

# The Fuel Tax

## and Alternatives for Transportation Funding

JOSEPH R. MORRIS

*The author is Senior Program Officer, TRB Division of Studies and Special Programs, and served as Study Director for this project.*

**T**he fuel tax has provided stable and growing revenue for transportation programs for many decades. But are this tax and other special taxes that highway users now pay becoming unreliable funding sources? Transportation officials see two possible threats to the viability of the established finance arrangements:

- ◆ Changes in automotive technology, increases in fuel prices, or the introduction of new regulations on energy or the environment could depress fuel consumption and fuel tax revenue; and
- ◆ The user-fee principle of highway financing may be eroding, as applications of user-fee revenues proliferate, and as dependence on revenue from sources other than user fees grows.

In an era when tax rate increases often seem politically infeasible, the vulnerability of excise tax rev-



enue to inflation magnifies these concerns.

To assess the implication of recent trends for the future of traditional transportation finance, to identify financing alternatives and the criteria by which they should be evaluated, and to suggest ways for overcoming barriers to the acceptance of new approaches, the Transportation Research Board (TRB), through the National Research Council of the National Academies, convened the Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance (*see box, this page*). The Federal Highway Administration, TRB, and state departments of transportation—through the National Cooperative Highway Research Program—sponsored the study.

### Focus on Performance

In judging the merits of the present system and alternatives, the TRB study committee focused on how finance arrangements affect the performance of the transportation system by influencing the decisions of travelers, as well as investment and management decisions by government. This led the committee to give special attention to methods of charging fees that could relate directly to the cost of providing services—in particular, tolls and mileage charges. The committee did not estimate how much governments should spend on transportation and did not devise revenue mechanisms to support increased levels of spending.

The committee concluded that the challenges evident today will not prevent the highway finance system from maintaining its historical performance over the next 15 years. The system should be able to fund growth in capacity and some service improvements, although not at a rate that will reduce congestion.

A reduction of 20 percent in average fuel consumption per vehicle-mile is possible by 2025 if regulation or sustained fuel price increases lead to improvements in fuel economy. Offsetting the revenue effect of such a reduction would not require unprecedented increases in fuel tax rates. The willingness of

### Committee for the Study of the Long-Term Viability of Fuel Taxes for Transportation Finance

Rudolph G. Penner, Urban Institute, Washington, D.C., Chair

Carol Dahl, Colorado School of Mines, Golden

Martha Derthick, Charlottesville, Virginia

David J. Forkenbrock, University of Iowa, Iowa City

David A. Galt, Montana Petroleum Association

Shama Gamkhar, University of Texas, Austin

Thomas D. Larson, Lemont, Pennsylvania

Therese J. McGuire, Northwestern University, Evanston, Illinois

Debra L. Miller, Kansas Department of Transportation

Michael Pagano, University of Illinois, Chicago

Robert W. Poole, Jr., Reason Foundation, Los Angeles, California

Daniel Sperling, University of California, Davis

James T. Taylor II, Bear, Stearns & Co., Inc., New York

Martin Wachs, RAND Corporation, Santa Monica, California

legislatures to enact increases may be in question, but the current revenue sources will retain the capacity to fund transportation programs at historical levels.

In addition, the committee concluded that although the present highway finance system has contributed to the success of the highway program and can remain viable for some time, travelers and the public would benefit greatly from a transition to a fee structure that charged vehicle operators more directly for use of the roads. The transition to direct charging could improve operation of the road system and could target the most beneficial projects for investment. Because the charges would reflect the cost of providing service, the revenues would indicate accurately where capacity expansions would produce the most benefit.

## Strengthening and Preparing

The committee's recommendations propose immediate changes to strengthen the highway and transit finance system, as well as actions to prepare the way for more fundamental reform in the long term.

◆ *Maintain and reinforce the user-fee finance system.* The nation must continue to rely on the present framework of transportation funding for at least the next decade. Therefore, governments must take every opportunity to reinforce the proven features of the present system—in particular, user-fee financing of the highway program.

◆ *Expand use of tolls and test road use metering.* Good models for toll road development can emerge only from the states. Therefore, the federal government should adopt a strategy of encouraging the states to experiment with arrangements for tolling and private-sector participation in road development. The states should be allowed to impose tolls on roads that were built with federal aid. The states and the federal government should explore the potential of road use metering and mileage charging with large-scale, fully functioning trial implementations.

◆ *Provide stable, broad-based tax support for transit.* Reforms of highway finance arrangements will raise the need to review and adjust the relationship between highway and transit funding.

◆ *Evaluate the impact of finance arrangements on transportation system performance.* Transportation agencies must develop new capabilities for research, evaluation, and public communication to manage finance reform over the next few decades to improve transportation system performance.

## Opportunities at Hand

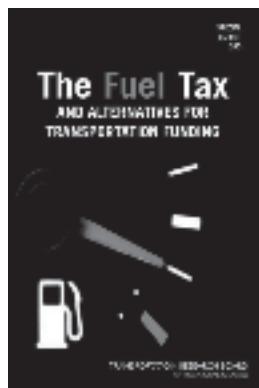
Opportunities are at hand for fundamentally new approaches that could provide a sound basis for transportation financing and at the same time improve the

efficiency and quality of transportation services.

Progress in the technologies of toll collection and road use metering, for example, has greatly diminished the obstacles of cost and inconvenience. The application of these technologies would allow the metering of each customer's use of highway services, which then can be charged accordingly, just as customers pay today for utilities such as water and electricity.

Development of this revenue source would maintain the established practice of funding highways largely through fees paid by users, would link the fees more closely to the cost of providing service for each user, and would supply information to transportation agencies about which investments in capacity would yield the greatest benefits. Facilities that generate their own revenue would be candidates for operation by private-sector franchisees, supplementing public efforts with private capital and with the skills to carry out infrastructure projects.

Initial steps toward these new kinds of transportation finance arrangements are under way. Before these arrangements can become major components of the transportation finance system, however, their effectiveness must be demonstrated to the public's satisfaction and the institutional capabilities must be developed to manage them on a large scale. In the meantime, improving and refining the system's capacity to provide the right level of funding is worthwhile, to direct the funds to the best uses within the established structure of fees, revenue sources, and government responsibilities.



TRB Special Report 285, *The Fuel Tax and Alternatives for Transportation Funding*, is available from the TRB online bookstore, [www.TRB.org/bookstore](http://www.TRB.org/bookstore); to view the book online, [www.TRB.org/publications/sr/sr285.pdf](http://www.TRB.org/publications/sr/sr285.pdf).



PHOTO: MINNESOTA DOT

Minnesota's MnPass uses a windshield-mounted transponder to record road use and deduct from drivers' prepaid accounts.