

August 1991

TRAFFIC MANAGEMENT

Federal Policies to Encourage Low-Cost Approaches Need to Be Strengthened



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**Program Evaluation and
Methodology Division**

B-244746

August 28, 1991

The Honorable Quentin N. Burdick
Chairman
The Honorable John H. Chafee
Ranking Minority Member
Committee on Environment and Public Works
United States Senate

The Honorable Daniel Patrick Moynihan
Chairman
The Honorable Steve Symms
Ranking Minority Member
Subcommittee on Water Resources, Transportation, and
Infrastructure
Committee on Environment and Public Works
United States Senate

Traffic congestion on the nation's highways and streets continues to increase and to have an adverse affect on mobility, energy conservation, and air quality. The reauthorization of the Surface Transportation Act provides an opportunity to examine innovative ways to encourage congestion mitigation in order to achieve national mobility, energy, and air quality goals.

Within this context, and at your request, we evaluated federal efforts to encourage better management of the nation's highways through the use of low-cost transportation systems management (TSM) techniques. (The request letter is in appendix I.) Specifically, we examined the effectiveness of key U.S. Department of Transportation (DOT) policies aimed at supporting TSM. We also reviewed similar efforts being made by the private sector and local governments, and we examined how federal policies, including air quality planning, encourage or discourage such efforts. When we briefed your staff on our results in early March 1991, we agreed to provide you with a summary report of the briefing.

Objectives

The aim of our review was to develop evaluative information about key TSM-related policies, not to cover every aspect of federal involvement in TSM. Consequently, our review focused on three principal mechanisms used by the federal government to encourage TSM: funding incentives, planning requirements, and technical assistance. The corresponding evaluation questions guiding the study were

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- To what extent have federal-aid incentives led to the local implementation of TSM techniques?
 - Are federal transportation planning requirements effective in encouraging local actions in TSM, and are these planning requirements viewed as consistent with similar efforts for clean-air purposes?
 - How, if at all, do federal technical assistance efforts and related TSM policies encourage or discourage innovative public and private sector TSM programs?

Methodology

We used several different evaluation methods because the data requirements differed for each question. Our analysis of federal-aid funding for TSM was based on data we obtained from the Federal Highway Administration (FHWA) covering federal-aid highway funds used for TSM projects for fiscal years 1980 through 1989. With regard to federal planning efforts, we surveyed a stratified random sample of 119 metropolitan planning organizations. We reviewed research, conducted site visits, and interviewed transportation officials to obtain information on four potentially innovative TSM strategies: transportation management associations, trip reduction ordinances, parking management, and congestion pricing. Finally, we interviewed federal officials and obtained program documentation to examine federal technical assistance for innovative public and private sector congestion-mitigation programs.

Scope

Transportation systems management encompasses a variety of low-cost techniques aimed at improving the efficiency of surface transportation. TSM includes supply management techniques such as traffic signal coordination and ramp metering, as well as transportation demand management techniques, such as carpooling and vanpooling. While the scope of our TSM review includes both supply and demand techniques, where possible we focused on transportation demand management actions because these reflect TSM techniques that are lowest in cost and because these actions were prominently featured in the 1990 Clean Air Act amendments.

Our data collection on funding and technical assistance is complete, as is the first phase of our analysis of planning data. We will present additional results on this latter component to the committee in a later report.

Results in Brief

Overall, our review has shown that the federal government plays an important role in facilitating the local implementation of TSM techniques

to reduce congestion and improve air quality. This role encompasses funding assistance, planning requirements, and technical support. However, our findings suggest that these current efforts have not been fully successful in achieving widespread TSM—and particularly transportation demand management—usage.

Funding Assistance

The federal-aid highway program is a major source of funding that the states can use for traffic management. However, actual total expenditures for TSM with federal-aid money over the last decade have remained small relative to total allocations. Although the federal government has sought to promote better supply and demand management by including certain TSM projects under an “incentive” provision that contained other operational improvements, the provision does not appear to have significantly influenced the amount of TSM implemented.

