously, reflecting not only the type and size of road but also geography and land costs. Cost recovery also means that the charge per mile can be different for types of vehicles that impose markedly different cost to the roadway provider—as heavy trucks do compared with almost all other types of vehicles.

The system management principle means that various forms of congestion pricing are legitimate, as long as they are used to manage traffic flow rather than to extract monopoly profits. This may require some type of regulatory oversight.

These principles are equally applicable to roads built and operated by state DOTs, by government toll authorities, and by investor-owned companies operating under long-term concession agreements.

What has not been included in these principles are road-user payments for negative externalities imposed by road users on the surrounding people and environment. Addressing such externalities—noise, tailpipe emissions, CO_2 emissions, etc.—is a task for government in its regulatory role. In the United States, this is sometimes done via regulations (e.g., CAFÉ standards on motor vehicle fuel economy, technology mandates such as catalytic converters) and sometimes via externality taxes (e.g., proposed carbon taxes or the cap-and-trade alternative). Various states have also legislated requirements for noise walls along certain types of roadways in urban areas.

It is legitimate for government to take action against externalities that cause harm to non-consenting parties. But our distinction is between the roads-utility function (which can be carried out by DOTs, toll authorities, and concession companies) and the regulatory function (which is purely governmental).

Some of those proposing VMT charges want such charges to be based on a host of factors that are regulatory in nature—such as engine size, CO_2 emission level, number of occupants, etc. Doing so would seriously blur the distinction between a charge and a tax, thereby undercutting the utility-pricing model and the many benefits of the close connection between users-paying and users-benefitting. It would also increase the political difficulty of replacing fuel taxes with VMT charges, by introducing a host of "social engineering" factors that would engender opposition.

In short, our proposal for restoring the users-pay/users-benefit model for highway user taxes in the near term is intended to restore and strengthen this principle in advance of the necessary transition from fuel taxes to VMT charges.

Part 4

What is the Appropriate Federal Role?

Why do we have a federal government? Most historians and political scientists would say that it exists to do things that the state governments cannot do—and potentially to keep the states from doing harmful things. One of the reasons for replacing the Articles of Confederation with the Constitution was that under the former, the original 13 states were erecting barriers to interstate commerce. To the framers of the Constitution, fixing this problem was so important that it led them to include the interstate commerce clause. Yet despite the widely accepted view of the appropriateness of the federal government ensuring the free flow of interstate commerce, the idea of the federal government, rather than the states, building and operating highways was controversial right up until the creation of the Interstate highway system.

To be sure, in the first half of the 20th century there was a well-marked system of U.S. highways, ranging from US1 on the east coast to US101 on the west coast. But it was well-established that these highways were owned, operated and maintained by the states, though they took advantage of modest federal aid that was provided, based on a two-cent federal fuel tax. (Prior to the creation of the Highway Trust Fund in 1956, however, the federal gas tax was considered general federal revenue, and federal highway aid was appropriated each year from general revenues.)

From time to time, experts on federalism have questioned the current division of responsibilities between the federal, state and local governments. In her 1992 book for the Brookings Institution, Alice Rivlin recommended that "The federal government should eliminate most of its programs in education, housing, highways, social services, economic development, and job training," so that it could focus its resources on more truly national priorities.[28]

In 2004, Tom Downs, a former senior official with a number of federal, state and local transportation agencies, gave the Turner Lecture at the annual American Society of Civil Engineers conference. His assessment was that the federal transportation program had evolved into little more than a revenue block grant to the states, with no clear national objectives. After further cataloguing the program's shortcomings, he suggested that "It is time to seriously consider an option that has been rejected out of hand in the past, namely a reversion of the . . . federal gas tax to the states."[29]

Still more recently, the Government Accountability Office, in a whole series of reports, has cited many of the same shortcomings of the federal programs as have other critics. It recommended "identifying issues in which there is a strong federal interest and determining what federal goals should be related to those interests. . . . For issues in which there is a strong federal interest, ongoing federal financial support and direct federal involvement could help meet federal goals. But for issues in which there is little or no federal interest, programs and activities may best be devolved to other levels of government."[30]

If we could start with a clean sheet of paper in the highway sector, it would seem obvious that federal transportation dollars should be narrowly focused on transportation projects that are clearly national in scope or impact.[31] Instead of focusing on funding state programs through a highly

politicized process plagued by redistribution, pork barrel spending and projects that would never pass a benefit/cost analysis, federal transportation policy should focus on key areas of national interest:

- Maintaining the Interstate system—The federal government should work with states to maintain the core national mobility and goods movement network.
- Interstate highway upgrades—When state highways link up regionally in fast-growing corridors, sometimes an upgrade to an Interstate will make sense, and the federal government should partner with states to accomplish that.
- Multi-state coordination—Some transportation problems, particularly in expanding urban areas, have taken on multi-state dimensions. The federal government can serve a useful role in mediating and even coordinating transportation decisions, infrastructure and funding, given its constitutional role in facilitating interstate commerce.
- Freight corridors—Producers need the roads to get materials in and products out; services need roads to interact with customers, and consumers need roads to connect with goods and services. Protecting interstate commerce is a national issue and federal transportation policy should ensure that major interstate goods movement corridors and bottlenecks receive adequate capacity and maintenance.
- Transportation research, safety and related issues—The federal government has been the lead driver on a lot of research into new technologies and methods of managing transportation systems, coordinating common standards, incentivizing experimentation and innovation. Highway safety regulation, in a major nation involved in the global economy, needs to be uniform and national in scope, so it is appropriate that the National Highway & Traffic Safety Administration (NHTSA) and the National Motor Carrier Safety Administration (NMCSA) be part of the U.S. Department of Transportation and federally funded.

