The Path Forward

Funding and Financing Our Surface Transportation System

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Interim Report of the National Surface Transportation Infrastructure Financing Commission

February 2008

National Surface Transportation Infrastructure Financing Commission

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More information on the Finance Commission and the commissioners is available at http://financecommission.dot.gov/

Comments on this interim report should be submitted in writing to Jack Wells, Commission Staff Director / Designated Federal Official, at Jack.Wells@dot.gov

Synopsis

If American travelers from three decades ago were suddenly transported to the present day, they would be aghast at the condition of our national surface transportation system, particularly by the chronic congestion and delays. If we are to ensure that American travelers three decades hence do not look back with longing on how "good" our system was in 2008, and if we are to remain competitive in a global economy, we must thoroughly re-assess the current approach to funding surface transportation infrastructure.

With this goal in mind, the U.S. Congress established the National Surface Transportation Infrastructure Financing Commission (the "Financing Commission" as authorized in section 11142 of SAFETEA-LU) to analyze options and recommend changes for federal policy makers to consider in funding the system.

In addition to the Financing Commission, Congress directed the National Surface Transportation Policy and Revenue Study Commission (the "Policy Commission" as authorized in section 1909(b) of SAFETEA-LU) to study the current condition and future needs of the surface transportation system and offer recommendations for a new vision, goals, policies and programs to guide the future federal role. We expect the recently released report of the Policy Commission, as well as the analyses of many stakeholders, to spark a lively debate that will inform Congress and our work.[1] Over the next year we will craft specific recommendations for funding and financing a federal role based on our own work, the Policy Commission's recommendations and the debate that follows.

In this, our interim report, we present the mandate and the goals of the Financing Commission and outline how we plan to meet those goals. We explain how we currently view the transportation infrastructure funding problem and how we plan to approach our mandate, as well as to solicit feedback on our preliminary thinking.

Our starting point is specifying the scope of the funding problem as we initially see it and the consequences of the problem for mobility, the economy, and our quality of life. In brief, we perceive the current surface transportation funding approach as suffering from three main problems:

- Revenue is insufficient to maintain the national network and build needed improvements to the system;
- Current funding mechanisms and levels of revenue are not closely linked to use of the transportation system, allowing demand and costs to grow faster than revenue; and
- Critical components of the current approach to investing transportation revenue are not structurally driven toward cost effectiveness, dissipating the effectiveness of existing revenue.

We provide in this report the criteria by which we plan to evaluate various funding sources and financing techniques. We describe the broader surface transportation system issues and challenges that provide the context for examining possible funding recommendations. And we sincerely invite stakeholder feedback on all aspects of our approach in order to help us develop constructive and specific recommendations that will support our nation's future transportation needs.

Finally we identify some preliminary observations and invite comment on them as well. In brief:

- System demands are outpacing investment;
- System maintenance costs are competing with necessary expansion of the system;
- The fuel tax, which has been the key federal funding source for our system, is no longer sufficient at current rates;
- More direct user charges should be explored; and
- We need not only more investment in our system, but more intelligent investment complemented by better operation of the system.

Our challenge is to examine carefully all options and develop recommendations for funding the vision, goals, policies and programs suggested by the Policy Commission and others. We invite all stakeholders to help us meet this challenge by providing comments and suggestions on this interim report.

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O N E

Introduction: Responding to a System in Crisis

The nation's surface transportation system is in physical and financial crisis. The current approach to funding infrastructure development and maintenance, which successfully created a world-class transportation network in the post-World War II years, is no longer able to address the serious challenges we face today. Woefully inadequate transportation funding—at all levels of government— jeopardizes the necessary maintenance and expansion of our system at the same moment that it faces greater demands than ever before. U.S. travelers now confront an aging surface transportation system increasingly snarled with delays, riddled with inefficiencies, and limiting America's competitiveness in the global economy.

In light of this crisis, in 2005 the U.S. Congress established the National Surface Transportation Infrastructure Financing Commission (the "Financing Commission"), and tasked the U.S. Department of Transportation with organizing and supporting it. The Financing Commission's charge is to analyze the funding challenge at the federal level and provide recommendations to the Congress and the Executive Branch for improving the methods by which we pay to maintain and improve the system.

In this, our interim report, we will not present recommendations, but will describe several realities that shape the problem and possible solutions. We will provide our final report and recommendations no later than the April 2009 statutory deadline. With this interim report we intend to inform stakeholders of our efforts to date, to involve them in our process and to solicit their feedback in our effort to produce constructive, specific and well-founded recommendations.

The Surface Transportation System.

Throughout this report we will refer to the national surface transportation system as the "system," which we define as an intermodal infrastructure network comprising: the federal-aid highway system as well as state and local roads, including those routes used for defense purposes and emergency evacuations; public transportation (transit) systems; the national marine and rail systems, especially as they impact highways; and key intermodal connections, including those at major airports and seaports as well as truck-rail transfer facilities.

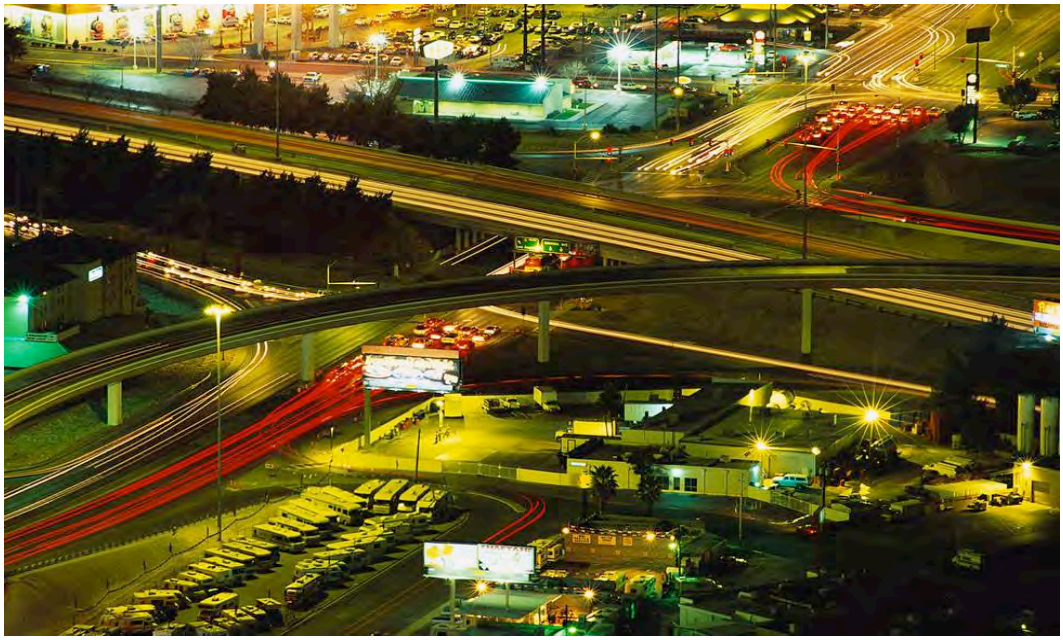
T W O

Overview of the Problem

Congress established the Highway Trust Fund (the "HTF") in 1956 so that federal taxes on gasoline and other motor fuels would be used to help build and maintain a national highway system that became the envy of the world. Over the past several decades, however, increasing mobility, a greatly expanded economy and population, regional transportation challenges, and inflation in the costs of construction have rendered the current levels of the HTF taxes grossly inadequate for funding even the maintenance, much less the improvement, of the system.