Planning Requirements

Transportation planning is a prerequisite for the effective implementation of TSM. Almost all the metropolitan areas we surveyed placed at least a moderate emphasis on some form of TSM in their regional plans. However, such planning appears to be insufficient by itself to guarantee that TSM, and particularly transportation demand management, is implemented. We found that this is in part because of an uncertain connection between transportation planning and any consequent funding of planned transportation demand management projects. We also found that other forms of local reluctance to fully embrace transportation demand management affected its implementation.

Technical Assistance

The four innovative strategies we reviewed varied on several important dimensions, such as the level of empirical support for their effectiveness, with some at the early stages of testing and others having been heavily studied. Nonetheless, they exemplify the types of innovations that are being experimented with by communities as they seek to better manage traffic demand on their freeway and street systems. We found that federal policy has and could further support these activities through ongoing technical assistance and that the need for such assistance could increase greatly because of the requirements of the 1990 Clean Air Act. Finally, we found that a consistent federal policy in TSM involves incorporating related aspects of tax policy and federal agency policies.

Matters for Consideration

Given the growing concerns with traffic congestion, air quality, and energy consumption, there is a sufficient basis to consider an enhanced federal role in improving transportation efficiency. Based on our review, the following represent policy options for such a role that should be considered in the design and implementation of the 1991 reauthorization of the Surface Transportation Act, (as well as through other related legislation).

Funding Incentives

A true "incentive" system should be considered for targeting federal-aid highway funds specifically for TSM activities. The value of this incentive would be enhanced if it represented bonus funding (that is, in addition to allocated funds). Such a bonus could also be awarded to states that implement innovative travel demand management strategies for the dual purpose of resolving congestion and clean-air problems.

Planning and Implementation Links

A stronger connection should be considered for linking the planning and implementation of TSM. This link would be aimed at developing a metropolitan planning process that highlights TSM approaches and then gives these projects first priority or more certain funding once they have been incorporated into such regional congestion-management or clean-air plans.

Technical Assistance and Related Policies

A joint technical assistance program with consistent funding should be considered for the purpose of examining, demonstrating, and providing technical assistance, training, and outreach on innovative transportation demand management strategies, including market-based strategies such as congestion pricing. A joint agency oversight committee under both the Federal Highway Administration (FHWA) and the Urban Mass Transportation Administration (UMTA) could be established with participation by the U.S. Environmental Protection Agency (EPA) to review the optimal implementation of new strategies.

Federal policies should be examined and policies that work counter to federal TSM policy, and inconsistencies, should be resolved. For example, federal tax provisions pertaining to parking and ridesharing could be reformulated so as to treat all forms of commuting on a more equal basis.

Inherent in these considerations is the concern that, as currently structured, federal transportation policy does not contain measures with sufficient strength to achieve desired transportation efficiency. We are, however, encouraged by several proposals for the surface transportation reauthorization that contain elements of a potentially effective federal strategy. These elements include congestion planning requirements, congestion-mitigation or related metropolitan bonus funding, and technical support for TSM.

Agency Comments

At the request of committee staff, we did not ask for written comments. However, the Department of Transportation provided oral comments on a draft of this report. Agency representatives agreed with the overall direction of our findings but noted several areas that needed clarification or elaboration. For example, agency representatives suggested that the focus of our analysis on highway (versus transit) funds should be clarified and that the agency's policy efforts for the reauthorization should be more explicitly noted. Where appropriate, we have made these and other suggested changes to the report.

As agreed with your office, unless you publicly announce the contents of this report earlier, we plan no further distribution of it until 30 days from its date. We will then send copies to the Secretary of Transportation and to others who are interested. If you have any questions or would like additional information, please call me at (202) 275-1854 or Kwai-Cheung Chan, Director of Program Evaluation in Physical Systems Areas, at (202) 275-3092. Other major contributors to this report are listed in appendix II.