The current federal surface transportation program, as noted in Part 2, bears little resemblance to this model. Congress has gradually expanded the "federal" program—originally concerned almost exclusively with the Interstate highway system—into an all-purpose highway, streets, sidewalks, bikeway and transit program, with many additional frills and flourishes, called "enhancements." There is no federal purpose for this enormous expansion of scope other than (1) it enables members of Congress to provide desired projects to organized interest groups, and (2) those paying the federal "highway user taxes" have failed to protest effectively at the diversion of their "highway utility bill" payments to these ever-expanding purposes.

Part 5

Refocusing the Federal Role and Program

What would it mean to refocus the federal program along the lines set forth in the previous section? One key provision would be to redefine federal highway user taxes as user fees for high-priority federal highway purposes only. The second key provision would be a credible commitment to rebuild and modernize the Interstate system to (1) facilitate interstate commerce and travel, and (2) reduce congestion, especially on urban Interstates, working with state and local governments. The only other uses of federal highway user-tax monies would be to:

- Operate the refocused Federal Highway Administration;
- Fund highway safety programs, and
- Fund highway transportation research.

Based on that prescription, this section seeks to estimate the amount of annual spending that would be shifted from non-highway to highway purposes under this new approach. To do this, we must identify all the non-highway activities currently being funded out of the Highway Trust Fund. Our starting point is a 2009 Government Accountability Office report analyzing highway and non-highway expenditures from the Highway Trust Fund during the five-year period 2004-2008.[32] The task is to go through the various categories identified in this report, separating them into those that relate directly to the refocused FHWA and those that do not.

A. Enhancements and Miscellaneous

GAO's Table 2 identifies $3.75 billion worth of "transportation enhancement" projects funded by highway users during the five-year period. Just over $2 billion of this is for pedestrian and bicycle projects, with other monies going for scenic beautification, historic preservation, transportation museums, rehabilitation of historic transportation buildings and facilities, etc. None of these activities fit the refocused federal highway program definition. In addition, the GAO's Table 3 identifies a mixture of highway-related (though not strictly construction or maintenance) and non-highway-related projects, totaling $24.2 billion over five years. To avoid confusion over how these items are treated, we reproduce here all the categories from GAO's Table 3 and indicate which ones would remain as part of the refocused FHWA.

Table 1: Miscellaneous Highway Trust Fund Programs Retained and Not Retained (5-Year Totals)		
Category	**HTF Amount ($M)**	**Retained?**
Safety	$8,111	Yes
Planning	$3,089	Yes
Traffic Engineering	$1,814	Yes
Utilities (ROW, etc.)	$1,586	Yes
Research	$1,321	Yes
Debt Service	$1,241	Yes
Rail/Highway Crossings	$1,100	Yes
Environmental/Highway	$449	Yes
Vehicle Weight Enforcement	$107	Yes
Other (trails, etc.)	$4,388	No
Administration (trails, etc.)	$ 355	No
Transit	$318	No
Training (non-FHWA)	$164	No
Ferryboats and Facilities	$121	No
Youth Conservation Service	$13	No

Source: GAO-09-729R

To summarize, of the $24.2 billion (over five years) for these miscellaneous expenditures, FHWA would retain $9.2 billion for various safety programs, $8.3 billion for the highway-related project activities, and $1.3 billion for research. Some $5.4 billion would become newly available for highway purposes.

B. Urban Mass Transit

During the five-year period analyzed by the GAO, the Federal Transit Administration received $34.6 billion from the HTF's Mass Transit Account. But in addition, highway monies were "flexed" by state DOTs (as permitted by law) under three FHWA programs, as follows:[33]

Congestion Mitigation and Air Quality (CMAQ)	$3.20 billion
Surface Transportation Program (STP)	1.83 billion
Other	0.06 billion
5-Year Total:	$5.09 billion

And another $0.32 billion was identified as transit spending in the GAO's Table 3. Thus, over the five-year period, just over $40 billion of highway user tax revenue was shifted to transit.

C. Federal Highway Safety Regulation

In addition to providing funding for a variety of highway safety programs, the HTF was the source of funding for the two federal highway safety agencies: the National Highway Traffic Safety Administration and the Federal Motor Carrier Safety Administration, accounting for $5.6 billion over five years. In general, federal safety agencies are paid for out of general fund monies, not user taxes. This is true of the Consumer Product Safety Commission, the safety regulatory functions of the Federal Aviation Administration, the Federal Railroad Administration, the Nuclear Regulatory Commission, and most of the budget of the Food and Drug Administration. Consistency argues for shifting NHTSA and FMCSA to general-fund support, as well.

Based on the above paragraphs, the amounts the Highway Trust Fund would no longer fund are summarized in Table 2.

Table 2: Summary of Deletions from Highway Trust Fund

Category	5-Year Total	Annual Average
Transit (Mass Transit Account/flexed/other)	$40.01B	$8.00B
Safety Regulation (NHTSA, FMCSA)	5.60B	1.12B
Enhancements	3.75B	0.75B
Miscellaneous	5.36B	1.00B
Totals:	$54.72B	$10.87B

During the five-year period analyzed by the GAO, the FHWA spent $234.7 billion (after subtracting $8.4 billion of general fund money that covered a portion of the FTA's budget). Thus, the average annual amount drawn from the Highway Trust Fund was $46.9 billion per year. Consequently, having $10.9 billion more to spend on highways would represent a 30.3% increase, with no change in current federal fuel tax rates.