While the federal fuel and vehicle taxes worked well and were appropriate for the mission at the time they were developed, they have not kept pace with the system's changing needs. Since the 1980s transportation funding and investment have not grown as quickly as the nation's transportation needs. Inflation has eroded the buying power of the fuel taxes and fuel efficiency improvements mean people pay less fuel taxes per mile of highway vehicle travel. Additionally, a growing economy and population, together with constraints on rail capacity, have significantly increased both the amount of freight carried on the highway system and the number of people using the system. As a result, our system is failing in certain respects, suffering from maintenance and capacity improvements insufficient to meet the demands of travelers, goods movement and safety.

As a result, if American travelers from three decades ago were suddenly transported to the present day, they would be aghast at the condition of our system, particularly by the chronic congestion and delays. If we are to ensure that American travelers three decades hence do not look back with longing on how "good" our system was in 2008, and if we are to remain competitive in a global economy, we must thoroughly re-assess the current approach to funding surface transportation infrastructure.



Problems such as congestion, an aging system, disrepair and lack of emergency or critical event capacity are not inevitable—if we adequately fund and appropriately finance our transportation system. More resources for transportation investment are needed. In addition, we believe that greater investment must be accompanied by wiser investment. We need to consider new approaches and adopt new technologies to increase the monies available for maintenance and improvement, reduce system costs, maximize use of the system's current capacity, and reduce negative environmental effects including greenhouse gas emissions and other pollutants.

If we continue solely with the status quo, there will not be sufficient funding to re-establish a world-class transportation system, even as global competitors such as India and China invest heavily in their transportation infrastructure. We will then suffer the ever greater consequences of failing to maintain or enhance an aging system: too many lives lost from unsafe conditions, congestion increasing to levels we cannot even imagine today, higher priced goods, an eroded quality of life for system users and diminished economic competitiveness as a nation.

Alternatively, we can bring in the best funding approaches and technologies available to enhance, maintain and operate an integrated national system that will promote safer and less congested travel, increased productivity, stronger national competitiveness, and improved environmental outcomes.

THREE

The Financing Commission—People and Purpose

We are a group of 15 appointed commissioners from diverse backgrounds, united by a passion to help develop a more viable approach to funding and financing our national surface transportation system. Our charge to study current and future prospects for funding and financing the system stems from 2005 legislation: the Safe, Accountable, Flexible, Efficient Transportation Equity Act—a Legacy for Users (SAFETEA-LU).

Section 11142 of SAFETEA-LU specifically directs us to examine:

- Current HTF revenues;
- Projections of how HTF revenues might change;
- Alternatives for funding the HTF;
- Highway and transit needs for HTF funds; and
- Fuel tax exemptions for states waiving HTF funds.

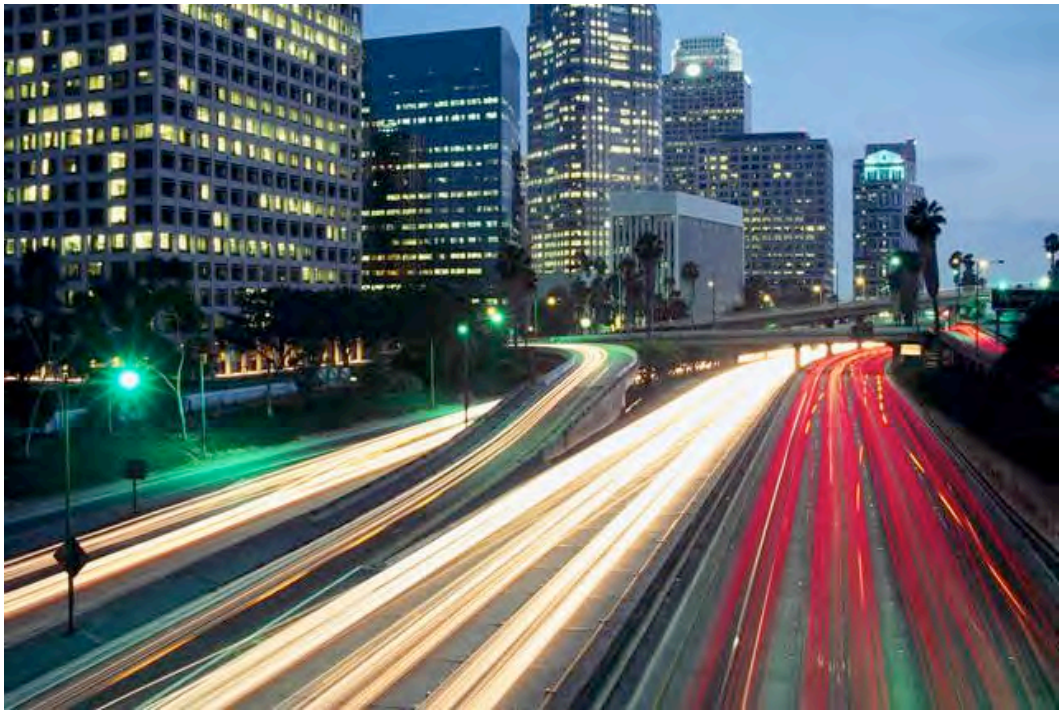
We are charged with providing recommendations to Congress and the Executive Branch about the HTF, specifically addressing:

- Funding levels sufficient to maintain and improve the nation's highway and transit systems;
- Funding levels to ensure that federal investment in highways and transit systems does not decline in real terms; and
- Other mechanisms or funds that could augment the current means for funding and financing highway and transit infrastructure.

In order to accomplish our mission, we are drawing from our own experience as transportation professionals working in the fields of economics, government, investment banking, financial services, law, business, policy advocacy, public

transportation and highway administration, private transportation services, and public utilities. We are also drawing on the experience and expertise of others. Our thinking is informed by surveys of available literature and a series of presentations made at the Financing Commission's six meetings to date.[2]

We invite all stakeholders, policy makers and the general public to provide us with written comments on the ideas outlined in this interim report. We will examine and consider comments in the development of our final report.



Our focus is specifically on arriving at recommendations for a funding and financing approach for the federal government that will meet the policy goals set by Congress. That said, the system of funding impacts the lives of every American, and we recognize the importance of a range of relevant issues that we believe we must consider, and in some cases integrate into our analysis and recommendations. Therefore:

We will address the federal funding and financing approaches in the context of national system issues. The focus of our mission is to analyze and make recommendations concerning the federal role in funding surface transportation infrastructure. But the federal transportation funding must be considered in the context of national needs and non-federal decisions. While the HTF helps fund this nation's transportation

infrastructure, every trip—carrying people or freight—uses a network of state, local or private infrastructure to complete the trip from actual origin to specific destination. Our analysis and recommendations for federal funding, therefore, will take into account the resulting national system ramifications of state, local and private investment in transportation projects and programs.

We will assume a minimum adequate level of system quality. When considering "necessary" investment levels, we will assume that timely maintenance and safe operating conditions are necessary. At a minimum, funding levels must be adequate to maintain the current condition of the system and prevent further deterioration in performance. We do not believe that deferring maintenance is an acceptable component of a national funding strategy, especially when declining conditions reduce capacity.

We will assess future investment needs to improve system condition and performance. In addition to maintaining the current system, it is critical that enhancements be funded in order to meaningfully address chronic congestion and improve goods movement. We will consider how the funding system can support performance objectives that are established for the system.