Sincerely yours,



Eleanor Chelimsky,
Assistant Comptroller General

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Abbreviations

DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
FHWA	Federal Highway Administration
GAO	General Accounting Office
MPO	Metropolitan planning organization
TSM	Transportation systems management
UMTA	Urban Mass Transportation Administration

The 1991 reauthorization of the Surface Transportation Act represents an important opportunity to assess the federal role in supporting TSM. For this reason, the Senate Committee on Environment and Public Works asked us to evaluate the current strengths and weaknesses of federal TSM policies and to report our findings to the committee for use in the reauthorization deliberations. We provided the committee with a briefing of our results on March 14, 1991, and agreed then to publish a written summary of the briefing.

Objectives, Scope, and Methodology

This review focuses on three principal federal policies aimed at encouraging TSM: (1) federal-aid funding incentives, (2) transportation planning requirements, and (3) technical assistance for innovative TSM practices. While our scope included both supply and demand TSM techniques, where possible we have focused on transportation demand management techniques.

To address the committee's concerns about the strengths and weaknesses of federal transportation system management efforts, we posed the following evaluation questions:

- To what extent have federal-aid incentives led to the local implementation of TSM techniques?
- Are federal transportation planning requirements effective in encouraging local actions in TSM, and are these planning requirements viewed as consistent with similar efforts for clean-air purposes?
- How do federal technical assistance efforts and related TSM policies encourage or discourage innovative public and private sector TSM programs?

We obtained data from FHWA on federal-aid highway program funds used for TSM-related projects for fiscal years 1980 through 1989 and then analyzed these data to determine overall funding trends. We conducted interviews with transportation officials from Arizona, Florida, Indiana, and New Jersey to gain a more detailed understanding of state use of federal-aid funding for TSM.

In regard to federal transportation planning, we surveyed a stratified random sample of 119 metropolitan planning organizations. This nationwide sample represents metropolitan planning organizations in all metropolitan areas with populations of 50,000 or more. The response rate to our survey was 100 percent.

We reviewed research, conducted site visits, and interviewed transportation experts to obtain information on four potentially innovative demand management strategies: transportation management associations, trip reduction ordinances, parking management, and congestion pricing. We also interviewed federal officials and obtained program documentation to examine the federal role as it relates to innovative transportation demand management strategies.

Our data collection on funding and technical assistance is complete, while our analysis of planning data is still going on. We will present additional results from the nationwide survey to the committee in a later report. Our review was conducted in accordance with generally accepted government auditing standards.

TSM Funding Analysis

The federal-aid highway program constitutes the basic source of federal funding that the states may use for all highway projects, including TSM projects. We examined the extent to which the states used federal-aid funds for TSM.¹ We also looked at the extent to which the states used an incentive funding provision created by the Congress to encourage the use of federal-aid funds for supply and demand management activities.