However, during the SAFETEA-LU period, Congress directed that FHWA spending rely on both using current highway user tax receipts and drawing down the entire unspent balance in the HTF. Since that balance is now gone, during the next five years the only monies available to the FHWA are the projected receipts from highway user taxes. In August 2009 both the Congressional Budget Office and the Office of Management and Budget produced forecasts of HTF receipts and potential outlays for fiscal years 2010 through 2014.[34] The figures on receipts from both sources were very similar, averaging $38.3 billion per year over that time period. In this new environment, shifting $10.9 billion per year from non-highway to highway purposes would mean an increase in federal highway spending from $27.4 billion ($38.3B minus $10.9B) to $38.3 billion, an increase of 39.8%.

How much additional Interstate investment would this permit? In FY 2006, the nation spent $16.75 billion on Interstate capital expenditures, and $2.28 billion on Interstate maintenance,[35] for a total of $19.03 billion. Total gross federal highway spending that year was $32.3 billion.[36] If we subtract the annual amounts of "retained" headquarters spending given in Table 1 (safety, planning, etc.) totaling $3.76 billion per year, the net available for spending on highway projects would be $28.5 billion per year. Thus, if all of that were devoted to Interstates, the net increase in Interstate investment would be $9.5 billion per year. That would be a 50% increase in Interstate spending.

The intent of this policy change is to increase total highway investment, especially on the Interstate system. Whether this $9.5 billion annual increase would be enough to rebuild and modernize the Interstate system over the next several decades must await a more rigorous assessment of what such a program would cost. Over 20 years, that annual increase would produce $190 billion. And this increase could be done without an increase in federal fuel tax rates.

Part 6

Political Feasibility

How politically feasible is the refocusing of the federal highway program outlined in previous sections? Whether such a major shift could come about would depend principally on three considerations. First, would this approach cut the Gordian Knot that has prevented much-needed investment in America's highway infrastructure in a way that could build support from those groups that care the most about that issue? Second, could supporters of transit and other transportation choices be assured of funding to replace what they now receive from the Highway Trust Fund? And what would be the impact on state DOTs from this shift? This section addresses these issues.

A. Gaining the Highway Community's Support

Since enactment of the federal ISTEA reauthorization in 1991 (which increased the federal fuel tax rate by 5 cents/gallon), there have been no further increases in the federal fuel tax rate. And despite increased efforts on the part of public officials, only 21 of the 50 states have enacted any increases in state fuel taxes in that nearly two-decade period.[37] Taxpayer groups at both federal and state levels increasingly point to non-highway uses of fuel taxes, which lead fuel taxes to be seen as "just another tax"—and this message appears to resonate with taxpayers. The proliferation of earmarks in recent transportation reauthorization measures has added to this public disaffection.

This point is borne out by a growing volume of public opinion survey data. A 2006 survey of California voters, by researchers from Portland State University and San Jose State University, offered voters 13 options (various tax and toll possibilities) to raise money for new transportation facilities in that state.[38] The top-ranked choices, with support in the 50-60% range, were all toll options. Only 40% favored increasing the gas tax, and just 27% supported indexing it to inflation. And although transportation-only sales taxes are widely used in California's urban counties, only 40% favored increased use of that option. Also in 2006, the American Automobile Association did a national survey of transportation funding options. Only 21% favored increasing the gas tax to pay for new highways, while 52% favored tolling for new capacity.[39] In 2008, the National Cooperative Highway Research Program released a national synthesis report on voter/taxpayer response to tolling and road pricing. The study analyzed and summarized the results of numerous public opinion polls on aspects of this topic—a survey of surveys.[40] One of the study findings was that "the public favors tolls if the alternative is taxes."[41]

One likely explanation for all of these results is as follows. The typical voter, who is a motorist, knows that if she supports a tax increase (fuel tax, sales tax, etc.) dedicated to transportation, she will definitely pay more—but she doubts that her own transportation problems will be eased. On the other hand, by supporting toll funding, she has reasonable confidence that she will only pay more if a toll project built in her region is both convenient for her to use and a good value for the amount of toll charged. She is free to use that toll road or not.

Members of the traditional highway community continue to advocate fuel tax increases as if they were what they used to be. For example, here is the former editor of *Better Roads* magazine in a recent editorial: "The fuel tax is a user fee. You pay for what you get, and you get what you pay for. And if we don't start paying more for our roads, we are going to get a lot less."[42] Editor Kirk Landers is talking about the fuel taxes of the 1950s and '60s, not the general-purpose public works taxes of today that voters have lost faith in.

The two national commissions, in 2008 and in 2009, ably documented the huge highway investment shortfall and the need to do something about it. But the Policy and Revenue Commission, instead of proposing a narrower focus for the federal program, proposed greatly expanding its scope to encompass much greater federal transit assistance, new high-speed rail initiatives, waterways improvements, freight-rail projects, and as well as new energy and environmental programs—all to be funded out of greatly increased federal and state gasoline taxes. Not only was their call for potentially tripling the federal gas tax dead on arrival, but their proposal would also have obliterated any remaining vestiges of the users-pay/users-benefit principle. It would have completed the job of converting what once was a true user fee into a general-purpose transportation/energy/environment tax, but with the burden of paying for everything falling solely on motorists and truckers.