We will consider how funding mechanisms affect capacity needs. The fuel tax is directly related to gasoline and diesel fuel consumption, only indirectly related to system use, and negatively related to increased use of alternative fuels. Other funding mechanisms (such as vehicle registration fees or sales or property taxes) are even less related to usage. More direct charges for use of specific infrastructure (such as tolls or congestion pricing) can influence behavior, shifting travel to less congested times or modes such as transit or telecommuting. Such direct charges can promote better utilization of existing capacity and may reduce the need for additional improvements.

We will consider the need for transportation investment in rural as well as urban areas. Rural lane miles represent over 70 percent of the federal system lane miles and are important to the national network. Preservation and maintenance of rural infrastructure enables the movement of people and goods between large metropolitan areas and across the country and can place a significant burden on state and local rural governments. In rural areas congestion often is not the major problem, though in some cases new infrastructure is needed to complete key links. Improving safety on rural roads continues to be a major challenge. Overall, funding of transportation in rural areas is particularly challenging. We will consider how federal funding approaches can help address rural challenges, particularly as low population density and low traffic volumes in rural areas appear to make some forms of direct charges problematic.

We will consider the need for adequate investment in all modes of surface transportation. If we as a nation are to be truly competitive in the 21st century global marketplace, surface transportation funding and financing mechanisms must address the needs of all modes, including intermodal connections, in order to ensure a fully functional and integrated transportation network. Federal policy since the 1980s has acknowledged this reality, and ISTEA and subsequent transportation authorizations have confirmed and expanded this balanced approach. The challenge lies in identifying adequate resources for highway, transit and other surface infrastructure investment. We must both strengthen current funding mechanisms and identify promising new ones. Within that context, there may be solutions that are more easily adaptable to one mode or another. The question is how best to ensure that adequate resources are provided to address all of the relevant modal needs.

We will consider goods movement needs. U.S. global economic competitiveness and facilitating interstate commerce are key federal policy concerns. Bottlenecks around the nation are a particular source of delay for goods movement by truck, costing 243 million lost truck hours and about $7.8 billion per year.[3] Insufficient highway capacity in key areas and inadequate intermodal facilities hinder optimal use of truck and rail modes to move goods. The costs of expanding routes in and out of ports that serve regional or national markets often exceed local funding capacity. We will consider funding and financing approaches that facilitate addressing these goods movement problems.

We will consider how infrastructure investments are prioritized. We will look at how the federal funding and financing approach can influence decisions through incentives to increase non-federal investments, maximize the use of existing assets, and support research and development of new methods and technologies. In addition we will examine what kind of role the private sector can play in helping meet some of the investment needs.

We will consider the role of technology. New technologies are creating new options for funding and financing the transportation system that simply have not been available before. These technology-enabled funding mechanisms at the same time can provide policy makers with new opportunities to improve energy efficiency, mitigate congestion, protect the environment and improve safety. We will explore how funding and financing approaches can take advantage of new technology-based approaches.

We will consider the work of the Policy Commission. The Policy Commission has offered a broad new national vision for the future transportation system, as well as suggested federal goals, policies and programs for realizing that vision. We will focus on developing specific recommendations and a framework for helping policy makers consider how best to fund the system considering the views of the Policy Commission, stakeholders, and available information.

The Highway Trust Fund and Federal Spending

The current system for federal funding of surface transportation centers on the Highway Trust Fund (HTF)—the mechanism by which the federal government provides resources to the states and transit authorities for highway and transit investments, including maintenance and new construction. The Highway Revenue Act of 1956 initially authorized the HTF to account for the collection of certain federal highway-user taxes on motor fuels and vehicles and to ensure those taxes are used to assist the states in funding a national system of interstate and other major highways. The HTF includes a transit account that is funded by a portion of the motor fuel taxes collected by the federal government. The most recent legislation reauthorizing the federal surface transportation programs (SAFETEA-LU) extended the HTF and its associated taxes through FY 2011.

Most of the federal surface transportation spending comes out of the HTF. The percentage was consistently near 90 percent in the early years of the HTF, dipped to a low of 61.6 percent in 1981, reached a high of 96.4 percent in 1999, and was 92.4 percent in 2004. The balance of the federal investment comes from the General Fund.

In recent years, federally funded investments (including investments from the General Fund for transit) have represented about 45 percent of the nation's capital investment in highways and transit and just under one-quarter of total national spending on surface transportation, including operations and maintenance. According to recent Congressional Budget Office (CBO) testimony, federal expenditures on surface transportation infrastructure in FY 2007 totaled about $50 billion, which represents approximately 25 percent of all such public funding. That is consistent with the federal share over the past few decades. Recent estimates by both CBO and the Treasury indicate that HTF expenditures of federal funds authorized by SAFETEA-LU are significantly exceeding tax receipts coming in to the HTF. At current rates of spending, the highway account of the HTF may be fully drawn down by FY 2009 and the transit account by FY 2012.

Nationally, across all levels of government spending, highway user charges in the form of fuel taxes and vehicle-related fees have consistently provided a majority of the combined revenues raised for highway and bridge programs by all levels of government (the percentage peaked in 1965 at 73.5 percent and thereafter stabilized around 60 percent). On the other hand, the share of state government highway funding made up of highway user charges has declined gradually over time, from a high of 87.7 percent in 1965 to 70.8 percent in 2004. At the local level, highway user charges are well below 10 percent and have never been as significant a portion of highway funding as they are at the federal and state level. Highway funding at the local level is made up mostly of general funds, property taxes, sales taxes, and other taxes and fees.

Funding for transit is made up of local system-generated revenue (28.1 percent of total funding in 2004) and various public sources of revenue: federal fuel taxes and general fund revenue (17.6 percent of total funding in 2004), state general fund and tax revenue (19.7 percent of total funding in 2004) and local general fund and tax revenue (34.6 percent of total funding in 2004). State and local tax revenue includes fuel tax revenue, but also includes revenue from income, sales, property and other dedicated taxes.

The federal government began contributing to transit projects in 1962, and by 1970 its transit contribution had reached 7.6 percent of total public funding for transit. The federal contribution increased rapidly in the 1970s and peaked in the early 1980s at 43 percent of total public transit funding. Federal funding slowed down in the 1980s and state and local government funding for transit increased. Since 1990, the federal share of total public transportation funding has generally been between 20 and 25 percent—approximately the same share as for highway spending.

F O U R

The Challenge—The Path We're On

In addressing the future of the system, we face two interrelated problems. First, there are problems associated with the performance of the system, including high levels of congestion in some areas, aging infrastructure in need of major reconstruction in both rural and urban areas, and demand for new capacity critical to modal interfaces and network operation. Second, there are problems with the process by which we fund, build and maintain the system. We briefly address each in turn.