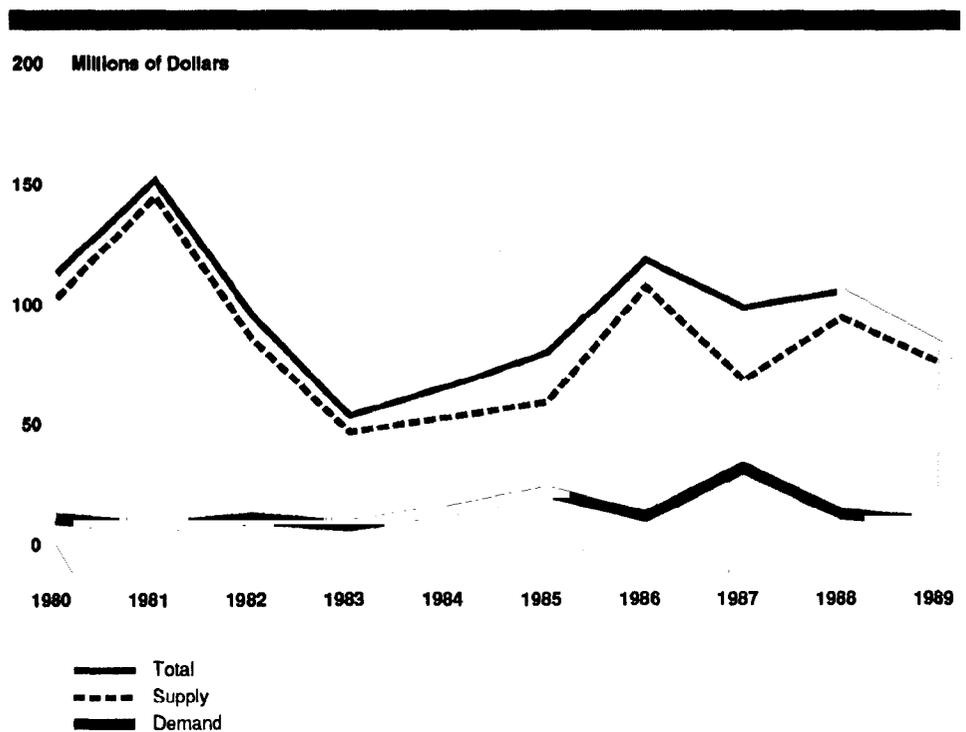
Overall Funding

A considerable amount of federal-aid funds has been used to support TSM activities, although the overall amount is small compared to total federal-aid highway funding. Approximately \$1 billion was spent on various supply and demand management projects from fiscal years 1980 through 1989. (See figure 2.1.)

¹Our TSM analysis focused on the use of federal-aid highway funds, for they are the major source of federal surface transportation support. However, transit funds (for example, section 3, 8, and 9 funds) can also be used for various TSM activities. For an illustration of the use of these funds for TSM, see chapter 3 of our previous report on the topic: Traffic Congestion: Federal Efforts to Improve Mobility, GAO/PEMD-90-2 (Washington, D.C.: December 1989).

Section 2
TSM Funding Analysis

Figure 2.1: Major Federal-Aid Highway Expenditures to TSM Supply Versus Demand Management Projects 1980-89^a



^aTotal federal aid to TSM = \$954 million.

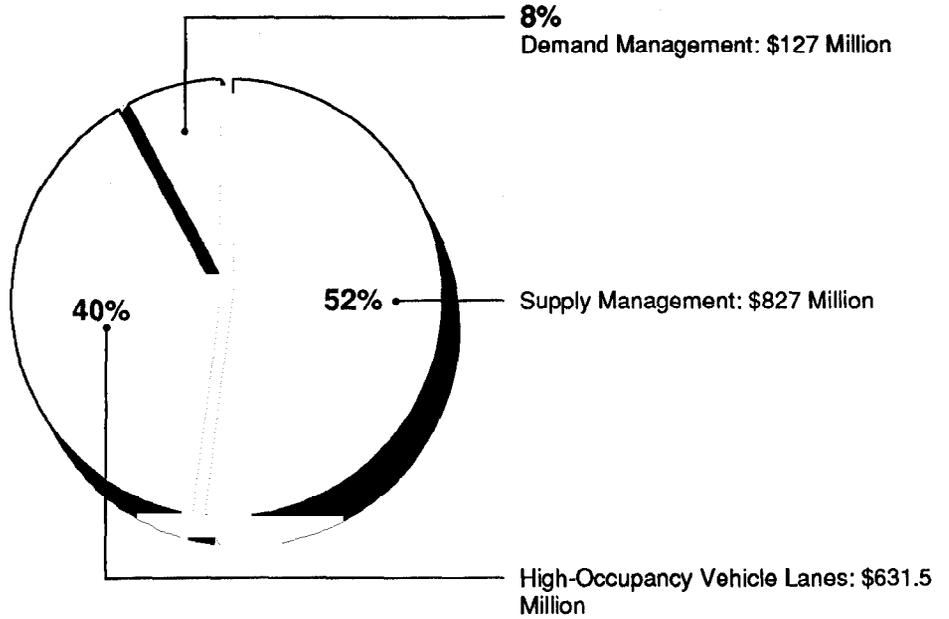
Source: Office of Fiscal Services, Federal Highway Administration, 1991.