The members of the traditional highway coalition—including the American Highway Users Alliance, the American Automobile Association, the American Trucking Associations and the American Road & Transportation Builders Association—all continue to use and support the "fuel tax = highway user fee" language. But historically, to varying degrees, these groups have been willing to support diversions of fuel taxes to other purposes in exchange for a larger total program (and hence more total highway funding). But while that approach succeeded in ISTEA and subsequent reauthorizations, what is currently on the table in the House reauthorization bill—STAA—would change that trade-off. As currently written, it would dramatically expand the ability of states to "flex" what used to be highway funding, to the point where at least one analyst has estimated that out of the proposed (but unfunded) six-year $450 billion total, "only $100 billion of this is dedicated to highways."[43] That is the combined total of the to-be-consolidated Interstate Maintenance and National Highway System programs. Most of the rest of the nominal highway spending is flexible, and the program also elevates and expands programs for sidewalks, bike paths and trails to a higher level by creating an Office of Livability within the FHWA to institutionalize and oversee them.

By contrast, the proposed refocusing called for in this report would actually provide for a 50% increase in much-needed federal highway investment, focused on the truly federal priority of rebuilding and modernizing the Interstate system. No reliable cost estimate has been made on what it would take to rebuild and modernize the Interstates over the next, say, 20 years. One national study of urban freeway interchange bottlenecks estimated benefits (but not costs) from reconstructing both the 24 most seriously congested major interchanges and 209 other congested ones.[44] Assuming that each of the 24 major interchanges averaged $1 billion to rebuild and the other 209 averaged $500 million, the total cost would be $128 billion. But the benefits would greatly outweigh these costs. Cambridge Systematics estimated the 20-year savings in vehicle hours of delay at 48 billion and the gallons of saved fuel at 40 billion. At $26.50 per hour of vehicle delay[45] and $3/gallon, the 20-year benefits would total $1.394 trillion, for a benefit/cost ratio of 10.9.

A 2005 study for the Institute of Defense Analysis estimated that adding networks of HOT lanes for congestion relief to the (mostly Interstate) urban freeway systems of the nation's 19 most congested metro areas would cost $98 billion.[46] As noted previously, AASHTO has called for a study of what it would cost to reconstruct all major Interstates as they reach the end of their

original design life. And the U.S. DOT's *2008 Conditions & Performance Report* estimated the average annual investment needed to "improve" the conditions and performance of the Interstate system. Using a benefit/cost ratio threshold of 1.5, this report estimates the annual need at between $24 billion (with maximum use of congestion pricing) and $39 billion (with no pricing)—compared with the current annual Interstate capital investment of $16.5 billion. Thus, the annual increase would be somewhere between $7.5 billion and $22.5 billion, depending on the extent to which congestion pricing was implemented. Our proposed $9.5 billion per year increase in annual Interstate investment falls within that range.

Even with our proposal to use the bulk of federal highway user tax revenues for Interstate modernization, the system might need additional revenue and financing. If that's the case, officials can increase the use of public-private partnerships, tolling, and congestion pricing. But there is currently little appetite among taxpayers and road users to increase what they pay into the system. There is a profound lack of trust in the current system, where the "Bridge to Nowhere" is the poster child for how decisions get made—politically, not sensibly. Beyond public opinion, there are sound reasons for highway users to be unwilling to pay more. The current system does not do well prioritizing the use of current user fees, with too many projects driven by politics, and too much spending of highway user fees on projects that don't benefit those who pay the fees. The current system does not efficiently use current funds (e.g., by visibly seeking PPPs and other means to keep project costs low). Instead we see escalating project costs, repeated delays and excuses. Until transportation agencies rebuild user fee payers' trust that current funds are being used in the best way possible, it is not reasonable to ask for more funds.

The question for highway supporters is whether to (a) continue supporting a federal program that is abandoning the users-pay/users-benefit principle, in hopes of eking out a net increase in highway funding, or (b) support the restoration of users-pay/users-benefit in a refocused program that has a reasonable chance of winning motorist and taxpayer support for increasing investment substantially in Interstate 2.0.

B. Funding Non-Highway Transportation

Would advocates of transit and "livability" support the proposed refocusing of the federal highway program? The default assumption must be "no," simply because the transit community fought for years to get federal support at all, and fought many more years to gain access to a portion of highway user tax revenue. Why give up an assured status quo for a speculative future? Nevertheless, a strong case exists that transit and related programs for non-motorized urban transportation can continue to be well-funded, even without access to a portion of federal highway user tax revenue.

The reauthorization debate takes place amid considerable political and popular support for measures to reduce petroleum use and greenhouse gas emissions. That means Congress will be motivated to fund federal programs such as urban transit and other "livability" measures, in the mistaken belief that such measures are cost-effective ways to achieve those goals. In our view there is not significant *national* benefit from or appropriate national goals served by such measures. At best, "livability" measures may be appropriate local goals. Should the federal government pursue such goals anyway, highway user taxes are not the only possible sources of federal funding. Such social goals, if pursued at all, should be transparently pursued with social funding sources such as general fund dollars and perhaps revenues from a cap-and-trade program if one is implemented.

1. General Fund Monies

During the 2008-2010 economic crisis, Congress has used general-fund monies three times to bail out the Trust Fund, supporting both its highway and transit components. The first bailout was $8 billion in September 2008, followed by $7 billion in July 2009 and $19.5 billion in March 2010. Congress authorized an additional $48 billion in general fund monies for surface transportation in the stimulus measure (American Recovery & Reinvestment Act) in February 2009. And all $13 billion of the stimulus money currently planned for federal high-speed rail support is general fund money. In effect, Congress has been expressing considerable willingness to spend general fund money on transportation infrastructure since 2008, and in a climate of popular support for reducing petroleum use and reducing greenhouse gases, that support seems likely to continue.

