

FUTURE FUNDING NEEDS

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The United States, like other nations, has the need to transport people, information, and goods within its territory and to engage in international commerce.

During the nation's history, the means of providing surface transport have changed immensely, from wagons and canals, to railroads, and then in the 20th century to highways and roads and the motor vehicles that operate on them.

Just 100 years ago, railroads were the backbone of U.S. freight and passenger transportation, providing extensive services across the nation. Today, private-sector passenger rail service no longer exists, with some minor exceptions, and freight railroads have far fewer miles of track than they once did. Railroads still play an extremely important role in surface transport, and they are making money, but the current railroad system is not the same as that of 100 years ago. Looking ahead to the 21st century, I see railroads continuing to provide important transport services.

Other modes have emerged and evolved to complement the railroad system. Aviation was invented in this century and has become a major means of moving people and goods, not just within the United States, but around the world. Pipelines were extensively developed in this century and are now a major mover of bulk goods in the United States. Transit emerged during this century as well, starting as a private-sector activity and shifting in mid-century to a primarily public-sector activity. Transit systems remain vital to the nation. And U.S. waterways and ports are just as essential as they were at the beginning of the century, although in different ways. Intermodal shipments that are commonplace today, for example, were unimaginable in 1900.

Yet surveying the overall U.S. transportation system as the 20th century draws to an end, it is evident that the system's most important component is its 3.9 million miles of highways, roads, and streets, owned, constructed, and maintained primarily by the states and their local governments. Highways, roads, and streets serve as guideways for the operation of automobiles, trucks, and public transit vehicles, and are the most important com-

ponent of the transportation system because the vehicles that operate on them provide a large proportion of the nation's direct transportation and serve to link all of the other transportation modes.

Transportation changes will continue to occur. We do not yet know what computers will do to replace, improve, or expand transportation, but intuition tells us they will bring about a great deal of change in the decades ahead. So, too, will new fuels and engines. Looking ahead to the 21st century, it is possible that entirely new transportation concepts will one day appear and relieve our reliance on roads. But until then the future of America—our lifestyle, our economy, our freedom—is directly tied to the future of our roads. And the future of the nation's roads is in turn tied directly to our success in financing their preservation, improvement, and expansion as required to accommodate the needs of tomorrow's America.

Sources of Highway Funding

The American highway system was 100 years old in 1993. During that 100 years, a complex funding arrangement for the system's construction, maintenance, and operating costs was devised and set in place. Before 1916 local roads were provided by local governments and state roads by the state, and there was little federal involvement. (See article by Bloom and Bennett in this issue.) In 1916 the federal-aid highway program was created, establishing a continuing partnership between the state and federal governments. This partnership has evolved such that today approximately 900,000 miles of the nation's 3.9 million miles of streets, roads, and highways, including some roads owned by local governments, is eligible for some federal financial aid. The additional 3 million miles is the sole financial responsibility of the states and their local governments.

The basic funding for America's highways comes from user fees in the form of taxes on motor fuel and trucks, as well as certain other fees imposed at the state and federal levels; and vehicle registration fees, titling fees, sales taxes, and personal property taxes, often levied at the state and

sometimes the local levels. For local governments, property taxes are a major revenue source.

In some instances, not all of the revenue collected from road users is subsequently expended on highways, streets, and roads. At the federal level, motor fuel tax revenue has been used to help address the budget deficit, and since the 1980s approximately one-fifth of the revenue going into the Highway Trust Fund has been dedicated to support for public transit. In some states a portion of the revenue from motor fuel taxes is used to support education and other general government functions. Thus while highway-user fees have provided much funding to support the nation's roads and highways, at all levels of government those fees have been used for other purposes as well.

Motor fuel taxes are the single most important source of highway-user revenue at both the federal and state levels, accounting for some 80 percent federally and 66 percent among the states. (See also the article by Giglio and Williams in this issue.) This reliance on motor fuel taxes as the major source of revenue is being threatened, however, by the introduction of alternative fuels, such as gasohol and natural gas; the potential emergence of electric vehicles; and new power systems that may increase motor fuel mileage by a factor of 10. Another means of collecting revenue is through tolls, which represent a direct user fee, as opposed to the indirect fee of the motor fuel tax. While toll roads are not yet in widespread use across the nation, they provide important service in many states.

Looking just at expenditures on the nation's highways, where do the revenues come from? About 52 percent of the funding comes from the states; 28 percent from cities and counties; and 20 percent from the federal government, in recent years under the Intermodal Surface Transportation Efficiency Act of 1991, which expired in 1997. It is too early to determine how these percentages will change under the Transportation Equity Act for the 21st Century (TEA-21). These percentages tend to mask the importance of the federal contribution, however. While the federal share of the overall program is only about 20 percent, federal dollars support approximately 45 percent of expenditures for construction and reconstruction of the nation's highways.

When discussing federal aid for highways, one fact must be kept in mind. Federal dollars need to be matched, currently at an 80 percent federal–20 percent state and local ratio. Thus when federal funding increases, the state–local share must also increase.