Adding major high-occupancy vehicle lanes to this estimate raises total TSM funding to approximately \$1.6 billion. (See figure 2.2.²) This compares with close to \$88 billion for all highway construction and related activities. (See figure 2.3.)

²Our definition of TSM for this analysis was primarily based on 11 different demand and supply management project codes suggested by FHWA and figure 2.1 reflects this analysis. However, as high-occupancy vehicle lanes do aim to encourage ridesharing, we provide in figure 2.2 supplemental analysis that incorporates construction costs of major high-occupancy vehicle lanes.

Section 2
TSM Funding Analysis

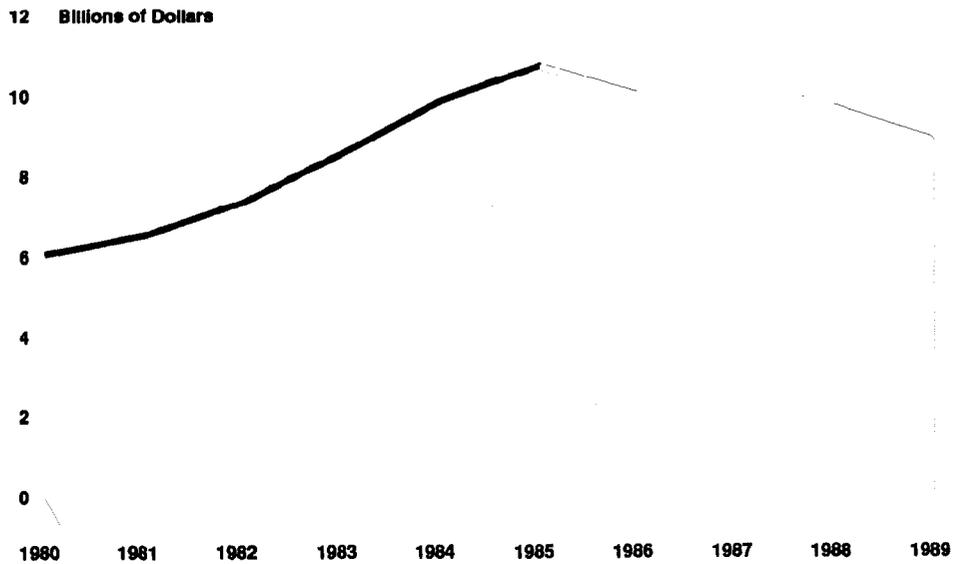
Figure 2.2: Total TSM Funding Including High-Occupancy Vehicle Lanes 1980-89^a



^aTotal TSM spending = \$1.58 billion.

Source: Office of Fiscal Services, Federal Highway Administration, 1991.

Figure 2.3: Major Federal-Aid Highway Expenditures 1980-89^a

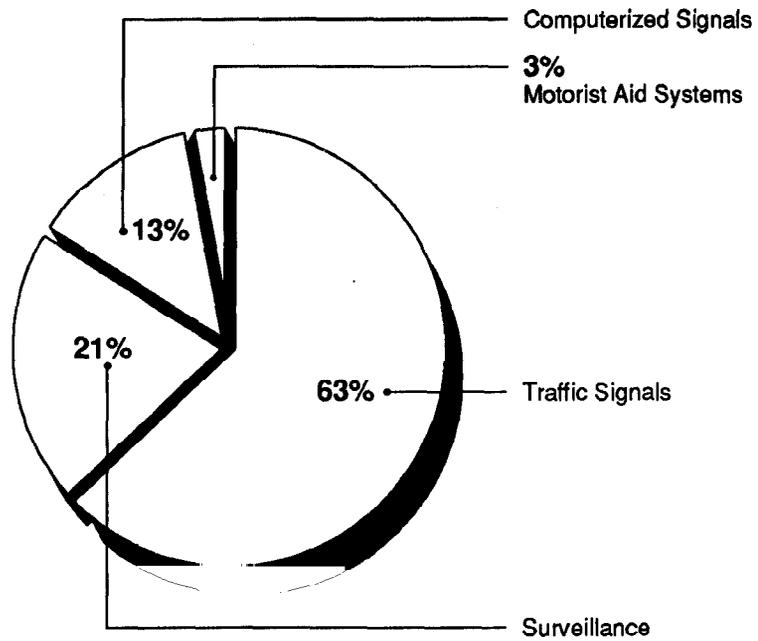


^aTotal federal-aid funding = \$87.5 billion.