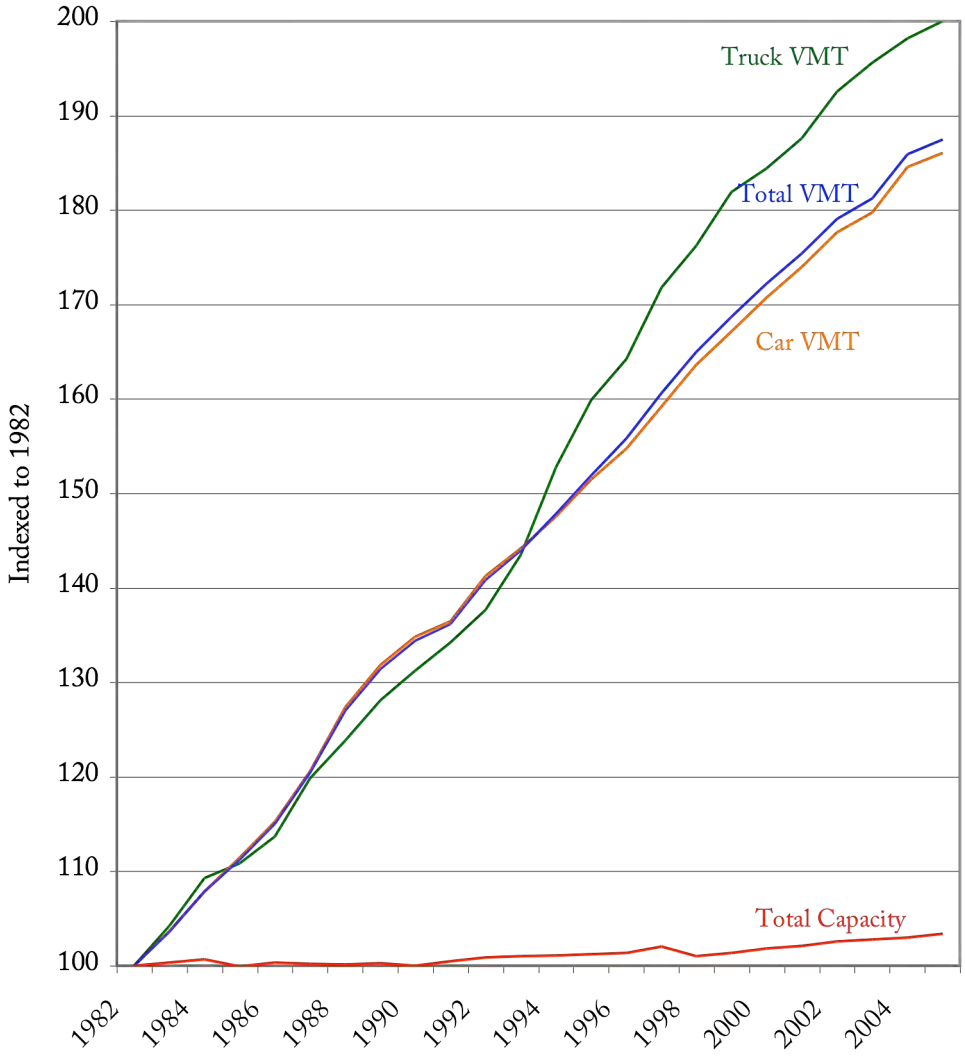
A. Problems with System Performance

The surface transportation system is failing to perform to our needs and expectations. In some respects the system has shown limited improvement in recent years, especially in safety and environmental impacts. But the measures of system use that affect travelers most often—congestion and delays—have worsened at an alarming rate. Meanwhile, use of the system has increased dramatically in the last three decades, while expansion of system infrastructure—particularly of highways—has slowed almost to a halt. A review of some facts from the U.S. Department of Transportation and other sources paints a troubling picture.

For highways, from 1980 to 2005[4]:

- Automobile vehicle miles traveled (VMTs) increased 94 percent;
- Truck VMTs increased 105 percent; and
- Highway lane-miles grew by only 3.5 percent.

Figure 1: Vehicle Miles Traveled and Capacity



SOURCE: Federal Highway Administration, Highway Statistics, Tables VM-1 and HM-10

For transit, from 1994 to 2004[5]:

- Bus ridership grew 10 percent;
- Heavy rail ridership grew 27 percent;
- Commuter rail ridership grew 22 percent; and
- Light rail ridership grew 24 percent.

For freight, from 1994 to 2004[6]:

- Ton miles of freight moved by truck grew 33 percent;
- Ton miles of freight moved by rail grew 38 percent;
- Ton miles of freight moved by air grew 37 percent; and
- Ton miles of freight moved by water shrank 24 percent.

Measures of delay and congestion, particularly in metropolitan areas, are up dramatically, at great expense to individual system users and the nation as a whole. According to the Texas Transportation Institute, from 1982 to 2005[7]:

- Total hours of delay increased 425 percent; and
- Delay per traveler increased 171 percent.

The Travel Time Index, which measures the increase in time required to complete a trip in congested conditions versus free flowing conditions, almost tripled over the same time period:

- Congestion costs (e.g., driver delay, truck operating costs, and fuel costs) increased 382 percent in real dollars (compared with a 112 percent increase in real gross domestic product);
- The amount of fuel wasted by congestion increased by 480 percent, from 500 million gallons to 2.9 billion gallons; and
- Fuel wasted per traveler increased 288 percent from 9 gallons to 26 gallons.

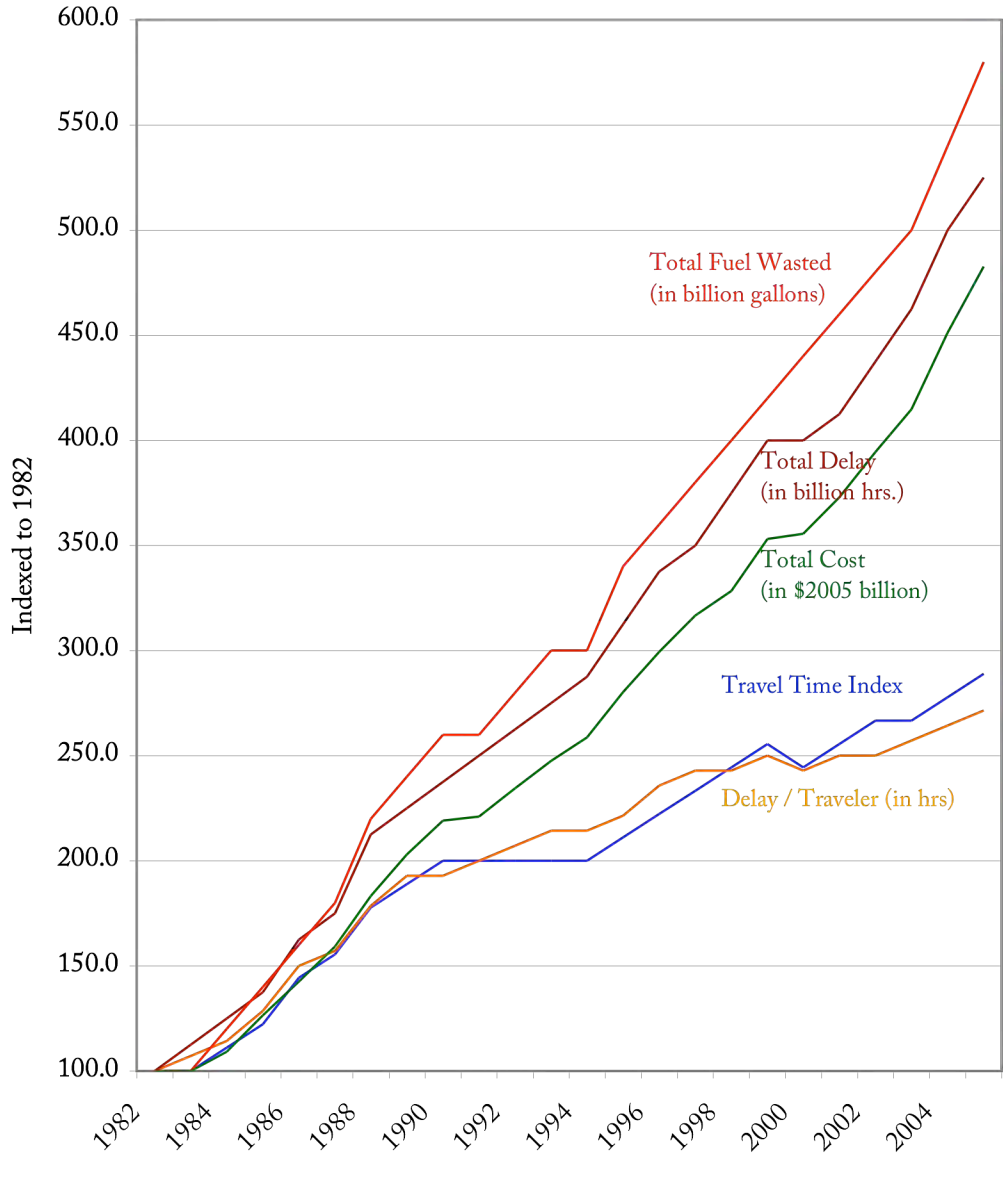
From 1995 to 2004[8]:

- The portion of VMTs under congested conditions increased by 22 percent, and
- The average number of congested hours per day increased 12 percent.

For transit, from 1995 to 2002[9]:

- Overall (door-to-door) transit trip speed declined by 31 percent, from 15.3 mph to 10.6 mph;
- Overall bus trip speed declined by 39 percent, from 14.6 mph to 8.9 mph;
- Overall trip speeds for subways and elevated rail declined by 19 percent (13.0 mph to 10.5 mph);
- Overall trip speeds for commuter trains declined by 7.7 percent (from 24.7 mph to 22.8 mph); and
- Waiting time for a transit vehicle to arrive at a station stop increased for buses by 12 percent (from 10.8 minutes to 12.1 minutes).

Figure 2: Congestion Measures



SOURCE: Texas Transportation Institute, 2007 Urban Mobility Report, Exhibit 3

Furthermore, these cost figures omit costs such as delays to truck shipments, losses in productivity, costs of adjustments for reduced reliability, safety degradation, and environmental effects. When these costs are included, the overall costs of congestion are two to three times higher than TTI's estimates.[10]

Despite the crisis being produced by this growing gap between system demand and needed capacity, there have been some improvements:

- Since 1980, while the total number of highway fatalities has crept upward with rising numbers of VMT, the fatality *rate* has steadily declined. From 1980 to 2004, the fatality rate per 100 million VMT declined a total of nearly 60 percent (from 3.4 deaths per 100 million VMT to 1.4 per 100 million).
- The physical condition of the nation's highways has improved modestly. The share of highways rated as being in good or better condition increased from 39.8 percent in 1995 to 44.2 percent in 2004. Nevertheless, over half of the nation's highways are not in good condition.
- Highway air pollutants have fallen, in many cases dramatically, with the exception of CO2 emissions, which have risen 36.7 percent since 1985.[11]
- Waiting time for commuter trains and heavy rail fell by 31 percent and 20 percent, respectively.

B. Problems with the Funding Approach

Reliance on fuel taxes may have been an effective funding approach in the second half of the 20th century, but it may not be sufficient to address the pressing needs of the first half of the 21st century and beyond. In particular, we face three major problems with our current funding approach.

1. At current levels of taxation there is a large and growing gap between the supply of funds available to the HTF and the demands that users place on the system funded by the HTF—especially in the face of a growing national population, a growing economy, increasing globalization, aging infrastructure, and construction cost inflation.
2. The current approach does not promote optimal use of the highway system because use is not linked closely with prices paid by most system users.
3. Decisions about how to generate and spend federal funds are politicized and complicated by many procedural and substantive considerations. Statutes require that certain percentages of funds be spent on Interstates, bridges and other uses. The motivation for such requirements may be understandable, but directing funds to improve system performance does not appear to receive adequate emphasis among the various considerations. Moreover, by funding the transportation modes separately, the current approach does not do as much as it could to support system-wide solutions regardless of mode or intermodal status.[12] All of this may contribute to system under-funding because voters often do not perceive that good decisions are being made and cannot see clear-cut connections between revenues raised and transportation improvements.

B.1. How Much? The Funding Gap

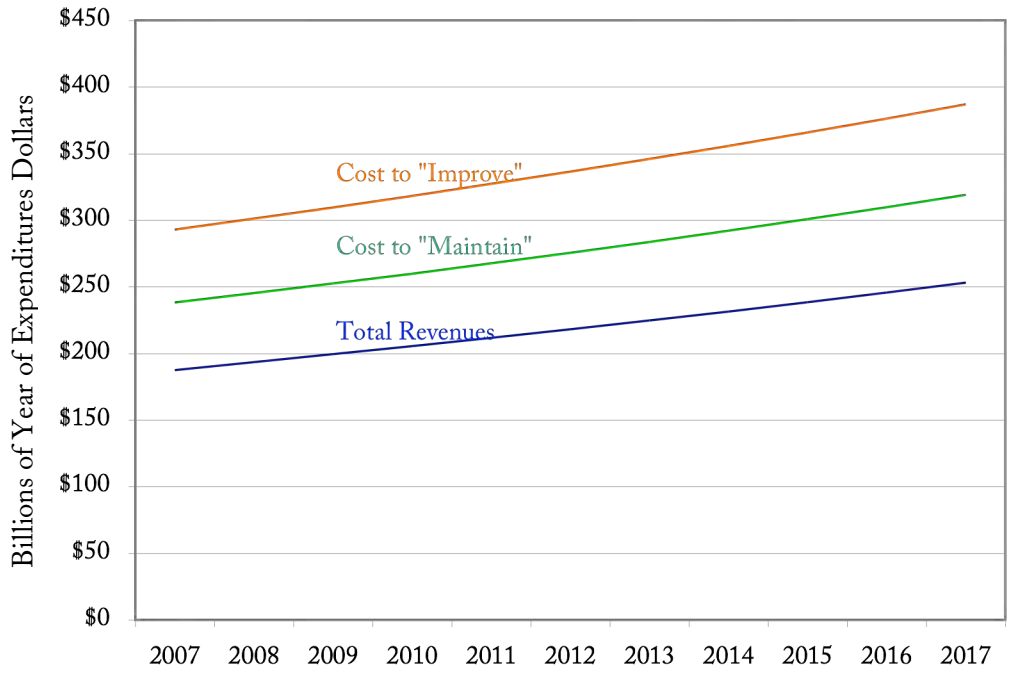
There is broad agreement among transportation professionals that as a nation we are under-investing in transportation—that there is a large and growing gap between available revenues and infrastructure needs.[13] A recent study sponsored by the Transportation Research Board of the National Academies estimated that the annual gap between revenues and the investment needed to "improve" the highway and transit systems was about $105 billion in 2007, and is expected to increase to $134 billion in 2017 under current trends.[14] There are two factors that together determine funding gaps: the supply of funds and the demands for investment in the system.