That doesn't make it a good idea. A recent article in *The New Republic* made this point explicitly about transportation, criticizing the recent uses of general fund monies to bail out the Highway Trust Fund.[47] It would make a lot of sense to leave the Highway Trust Fund a user pays/user benefits system. If broader social goals are sought from some non-highway transportation projects, it would make better sense to use general fund monies. Such programs reflect the nature of public goods—programs that provide general benefits to the public but for which it is not feasible to charge anything like what it costs to build, operate and maintain them. That is the case supporters make for such "social infrastructure" as trolleys, light rail, buses, sidewalks, bikeways, recreational trails, etc. Highways, on the other hand, can and should be self-supporting from user charges, which can be a combination of true user taxes and tolls. To ask highway users alone to support social infrastructure that they do not use because that social infrastructure produces general public benefits is unfair. If there are broad public benefits from transit, it should be paid for by general taxpayers. That is the principle under which general taxpayers pay for national defense, safety regulation, courts and welfare programs.

2. Cap and Trade Revenues

Some will argue that at a time of record federal budget deficits, it is not appropriate to add to the number of programs funded by general federal revenues. The benefits of a U.S. cap and trade system to try to limit greenhouse gases are controversial at best. But if such revenues existed, they might make more sense than general funds as a way to pay for social transportation projects.

Several proposed measures have called for doing that. The 2009 Kerry-Boxer Senate bill would devote a fixed portion (not yet specified) to "green" transportation, presumably mostly mass transit. The Carper-Specter CLEAN-TEA bill would allocate 10% of the revenues from any cap and trade measure to non-highway transportation projects such as urban transit and inter-city rail. And the 2010 Kerry-Lieberman American Power Act would allocate about $6 billion per year for transportation: one-third for the TIGER grant program, one-third for state/local transportation projects to reduce oil use and greenhouse gas emissions, and one-third for the Highway Trust Fund.

Noted transportation budget expert Jeff Davis has laid out a rationale for shifting transit funding from fuel taxes to non-highway revenue.[48] Here is the argument, condensed and paraphrased:

A. All the taxes that flow into the Highway Trust Fund (including its Mass Transit Account) are paid for by motorists, truck owners and bus operators.

B. Those who don't drive, such as regular transit users, don't pay any fuel taxes.

C. The intent of increased federal transit spending is to shift trips from cars to transit, thereby reducing the amount of fuel sold and used.

D. Thus, increased transit spending from the Trust Fund uses Trust Fund dollars in order to reduce the revenues going into the Trust Fund.

E. Every serious transportation person agrees that there aren't enough fuel tax revenues flowing into the Trust Fund to sustain current federal funding commitments.

F. If inadequate Trust Fund revenues are the big problem, *"then in what universe can it possibly be a good idea to spend a greater percentage of the Trust Fund's inadequate revenues on expanding transit systems in order to get more people to stop paying the taxes that suggest the Trust Fund, thus driving revenues down even further?"*

Davis goes on from there to support using cap and trade revenues to fund transit, freeing up gas-tax dollars to more adequately support the Highway Trust Fund's original purposes.

3. Federal vs. State and Local Support for Transit

It is also worth considering the same kinds of federalism issues addressed in Part 4 when it comes to transit and non-motorized transportation. Are these truly federal concerns? If federal funding were reduced, would metro areas be out of luck? How much of a difference does federal support make? An analysis of funding sources for all transit agencies listed in the National Transit Database for 2002, found that for those transit agencies with 2002 budgets of $10 million or more, the largest group received between 5 and 10% of their funding from the federal fuel tax; the next largest group received 10 to 15%. A small number received less than 5% (with some getting none at all), but some received upwards of 25%, with two outliers receiving 34.3% and 59.1%, respectively.[49]

More recently, a National Cooperative Highway Research Program report analyzed trends and patterns in federal and state government support for urban transit systems.[50] Using 2004 data, it identified seven states as having very large transit systems (CA, IL, MA, MD, NJ, NY and PA). Of the total in that year of $9.3 billion in state government support for transit, $7.6 billion was provided by those seven states, with all others accounting for the remaining $1.7 billion of state transit assistance. Of $7 billion in federal transit assistance that year, $4 billion went to the seven largest states and the remaining $3 billion went to all the others.

From these two sources, we can conclude that most transit agencies do not rely on the federal government for more than 20% of their total budgets, with many getting far less than that. In fact, data from the 2002 National Transit Database show that most of the very large transit agencies in the seven largest states received only 5 to 15% of their budgets from the federal government.

Transit is well-supported by state governments in states with large urban centers where there is significant demand for transit. While federal assistance is highly likely to continue in any case, concern about transit agencies' funding should be based on an accurate understanding of the fact that most of the dollars supporting transit in the United States today are state and local, not federal.

C. Impact on State DOTs

This study is proposing a major change in the role of the federal government in transportation funding, shifting its focus mostly to rebuilding and modernizing urban and rural Interstates. How would that affect state DOTs—and might they come to support such a change?

Our proposed refocusing of the federal transportation program would mean a change in federal spending that would increase spending on Interstate 2.0 by close to $10 billion per year. That increase would take a big load off the needs most states currently list. But, those increases in Interstate spending would mean a corresponding decrease in federal funding for other current state highway spending. Hence, states would be faced with the challenge of rethinking the remainder of their transportation programs, deciding if all current programs were worth retaining at their own taxpayers' and tollpayers' expense. At the same time, ending the current dominance of state transportation planning by the need to maximize the federal dollars they "win" from Congress would allow states to plan based on actual needs and performance rather than meeting the goals or whims of Congress and the FHWA.