Source: Office of Fiscal Services, Federal Highway Administration, 1991.

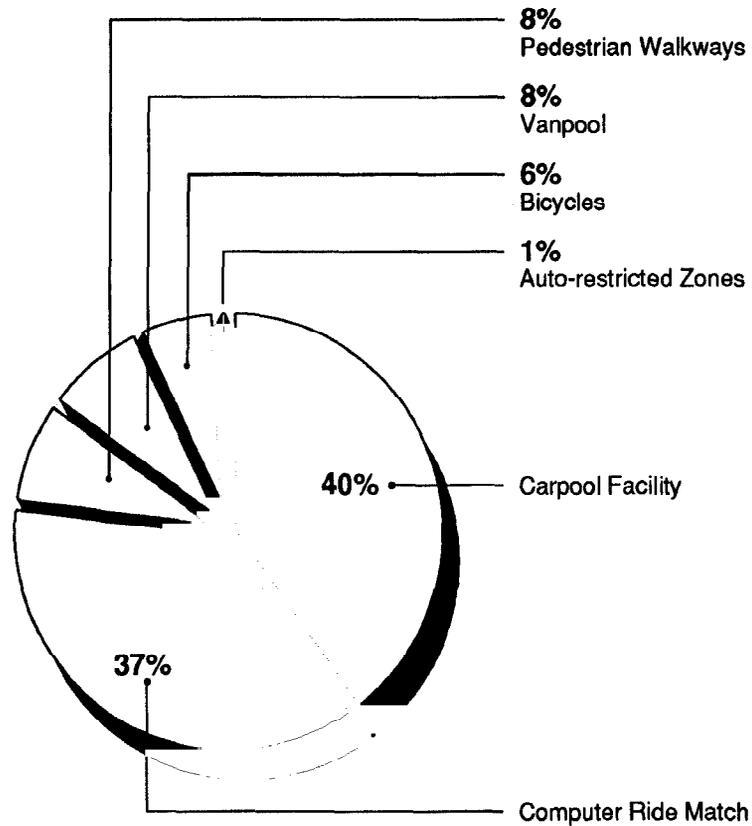
No state used more than 3 percent of its federal-aid highway funds on TSM projects during the 1980's. Most TSM funding was used for supply management projects, principally traffic signals and computerized programs to run them. (See figure 2.4.) Less has been used for demand management activities, such as computerized rideshare programs. (See figure 2.5.)

Figure 2.4: Major Federal-Aid Highway Expenditures for Supply Management Projects 1980-89^a



^aTotal federal aid to supply management = \$827 million.
Source: Office of Fiscal Services, Federal Highway Administration, 1991.

Figure 2.5: Major Federal-Aid Highway Expenditures for Demand Management Projects 1980-89^a



^aTotal federal aid to demand management = \$127 million.

Source: Office of Fiscal Services, Federal Highway Administration, 1991.

Funding Incentives

In 1978 and again in 1982, the Congress augmented a funding provision used to encourage improvement of railroad crossings in order to encourage TSM as well. This funding code ("G-Funding Code") permits the states to use up to 10 percent of their total federal-aid allocation without any local match.³ In 1978, this provision was approved for selected supply management activities (such as computerized traffic signals), and in 1982, certain demand management activities (such as rideshare promotion) were added.⁴