On the supply side, federal fuel taxes are per-gallon charges that unlike sales taxes do not generate increasing revenues with increasing prices. Federal fuel taxes have not been increased since 1993, and an increase—always politically unpopular—would be even more so now, given the recent sharp increase in the price of fuel. Meanwhile inflation is eroding the purchasing power of HTF funds and average fuel efficiency for cars has increased 54 percent since 1975,[15] meaning travelers pay less than half as much per mile traveled now than they did in 1959 (in constant dollars).[16] On December 19, 2007, President Bush signed legislation changing the CAFE standards and requiring new auto fleets to average 35 miles a gallon by 2020, a 40-percent increase from today's 25-mile-per-gallon average. With these projected increases in fleet fuel efficiency and growth in use of alternative fuel vehicles (e.g. electric hybrids), the fuel taxes that are the backbone of federal transportation revenues will continue to shrink relative to use of the system.

On the demand side, the need to invest in system capacity has grown significantly because of increased demand for transportation of both passengers and freight.[17] Passenger demand is fueled by a growing population and an expanding economy leading to steady growth in miles traveled each year by cars and transit. Highway freight demand is fueled by our expanded economy, growth in just-in-time delivery, declining rail capacity and globalized supply chains.

Projections of future HTF spending, based on current-law tax collections and coupled with a continuation of recent trends in state and local government spending, portend worsening system performance. As Figure 3 shows, in the coming years total revenues are predicted to fall on average 21 percent short of funds needed to adequately maintain the existing system, and 35 percent short of funds needed to improve the system and solve many of the performance problems discussed above. Additionally, there are problems with the funding of all surface modes: highways, public transportation, the rail system, and the various intermodal connections.

Figure 3: The Projected Funding Gap



SOURCE: Future Financing Options to Meet Highway and Transit Needs, NCHRP Web-Only Document 102, National Cooperative Highway Research Program, Transportation Research Board of the National Academies, Submitted December 2006, 2-5, A-10

There are differing views about the appropriate federal funding responsibility. Congress conceived the HTF as a cost-sharing mechanism by which the federal government encouraged the states to construct a network of highways, with the states responsible for operations and maintenance. Since initial construction of that system was largely completed many years ago, the unifying force behind the HTF has steadily dissipated. While maintaining the system is necessary and increasingly expensive, policy makers have yet to clearly define a next-generation mission beyond that basic minimum.

Concurrently, in the last two decades federal programs and the types of projects eligible for federal funds have expanded significantly. The size of the federal-aid highway system has expanded by 16 percent, bringing in an additional 137,000 miles of highways eligible for federal support, and new types of expenditures, such as transportation enhancements, have become eligible for federal support.

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Without a national vision and goals for the future of the transportation system, the number of federal earmarks has exploded and conflicts between donor/donee states have dominated decisions about allocating federal resources. Funding policy has become less focused and resources have been diffused. Now there appears to be broad concern that the current approach is in need of major reform.

B.2. Who Pays and How? Linking System Costs with Use

The growing funding gap and deteriorating system performance raise questions about how to provide more funding for surface transportation as well as the ways in which users currently pay for the system. Individual drivers today do not pay the full costs they impose on the system. The average current user fee revenue per VMT is about 3 cents.[18] Yet studies of highway congestion show that the costs of using a highway during congested conditions are on average 10 to 29 cents per VMT.[19] Transit riders around the country are paying user fees that cover from 20 percent to 70 percent of the cost of their rides. Moreover, the fuel taxes and other fees imposed on heavy trucks fail to cover the costs that those trucks impose in the form of wear and tear on the roadway.[20] In addition, a declining percentage of total surface transportation expenditures (local, state and federal) come from the fuel tax or other user fees and much of the growth in expenditures has come from indirect sources like property and sales taxes.[21]

Absent much higher tax levels and/or major infusions from supplemental sources, the current funding approach is simply inadequate over the long term. Additionally, the weak link between driving and fees paid—primarily fuel and vehicle taxes—does not do as much as other approaches to promote efficient use of the system. There are other mechanisms for generating funds, either more or less strongly linked to actual use of the system. Current examples—both in the United States and in Europe—of more directly linked mechanisms include tolling, congestion pricing, and fees for vehicle miles traveled. The feasibility and potential of these and other alternative approaches must be seriously examined, recognizing that some approaches may be problematic in certain circumstances—such as tolls in less densely populated areas.

It is important to note that innovations in information technology are enabling new pricing strategies across all modes of travel. Technologies that can establish variable-use rates based on time of day, type of vehicle, level of emissions, and specific road traveled are being deployed around the world. For example, on the federal highway system in Germany, heavy trucks are equipped with transponders and GPS systems and use an automatic toll collection system based on truck weight, level of emissions, and distance traveled. Transportation officials in the Netherlands are planning to transition to a satellite-based system that would charge drivers based on vehicle miles traveled (and potentially other factors, such as congestion). A recent pilot program in

Oregon successfully experimented with a similar satellite-based pricing system for vehicle miles traveled. Such programs may not be ripe for widespread implementation in the U.S. yet, but are maturing rapidly.

Using Financing Techniques to Leverage Funding Sources

Funding refers to the collection of taxes, fees and other charges and the allocation of those various revenues for transportation purposes, including annual appropriations for transportation agencies.

Financing refers to the many means by which those revenue streams can be leveraged or monetized up front in order to increase flexibility in how and when funds can be spent. Financing may be most useful for accelerating the development of, or improvements to, long-lived infrastructure when the benefits exceed their costs. Financing can allow projects to be built sooner, speeding the flow of benefits to system users.

Examining financing options is an important element of our charge to assess the overall approach for funding the surface transportation system. In appropriate circumstances, recent innovations in both public and private sector financing options may enhance the ability of existing and potential funding approaches to speed investments in system reconstruction and expansion.

A historically common form of financing involves issuing bonds to borrow against future tax revenues in order to pay for current construction. In recent years, the world of financing mechanisms has grown much richer. Thus, we will consider both the nature and extent of transportation financing options in our review of funding options and investment needs.

Some of the relevant financing mechanisms currently or potentially available to state and local project sponsors include:

- General obligation debt
- Grant anticipation borrowing
- User fee revenue bonds
- Federal and state credit assistance
- Tax preferred bonds
- Toll road concessions
- Asset leases

There are tradeoffs to consider with financing. Interest charges and other costs of financing can be significant, but they must be weighed against the acceleration of user benefits, the avoidance of construction cost inflation, and the sharing of the cost burden among current and future users and beneficiaries.

B.3. Where Does the Money Go? Inefficient Decisions Dissipate the Power of Existing Funds

The Financing Commission's stated purpose is to address funding issues to meet system needs. The needed investment, however, is not a static amount, and it can be divided into hierarchies of priority. How resources are invested affects how much funding is needed. Federal spending through certain programs and earmarks—especially for projects that do not reflect a state or local government priority—can divert state and local funds away from other investments. In addition, federal policies should complement, not conflict with, investment decisions at other levels of government. While our focus remains on analyzing funding options, we will consider these interactions.

We fully understand that many of the national goals of the current federal program are important—prioritizing those goals and focusing resources on the most important needs and highest return investments is crucial. The rating process used in determining federal grants to transit projects under the New Starts program is a good example.[22] The increase in federal program categories, eligible projects, and oversight regulations based on transportation mode, coupled with increasingly divergent goals beyond completion of the Interstate system, has meant that New Starts is an exception, and performance-based approaches to investment have not received the emphasis that will be necessary for the future.