Since some of these programs exist because they have been mandated as a condition of receiving federal funds, it is not clear that states would wish to retain them all. As the GAO assessment points out, these numerous federal requirements include mandates for safety belt usage, minimum drinking age and maximum blood-alcohol levels, Davis-Bacon labor requirements, Buy America requirements, various affirmative action mandates and transportation planning requirements. A recent GAO report found that many state DOTs avoid using federal funds when they can, so as to avoid project delays or the extra costs associated with meeting federal requirements.[51] In a GAO survey, 39 out of 51 state DOTs reported that within the last 10 years federal requirements had influenced their decision not to use federal funds for projects eligible for federal aid.

In some respects, our proposed change resembles earlier proposals for devolution of federal transportation funding and programs to the state level, as debated in the 1990s. Recently, the Government Accountability Office did a new assessment of hypothetical devolution of essentially the entire federal program (except for safety, research and highways on federal lands) to the states.[52] As part of that assessment, the GAO estimated how much each state would have to increase its per-gallon fuel tax in order to replace all its federal funding for highways (in a situation where the federal gas tax would have been close to zero). The GAO found that 30 states could do this with an increase smaller than the current federal tax rate (i.e., in those 30 states, there would be a net decrease of 1 to 6 cents per gallon in total gas taxes). Ten states would have to increase their gas taxes to a level higher than the current total gas tax rate, but by less than 5 cents.gal. Another five would need a net increase of less than 15 cents/gal. Only Alaska and DC would need larger increases, but those two will likely always require special treatment.

But our proposed reform is different from what the GAO modeled. The GAO's was a zero-sum scenario, leaving total highway and transit spending unchanged, whereas ours calls for shifting the bulk of federal highway investment to Interstate 2.0, with a net increase in Interstate investment of $9.5 billion per year.

To give a better sense of how this might play out for states, we start again with the GAO state-by-state analysis. Assuming that Congress kept in place current federal transit assistance (via general-fund or other non-fuel-tax source), if states wished to replace 100% of the non-Interstate portion of their former federal highway aid ($19 billion), that would be 66%, rather than the nearly 100% assumed in GAO's analysis. If they did this solely via an increase in state gas taxes, the extent of their gas-tax changes needed to retain all current (non-Interstate) highway programs would be much smaller than in the GAO's table, but there would also continue to be the current 18.3 cents/gallon federal tax, now devoted to Interstate 2.0. The first column in Table 3 shows the GAO zero-sum devolution scenario estimate. The second column shows the funding gaps under our Interstate 2.0 proposal—assuming the states don't change anything. For 31 states, the net gap would be 8 to 12 cents per gallon. For 10 other states, the net gap would be up to 16 cents/gal., with seven needing 17 to 26 cents/gal. Only three would have larger gaps.[53]

Table 3a: Impact of Proposal on State Revenue Needs			
State	GAO zero-sum scenario (¢/gal)	Interstate 2.0, 100% fuel tax replacement	Interstate 2.0 reduced fuel tax replacement
Virginia	-5.60	8.38	4.19
Arizona	-5.57	8.40	4.20
Colorado	-4.82	8.90	4.45
Minnesota	-4.58	9.06	4.53
Ohio	-4.24	9.28	4.64
Pennsylvania	-3.98	9.45	4.73
Maryland	-3.84	9.54	4.77
Oregon	-3.67	9.66	4.83
California	-3.62	9.69	4.84
Kentucky	-3.57	9.72	4.86
Utah	-3.31	9.89	4.95
Tennessee	-3.22	9.95	4.98
Maine	-3.06	10.06	5.03
Missouri	-3.00	10.10	5.05
Illinois	-2.92	10.15	5.08
Iowa	-2.91	10.16	5.08
Nevada	-2.91	10.16	5.08
Indiana	-2.82	10.22	5.11
New Jersey	-2.44	10.47	5.23
North Carolina	-1.97	10.78	5.39
Texas	-1.76	10.92	5.46
Georgia	-1.74	10.93	5.46
Michigan	-1.57	11.04	5.52
Wisconsin	-1.39	11.16	5.58
Washington	-0.69	11.62	5.81
South Carolina	-0.68	11.63	5.81
Nebraska	-0.42	11.80	5.90
Massachusetts	-0.37	11.83	5.92
Oklahoma	-0.06	12.04	6.02
New Hampshire	-0.05	12.05	6.02
Florida	0.24	12.24	6.12
Alabama	1.04	12.76	6.38
New Mexico	1.18	12.86	6.43
Kansas	1.65	13.17	6.58
New York	1.77	13.25	6.62
Arkansas	1.82	13.28	6.64
Delaware	3.55	14.42	7.21
Hawaii	3.57	14.43	7.22
Connecticut	4.03	14.74	7.37
West Virginia	4.18	14.84	7.42
Idaho	6.40	16.30	8.15
Wyoming	6.84	16.59	8.30
North Dakota	14.31	21.52	10.76
Vermont	14.39	21.58	10.79
South Dakota	14.94	21.94	10.97
Rhode Island	16.43	22.92	11.46
Louisiana	18.43	24.24	12.12
Montana	21.21	26.08	13.04
Mississippi	32.75	33.69	16.85
Alaska	40.32	38.69	19.34
D.C.	52.57	46.77	23.39