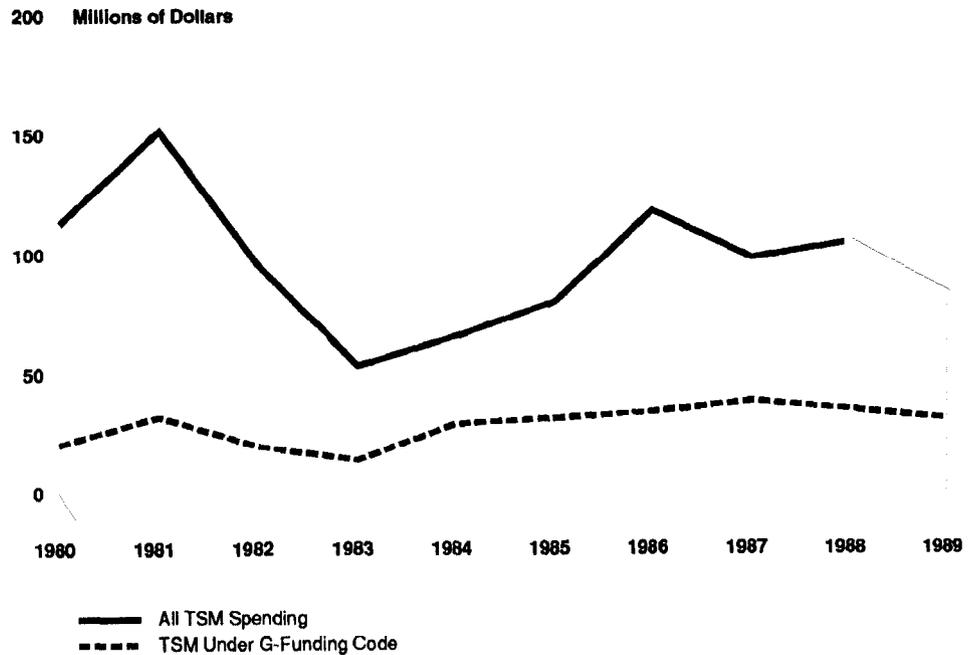
³See U.S.C. title 23, section 130.

⁴Provisions related to highway safety were added as eligible G-Funding Code activities in 1987.

Provision Use

Our analysis shows that while this incentive provision has been used at times by most states to support TSM activities, there was no major increase in the use of federal-aid highway funds for TSM in the 1980's. Actual expenditures for TSM under the incentive provision remained relatively stable over the decade, averaging about \$28 million annually, while total TSM expenditures over the decade averaged about \$95 million annually. (See figure 2.6.)

Figure 2.6: Total TSM Spending and G-Funding Code Allocations to TSM 1980-89



Source: Office of Fiscal Services, Federal Highway Administration, 1991.

Provision Limitations

We interviewed state department of transportation officials in four states to gain insight into why the funding provision was not producing additional TSM activity. According to these officials, the funding provision is not an incentive for TSM because (1) it is mostly used for competing purposes such as railroad crossings and highway safety; (2) the administrative tasks associated with the incentive are viewed as burdensome; (3) the funding incentive entails not the allocation of additional federal funding but, rather, the reassignment of existing federal funding; and (4) state-level decisions about TSM projects, which are relatively low in cost, are not necessarily closely tied to determinations

about funding. While there was agreement across those interviewed that the current provision had not functioned as a strong incentive for TSM, there was no consensus on how to better promote TSM.

Summary

The federal-aid highway program constitutes a major source of funding that the states may use for TSM techniques. Supply and demand management activities are encouraged by federal policy, but the relative percentage of federal-aid funds spent on TSM remains small. This funding disparity undoubtedly reflects, at least in part, the fact that TSM activities are low in cost. Nonetheless, the incentive provision has not resulted in the desired effect of additional TSM activity and, as it is currently structured, should not be viewed as providing the needed inducement for producing such additional activity.

Metropolitan Planning for TSM

In addition to funding, metropolitan planning constitutes an important way in which the federal government could encourage the local adoption of TSM techniques. For almost 30 years, the federal government has been involved in metropolitan planning through its requirement that transportation planning be conducted before federal-aid funds are disbursed. Therefore, the transportation planning process represents a second area where the federal government could encourage consideration of TSM. In order to better understand how transportation planning relates to local TSM implementation, we surveyed 119 metropolitan planning organizations (MPOs) across the country.¹

TSM Planning

Metropolitan planning organizations were established by the federal government to improve local intergovernmental coordination in transportation. In 1975, MPOs were given responsibility for long-range transportation planning and were required to formulate a separate short-range TSM element into their plans. A 1983 revision of FHWA and UMTA joint planning regulations did not include a requirement for a separate TSM element but did specify that the planning process include an analysis of TSM strategies.