Growth in Funding Needs

Even with all of the funds now being spent on America's roads and highways, federal and state estimates indicate that we are still falling short of meeting our current needs with regard to both our highways and bridges. The same will still be true under TEA-21. While federal funding for highways should increase by more than 40 percent under TEA-21, this will barely meet the requirements to maintain current conditions on our highways and will not allow for needed capacity increases. There are many reasons for this, including the higher costs of rehabilitation compared with new construction and the increasing needs of an aging system of highways and bridges.

We tend to concentrate only on the direct costs of our highway system, but we also need to keep in mind the indirect costs. These include health-care costs resulting from accidents, some of which could be avoided by investing more in safety; pollution costs; negative neighborhood impacts; and others. Some of these costs are covered by general government funds, and others are borne directly by citizens.

Can we limit future funding needs by slowing the reconstruction of our current highway system and building fewer new facilities? This will of course be one result if adequate funds are not available. But can the nation grow and improve under such a scenario? There are those who argue that this would be possible if we were to exercise demand management to reduce the need for more and improved roads. So-called "smart growth" strategies are being examined by some state and local governments as a means of designing more compact communities that would require less use of roads and highways. Expanded use of transit could also relieve the need for expanding the highway system in some areas. All of these techniques deserve our attention, and probably could reduce overall highway needs.

We need to keep in mind, however, the track record for this century. There has been an enormous increase in vehicle miles traveled (VMT) in recent years. From 1960 to the present, VMT has nearly tripled. Looking back at just one 20-year period, 1973–1993, there was a 75 percent increase in VMT across the nation, a 55 percent increase in the number of vehicles on our 3.9 million miles of road, and a 2.6 percent increase in road mileage. We have been living off of the excess highway capacity built during the last 20 or 30 years, and in much of the nation that excess capacity has been used up. Congestion is now endemic in many U.S. cities. One cannot add 55 percent more vehicles and only

2.6 percent more road miles and expect to have any result other than increased congestion.

Why have we seen this large increase in mobility? The primary reason is changes in the way we live. Women have now entered the workforce in large numbers. Most households have at least two workers, and at least one of those workers normally makes a chain trip every day to a daycare center or elsewhere, and then to work. We believe all of this movement is necessary to our daily lives. Can we be convinced otherwise, or will we somehow have to support perhaps even higher mobility demands in the next century?

Meeting Future Funding Needs

What highway finance tools can we look forward to during the first decades of the next century? It is probable that fuel taxes will remain a primary source of revenue. But there are problems with this revenue source, as discussed earlier, and those problems are growing. One problem stems from the fact that the fuel tax is levied by the gallon. While VMT increased by 75 percent during the last 20 years, the number of gallons of fuel used dropped by 38.8 percent. Fuel taxes increased during that time, but almost all of the increase went simply to make up for the fewer gallons being sold; and if current dollars are adjusted to constant dollars, both state and federal fuel taxes remained about level during those 20 years.

What more can we do to meet expected highway funding needs? There are two basic choices. One is to find more resources and use those resources we have more efficiently to maintain and improve the highway system. The second choice is to accept a lower level of service and the associated costs. Among those costs would be the impact of lower service levels on just-in-time deliveries to and from factories, which in turn would result in higher prices. And more time would need to be spent in commuting or in making other trips.

Congress will probably continue to enact transportation funding bills. But if the past is prologue, that funding will continue to fall short of meeting highway and bridge needs.

We can expect that state legislatures will be called upon to increase revenues, and some will respond. The first call will be for additional funds to match new federal program levels, and then to pay for other needs. Local governments will try to

do more in many states, but local governments can also be expected to turn to their state governments for further support.

An increase in the use of tolls is a likely scenario as well. Increased tolls will not only provide revenue, but also serve demand management purposes through congestion pricing, whereby the cost of using a highway varies according to the time of day and the state of congestion. Enactment of congestion pricing will be facilitated by the new electronic toll collection concepts now coming into widespread use. The revenues thus collected can be used to maintain the highways or to support transit and other alternative modes, thereby lowering overall highway funding needs.

We can also expect an expansion of private-sector finance, public-private partnerships, and other innovative techniques for building and maintaining highways and roads. (See article by Grote and Seltzer in this issue.) Other nations have experience with such techniques, and some states are now involved in projects that might serve as models. For such ventures to flourish, enabling legislation is needed in many states, together with a high degree of flexibility in the use of federal funds so they can be leveraged to the maximum extent. New construction and maintenance schemes, such as design-build and design-build-operate, need to be tried as well.

Summary and Conclusion

Clearly, there will be future funding needs to support the nation's highways. It may be possible to limit those needs through the use of alternative transportation systems and land use controls, but even so our pavements and bridges will need to be preserved and rehabilitated.

The bottom line of highway finance is that nothing is free. Ultimately, highway users and taxpayers will pay the direct costs, and some portion of the indirect costs as well. They will pay either in direct taxes, in tolls, in debt retirement funding, or in hidden costs added to the prices of the goods and services they purchase.

There will be a continuing need for research into highway finance to find better, more efficient, and more equitable ways of meeting future highway funding needs. The public and private sectors will then have to implement measures that can produce the needed revenue. Otherwise, our highway system will not support the America of the 21st century.