Table 3b: Impact of Proposal on State Revenue Needs in Alphabetical Order			
State	GAO zero-sum scenario (¢/gal)	Interstate 2.0, 100% fuel tax replacement	Interstate 2.0 reduced fuel tax replacement
Alabama	1.04	12.76	6.38
Alaska	40.32	38.69	19.34
Arizona	-5.57	8.40	4.20
Arkansas	1.82	13.28	6.64
California	-3.62	9.69	4.84
Colorado	-4.82	8.90	4.45
Connecticut	4.03	14.74	7.37
Delaware	3.55	14.42	7.21
District of Columbia	52.57	46.77	23.39
Florida	0.24	12.24	6.12
Georgia	-1.74	10.93	5.46
Hawaii	3.57	14.43	7.22
Idaho	6.4	16.30	8.15
Illinois	-2.92	10.15	5.08
Indiana	-2.82	10.22	5.11
Iowa	-2.91	10.16	5.08
Kansas	1.65	13.17	6.58
Kentucky	-3.57	9.72	4.86
Louisiana	18.43	24.24	12.12
Maine	-3.06	10.06	5.03
Maryland	-3.84	9.54	4.77
Massachusetts	-0.37	11.83	5.92
Michigan	-1.57	11.04	5.52
Minnesota	-4.58	9.06	4.53
Mississippi	32.75	33.69	16.85
Missouri	-3	10.10	5.05
Montana	21.21	26.08	13.04
Nebraska	-0.42	11.80	5.90
Nevada	-2.91	10.16	5.08
New Hampshire	-0.05	12.05	6.02
New Jersey	-2.44	10.47	5.23
New Mexico	1.18	12.86	6.43
New York	1.77	13.25	6.62
North Carolina	-1.97	10.78	5.39
North Dakota	14.31	21.52	10.76
Ohio	-4.24	9.28	4.64
Oklahoma	-0.06	12.04	6.02
Oregon	-3.67	9.66	4.83
Pennsylvania	-3.98	9.45	4.73
Rhode Island	16.43	22.92	11.46
South Carolina	-0.68	11.63	5.81
South Dakota	14.94	21.94	10.97
Tennessee	-3.22	9.95	4.98
Texas	-1.76	10.92	5.46
Utah	-3.31	9.89	4.95
Vermont	14.39	21.58	10.79
Virginia	-5.6	8.38	4.19
Washington	-0.69	11.62	5.81
West Virginia	4.18	14.84	7.42
Wisconsin	-1.39	11.16	5.58
Wyoming	6.84	16.59	8.30

But that approach would not be desirable or wise. States should not assume the status quo for how transportation planning and projects are done. States don't have to accept the "needs" for revenue under the status quo. The same imperatives we discussed for federal spending in Part 3 apply to the states. States need to clearly and transparently demonstrate that they are making the best possible use of current funds before they can discuss higher user taxes, including:

- Expanding the use of pricing, which is the most direct form of user fees. Pricing can pay for some or all of many projects and also better regulates demand and provides much better information on where new capacity is needed.
- Shifting to transportation planning based on better benefit/cost analysis and performance criteria rather than politicized choices based on the whim of powerful legislators.
- Vigorously striving to reduce project costs with wider use of design-build, etc. Use PPPs for projects that can be priced and can be built with at least some of the cost from private capital.
- Pursuing other measures to get more bang for the buck. In a 1996 study we calculated various adjustment factors to federal-aid dollars to account for administrative costs, Davis-Bacon and other regulatory cost impacts. Depending on whether a state had its own prevailing-wage statute analogous to Davis-Bacon, the adjustment factors varied from 61% to 69%—i.e., the net value of federal-aid highway dollars was estimated as worth only 61% to 69% of a state highway dollar, in terms of buying power.[54]

In the last column of Table 3, we approximate the combined effect of the factors noted above. States that focus on improving the use of current revenues should be able to close a lot of the gap that way, and should do so before considering additional revenue. We estimate that implementing all the measures above would close at least 50% of the gap, reducing state funding gaps by at least the amount shown in column 3.

It will take the federal government and states some time to phase in and implement the changes this study recommends. As federal fuel tax money is returned to the Interstate system, as was intended when the federal gas tax was created, states will lose some of the funding they've grown accustomed to. States can eliminate these potential funding gaps, which are estimated in the tables above, by reducing waste and bureaucratic costs; prioritizing road and highway projects that deliver the largest benefits to mobility and congestion relief; utilizing somewhat higher benefit/cost ratios when selecting new projects; tapping private capital and public-private partnerships to finance new roads; and making greater use of congestion pricing, toll roads, and high-occupancy toll lanes that charge drivers and truckers the full cost of the transportation services they use. Some states are already far more efficient than others, as shown in Reason's *Annual Highway Report*.[55] Many states, especially the 15 least cost-efficient states, would have significantly more money to spend on roads and highways if they bring system performance and cost-effectiveness in line with the top 10 states.

Summing up, there are good reasons for governors, legislators and state DOTs to seriously consider a reform along the lines proposed in this study. In addition to solving their major (currently unresolved) problem of rebuilding and modernizing their portion of the Interstate system, they would regain control of the rest of their highway program, free from numerous costly federal requirements, and could replace most worthwhile federal funding with better allocation of state funding and new use of of tolling before considering increases in state fuel taxes.

Part 7

Conclusion

This study has suggested an alternative to most of the recent prescriptions for reshaping the federal surface transportation program. Recommendations from reports such as that of the Policy and Revenue Study Commission would greatly expand the size and scope of the federal program. They would require a large increase in existing federal highway fuel taxes. And by spending those fuel taxes on a much wider array of non-highway purposes, they would essentially eliminate the original users-pay/users-benefit rationale that was the basis for creating the federal Highway Trust Fund in 1956 as the key means to pay for the Interstate highway system.