The vast majority of transportation funding is spent by state and local governments, but it is directed in accordance with elaborate planning and programming procedures significantly influenced by federal regulations. These procedures have appropriately evolved over time to address environmental and other potential external impacts that can be difficult to quantify. Yet these procedures have become overly cumbersome and inefficient. By emphasizing process over outcome, they do not promote the most economically efficient or network appropriate investments. When new capacity is added, it is not necessarily in the areas that need it the most. Investments are often more costly than necessary. Over time there has been an increase in the number of special interest programs that siphon federal funds away from construction and maintenance of the national network, and the number of congressional earmarks has grown dramatically over the last two decades.[23] Finally, a rather tortuous federal approval process slows the development of new infrastructure. According to a study prepared for FHWA, in a sample of projects over the course of 30 years the mean length of time it took to get a road from planning stages to completion was 13.1 years.[24]

These funding problems are compounded by a need to dedicate more attention to adequate management of existing facilities. While other network infrastructure—power transmission, telecommunication, water supply—is explicitly managed as a system and actively operated day to day, in very few places are road networks as

actively operated and managed. The result is our existing systems underperform. For example, it has been estimated that as much as 60 percent of urban congestion is related to how the road system is managed (poor signal timing, work zones, special events) or to the management of certain other irregular events (such as traffic incidents or bad weather), rather than to regularly recurring bottlenecks caused by too many cars on too few lane miles of road.[25]

The Financing Commission does not have the mandate to examine thoroughly and suggest specific changes to the complicated processes that guide most system investment decisions. But whatever funding mechanisms are used in the long run, these process problems will make funding less efficient and effective. We have an interest in ensuring that the need for resources is not unduly inflated by inefficient processes or distorted decision-making. We urge all levels of government to increase efforts to spend resources wisely (to generate greater total returns on investment) as well as to identify additional resources. Investment decisions should be based more on a rigorous analysis of costs and benefits—assessing benefits in terms of system performance integrating the various modes and users—over the life of the assets.

Finally, private sector participation in the provision of infrastructure may play a key role in ensuring that certain investments occur in the areas with the greatest need, and in a cost-effective way. We plan to examine the potential financing and execution role of the private sector in the context of federal funding options.

F I V E

Making Recommendations: Our Method and Criteria

The foregoing was an overview of the context we are keeping in mind as we tackle our central undertaking—reaching recommendations on funding federal transportation programs. We now turn to laying out how we will approach this task. In order to arrive at the funding options that may be the basis for an effective transportation system for decades to come we have devised a preliminary analytical process to assess the efficacy of each method.

First, we agreed upon broad goals for the transportation system—it must be safe, effective, efficient, fair, and sustainable. Second, we have begun developing a list of transportation funding mechanisms and evaluation criteria.

The box lists the funding mechanisms we have identified so far. We will evaluate each identified funding mechanism against certain criteria to help determine which should form the core of a revitalized and enhanced transportation funding approach. We are still considering the appropriate scoring criteria and how to assess each option. We welcome feedback on the preliminary list of evaluation criteria presented below and feedback on our proposed approach to evaluating the funding mechanisms.

Potential Evaluation Criteria:

- **Revenue Potential**—How does the mechanism's revenue potential at various politically acceptable rates match investment needs?
- **Sustainability**—Can the mechanism easily be adjusted by system operators or policy makers to meet needs?
- **Political Viability**—How easy is it to gain political acceptance of the mechanism compared to other mechanisms?

- **Ease/Cost of Implementation**—How easy and costly is it to implement and administer compared to other mechanisms?
- **Ease of Compliance**—To what extent does the mechanism minimize evasion compared to others?
- **Ease/Cost of Administration**—To what extent is the mechanism a cost-effective means of raising revenue?
- **Level of Government** –Which level of government is appropriate for the mechanism?
- **Promotes Efficient Use**—To what extent will the mechanism incentivize efficient use of the system?
- **Promotes Efficient Investment**—To what extent does the mechanism incentivize infrastructure investments based on transparent and performance-based criteria?
- **Promotes Safe and Effective System Operations/Management**—To what extent does the mechanism incentivize owners and operators of transportation infrastructure to more effectively and efficiently operate and manage?
- **Addresses Externalities**—To what extent does the mechanism improve the way the funding system takes into account beneficial and harmful side effects, including pollution, noise and economic development?
- **Minimizes Distortions**—To what extent does the mechanism affect other markets or public policies, such as energy independence?
- **Promotes Spatial Equity**—To what extent does the mechanism help fund system improvements in places that are economically or geographically disadvantaged or that suffer disproportionate use?
- **Promotes Social Equity**—To what extent does the mechanism limit costs for those who face the most difficulty in paying?
- **Promotes Generational Equity**—To what extent does the mechanism charge current and future users for current and future benefits?

Any funding mechanism likely will not score well on all of these criteria. As a result, the choice of an optimal approach will involve value judgments about the most important goals policy makers seek to advance. The Financing Commission's work can illustrate these tradeoffs and make recommendations.

In particular we will address:

- Potential actions to help deal with near- and moderate-term funding problems;
- Initial changes to or supplements for the current approach—including pilot programs—that may be necessary to lay a successful foundation for addressing the nation's infrastructure investment challenges; and
- Potential long-term changes and/or supplements that may be needed to fully implement a responsive and viable funding approach to support the future surface transportation system.

Potential Funding Mechanisms	
Fuel Tax	Direct User Fees
- Gas	- Toll - New Capacity
- Other	- Toll - Existing Capacity
Vehicle Fees	- Toll - Priced Lanes
- Registration	- VMT Charges
- Heavy Vehicle User Tax	- Transit Fares
- Sales Tax	Indirect User Fees
- Tire Tax	- Container Fees
General / Other Resources	- Customs Duties
Tax Credit	
Direct Spending	
Special Assessments	
Dedicated Sales Tax	
Lease Existing Roads	
Impact Fees	

S I X

Preliminary Observations

As the Financing Commission looks ahead to developing recommendations for Congress and the Executive Branch, certain realities will guide our thinking. At this early stage, we identify some preliminary observations. We invite comment on these and other observations we will make as we continue to research and develop recommendations.

- **System demands are outpacing investment.** Given reasonable projections of system use, the current levels of investment from federal, state and local governments will be insufficient to meet demand.
- **System maintenance can be so costly and necessary that it becomes difficult to address necessary expansion of the system.** Current investment levels are not sufficient to adequately maintain the system and make needed cost-beneficial improvements. An increasing share of limited transportation funding necessarily is being used to maintain aging systems. This has led to modest improvements in highway and public transportation conditions in recent years, but still left significant lane miles of urban and rural roads in poor condition. As states and localities have allocated larger and larger shares of their transportation funds to maintenance, they have increasingly sacrificed needed capacity enhancements. Furthermore, as major deferred capital rehabilitation comes due, even the maintenance funding will fall well short of required levels.
- **The fuel tax, which has been the key federal funding source for our system, is no longer sufficient at current rates.** The revenues raised through the federal fuel tax at current levels cannot support many of the visions that exist for the federal contribution to total investment in the system. While an increase in the federal fuel tax could help address the investment shortfall in the near term, the political will and public acceptance required for even modest

increases may be lacking. Furthermore, a funding approach that relies principally on fuel consumption may not be a sustainable strategy in the long run. As a result, additional approaches should be explored.