This study accepts the case for large-scale increases in highway investment, to eliminate the backlog of cost-effective highway and bridge repair and modernization projects to rebuild the aging Interstate system as it begins reaching the end of its original design life, and to improve mobility for people and goods where needed. But it argues that increasing federal investment is unlikely and unwise without major changes in focus and practices. To re-create public support for a revised federal program, that program must offer direct improvements in service to those asked to pay the bills. Interstate 2.0, rebuilding and modernizing the federal Interstate system, both urban and rural, could gain the support of motorists and truckers, since they would directly benefit from the reduced congestion and improved service quality that would result.

On the other hand, asking *federal* highway users to pay substantially more in order to fund expanded programs for sidewalks, bikeways, recreational trails and more transit is unlikely to succeed, since the large majority of highway users do not use, and would not benefit from, these mostly localized urban projects. Principles of federalism suggest that these kinds of projects are more appropriately funded at state or local levels of government. But if Congress sees fit to continue them at the federal level, they should be supported by all taxpayers, as the kind of social infrastructure funded by federal agencies concerned with urban amenities (HUD) and outdoor recreation (Interior).

Most states would be better off with the proposal presented in this paper. All would benefit from the major reconstruction and modernization of their most important highways, the Interstates. They would be freed from numerous cost-increasing federal requirements, and would have new incentives to refocus their state programs on cost-effective projects. As funding alternatives, they would have new freedom to make use of tolling and public-private partnerships.

The urgent need to rebuild and modernize vital Interstate highway infrastructure is bogged down by politics and the current system's failure to prioritize projects that deliver the most benefits. Refocusing the federal program on Interstate highways and restoring the true user fee nature of the federal fuel tax offers a way to cut the Gordian knot.

President Obama provided a rationale for considering proposals such as this:

> *If we are going to rebuild our economy on a solid foundation, we need to change the way we do business in Washington. We need to restore the American people's confidence in their government—that it is on their side, spending their money wisely, to meet their families' needs. That starts with the painstaking work of examining every program, every entitlement, every dollar of government spending and asking ourselves: Is this program really essential? Are taxpayers getting their money's worth? Can we accomplish our goals more efficiently or effectively some other way?*[56]

About the Authors

Robert W. Poole, Jr. is the director of transportation policy and Searle Freedom Trust Transportation Fellow at Reason Foundation, the free market think tank he founded. Poole, an MIT-trained engineer, has advised the previous four presidential administrations on transportation and policy issues.

In the field of surface transportation, Poole has advised the Federal Highway Administration, the Federal Transit Administration, the White House Office of Policy Development, National Economic Council, Government Accountability Office and state DOTs in numerous states.

Poole's 1988 policy paper proposing privately financed toll lanes to relieve congestion directly inspired California's landmark private tollway law (AB 680), which authorized four pilot toll projects including the successful 91 Express Lanes in Orange County. More than 20 other states and the federal government have since enacted similar public-private partnership legislation. In 1993, Poole oversaw a study that coined the term HOT (high-occupancy toll) Lanes, a term which has become widely accepted since.

California Gov. Pete Wilson appointed Poole to the California's Commission on Transportation Investment and he also served on the Caltrans Privatization Advisory Steering Committee, where he helped oversee the implementation of AB 680. In 2008 he was appointed by Texas Gov. Rick Perry to that state's Legislative Study Committee on Private Participation in Toll Projects. He is a member of the Transportation Research Board's Congestion Pricing Committee and Managed Lanes Committee and is on the board of the Public Private Partnerships division of the American Road & Transportation Builders Association. He edits the Reason Foundation e-newsletter *Surface Transportation Innovations* and writes a monthly column for the newsletter *Public Works Financing*.

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Dr. Moore, who has testified before Congress, regularly advises federal, state and local officials on policy initiatives. He is a member of the Transportation Research Board, and in 2006 he was appointed by Congress to serve on the National Surface Transportation Infrastructure Finance Commission. In 2009 he was appointed by Governor Schwarzenegger to California's Public Infrastructure Advisory Commission.

Dr. Moore is co-author of the book *Curb Rights: A Foundation for Free Enterprise in Urban Transit*, published in 1997 by the Brookings Institution Press, which was runner up for the Sir Antony Fisher International Memorial Award, and of *Mobility First: A New Vision for Transportation in a Globally Competitive 21st Century* published in 2008. And he is author of dozens of policy studies and articles.

Prior to joining Reason, Moore served 10 years in the Army on active duty and reserves. As a noncommissioned officer he was accepted to Officers Candidate School and commissioned as an Infantry officer. He served in posts in the United States and Germany and left the military as a Captain after commanding a Heavy Material Supply company.

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[53] Notes on Table 3

Column 1 reproduces the state-by-state calculations by the GAO of the net change in total fuel-tax rate to entirely replace the monies provided by the current allocation of federal highway aid. Under this scenario, the federal fuel tax would be close to zero. States with negative numbers (donor states) would have a net decrease of that amount in total cents/gallon paid at the pump. States with positive numbers would have a net increase of the listed amount.

Column 2 shows the corresponding calculation if states used state fuel taxes to replace the 66% of current federal aid they would lose for non-Interstate programs, under Interstate 2.0. These totals include continuation of the current 18.3 cents/gallon federal fuel tax, solely allocated to the Interstate 2.0 program. The assumption here is that states continue all current highway programs and that all the funds to do this would come from an increase in the state fuel tax.

Column 3 modifies the figures in Column 2 by assuming (1) that states do not replace all current federal programs, (2) that state dollars are worth more than federal dollars because the latter carry with them cost-increasing regulatory requirements, (3) that states implement a benefit/cost threshold of 1.5 for highway projects, and (4) that states take full advantage of tolling and public-private partnerships for non-Interstate highway projects. We estimate the combined effect of these four factors would reduce the amounts in Column 2 by 50%.

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