- **More direct user charges should be explored.** While more funding is needed at all levels of government—regardless of the source—funding more of the system costs through direct user charges, rather than indirect fees such as the fuel tax or general revenues, can encourage more efficient use of system capacity. This behavioral change could reduce the need to build new capacity and therefore reduce the level of funding required in certain areas. Efficient system use also reduces negative externalities such as vehicle greenhouse gas emissions and pollution. Transit users pay their user charges directly; it would be better if road users did as well. New technologies appear to enable new tools that make direct user charges easier to administer and more user-friendly.
- **We need not only more investment in our system, but more intelligent investment complemented by better system operations.** We can improve the utilization of current capacity through better incentives for optimal system operation. Investment decision-making should be based more on life-cycle cost-benefit analysis and other measures of performance outcomes.

After World War II, America's political leaders worked together to craft and implement a vision and funding approach that led to the world's best surface transportation system. Although the challenges and opportunities are very different today, they will require an equal if not greater commitment and vision to meet them.

Endnotes

[1] *Transportation for Tomorrow: Report of the National Surface Transportation Policy and Revenue Study Commission,* http://www.transportationfortomorrow.org/final_report/

[2] See http://financecommission.dot.gov/ for details of meetings and presentations to date.

[3] Federal Highway Administration, Office of Transportation Policy Studies, *An Initial Assessment of Freight Bottlenecks on Highways*, October 2005, http://www.fhwa.dot.gov/policy/otps/bottlenecks/index.htm.

[4] Federal Highway Administration, *Highway Statistics*, VMT information at Table VM-1 and highway lane miles information at Table HM-10.

[5] Bureau of Transportation Statistics, *Transportation Statistics Annual Report*, 2006, Table H-5, http://www.bts.gov/publications/transportation_statistics_annual_report/2006/html/chapter_02/table_h_05.html

[6] Ibid, Table B-3, http://www.bts.gov/publications/transportation_statistics_annual_report/2006/html/chapter_02/table_b_03.html

[7] Texas Transportation Institute, *2007 Urban Mobility Report*, Exhibits 1 and 3.

[8] U.S. Department of Transportation, Federal Highway Administration, Federal Transit Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance*, pp. 4-7 and 4-8.

[9] National Center for Transit Research, *Public Transit in America—Results from the 2001 National Household Travel Survey*, September 2005, p. 26,(http://www.nctr.usf.edu/pdf/527-09.pdf

[10] Internal U.S. Department of Transportation analysis.

[11] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Air Emissions Trend*, available at http://www.epa.gov/airtrends/2005/econ-emissions.html. Since 1990, carbon

monoxide is down 47%, nitrogen oxides are down 23%, volatile organic compounds are down 53%, particulate matter is down 52%, sulfur dioxide is down 49%, and lead is down 100%.

[12] United States Government Accountability Office, *Intermodal Transportation: DOT Could Take Further Actions to Address Intermodal Barriers*, GAO-07-718, June 2007, http://www.gao.gov/new.items/d07718.pdf.

[13] See, for example, (i) U.S. Department of Transportation, Federal Highway Administration, Federal Transit Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions & Performance*, 2006 (ii) National Cooperative Highway Research Program, Transportation Research Board of the National Academies, *Future Financing Options to Meet Highway and Transit Needs, NCHRP Web-Only Document 102*, Submitted December 2006, (iii) American Association of State Highway and Transportation Officials (AASHTO), *Transportation, Invest in America, The Bottom Line*, 2001, and (iv) National Chamber Foundation, *Future Highway and Public Transportation Financing, Executive Summary, Study Release Event*, 2005.

The Conditions & Performance report (item (i) above) is a statutorily required assessment of surface transportation needs produced by the U.S. Department of Transportation every two years. The NCHRP report (item (ii) above) updated the needs estimates produced by the 2006 Conditions & Performance by making certain adjustments for inflation and construction costs. The AASHTO Bottom Line Report (item (iii) above) was prepared five years earlier than the 2006 Conditions & Performance report and it too was based on the needs estimates produced by the U.S. Department of Transportation, with certain adjustments. The National Chamber Foundation report (item (iv) above) was also based on the Conditions & Performance report, but included in its assessment costs that are not included in the Conditions & Performance report estimates (e.g. costs of operations, maintenance, administration, and debt service).

Each of these reports is informative, but the Conditions & Performance report is generally considered the starting point for any assessment of surface transportation needs. The Conditions & Performance report has limitations. Among other things, it is based exclusively on a cost-benefit analysis that does not take into account real world limitations on spending or methods for controlling demand (such as congestion pricing). Nevertheless, the underlying analysis is more rigorous than any other conducted for the industry. As the AASHTO Bottom Line Report states (in Appendix A): "All U.S. assessments of national highway need draw their fundamental understanding from the Condition and Performance Reports of the FHWA, and the data and modeling systems that support it."

[14] National Cooperative Highway Research Program, Transportation Research Board of the National Academies, *Future Financing Options to Meet Highway and Transit Needs, NCHRP Web-Only Document 102*, Submitted December 2006, pg. 2-15. If the goal is to simply maintain the current highway and transit systems and not let them deteriorate, the annual gap is $50.7 billion in 2007, increasing to $66 billion in 2017. The cumulative gap over the entire 2007-2017 period is

projected at $634.7 billion for the need to maintain, and $1.3 trillion for the need to improve.

[15] U.S. Environmental Protection Agency, *Light-Duty Automotive Technology and Fuel Economy Trends: 1975 Through 2007*, September 2007, http://www.epa.gov/oms/cert/mpg/fetrends/420s07001.htm

[16] Internal U.S. Department of Transportation analysis.

[17] Bureau of Transportation Statistics, *National Transportation Statistics,* Table 1-32, July 2007.

[18] Federal Highway Administration, *Highway Statistics*, VMT at Table VM-1 and revenues from user fees at Table HF-10. In 2005, total highway user revenues were approximately $90 billion and total VMT were approximately 2.9 trillion.

[19] HLB Decision Economics Inc., *Road Pricing on a National Scale,* March 14, 2005, page 30, Table 7-2.

[20] Addendum to the1997 *Federal Highway Cost Allocation Study, Final Report*, U.S. Department of Transportation, Federal Highway Administration, May 2000 (http://www.fhwa.dot.gov/policy/hcas/addendum.htm). In 2000, the ratios of user fee payments to highway cost responsibility for all combination trucks was 0.8 and for the heaviest combination trucks (>100,000 pounds) was 0.4.

[21] United States Department of Transportation, Federal Highway Administration, Federal Transit Administration, *2006 Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance*, 2006, pg. 6-7.

[22] Government Accountability Office, *New Starts Program is in a Period of Transition*, August 2006, http://www.gao.gov/new.items/d06819.pdf

[23] Earmarks in transportation authorization bills have grown dramatically. In 1982 there were 10 earmarks costing $386 million. In 2005 there were 6,300 earmarks authorizing $20 billion. Similarly, earmarks in transportation appropriations have grown. In 1996 there were 167 earmarks costing $789 million. In 2004 there were 2,282 earmarks costing $3.3 billion.

[24] Federal Highway Administration, *Evaluating the Performance of Environmental Streamlining: Development of a NEPA Baseline for Measuring Continuous Performance,* 5.1 Conclusions, http://www.environment.fhwa.dot.gov/strmlng/baseline/index.asp

[25] Cambridge Systematics, *Traffic Congestion and Reliability: Trends and Advanced Strategies for Congestion Mitigation*, Final Report Prepared for Federal Highway Administration, September 1, 2005, pg. ES-3.

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