According to the survey responses, TSM is considered in the short-range transportation plans of most metropolitan areas. Almost all the responding MPOs noted that their recent regional plans have placed at least a moderate emphasis on some type of TSM improvement. Of the various TSM techniques, two supply management activities—signal improvements and restriping and widening—received the most attention, with over 70 percent of MPOs noting that at least a moderate emphasis has been placed on these techniques. (See figure 3.1.) In comparison, none of the demand management activities received such universal attention in regional plans; the most considered was ridesharing, with approximately 38 percent of MPOs placing at least a moderate emphasis on this activity. (See figure 3.2.)

¹In selecting the 119 metropolitan planning organizations, we used a stratified random sampling procedure. Survey responses were then weighted according to the sampling ratio for each stratum in order to ensure that overall results could be generalized to the entire population of MPOs.

Section 3
Metropolitan Planning for TSM

Figure 3.1: MPO Respondents Reporting Strong or Moderate Emphasis in Planning for Supply Management

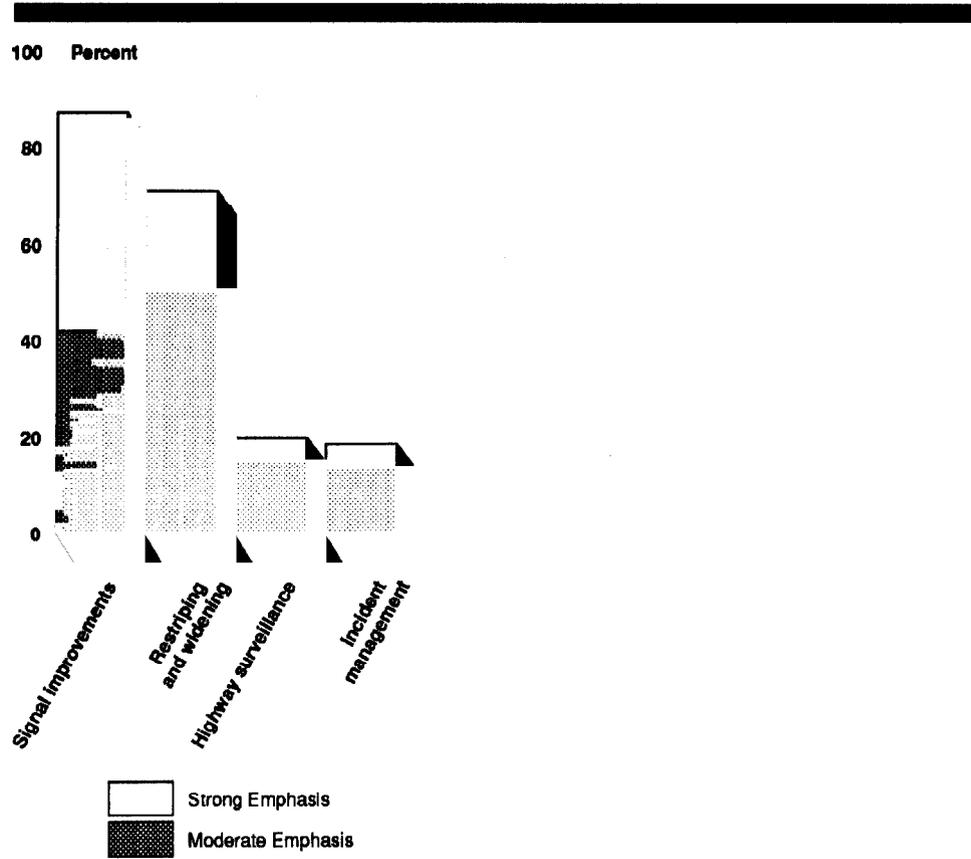
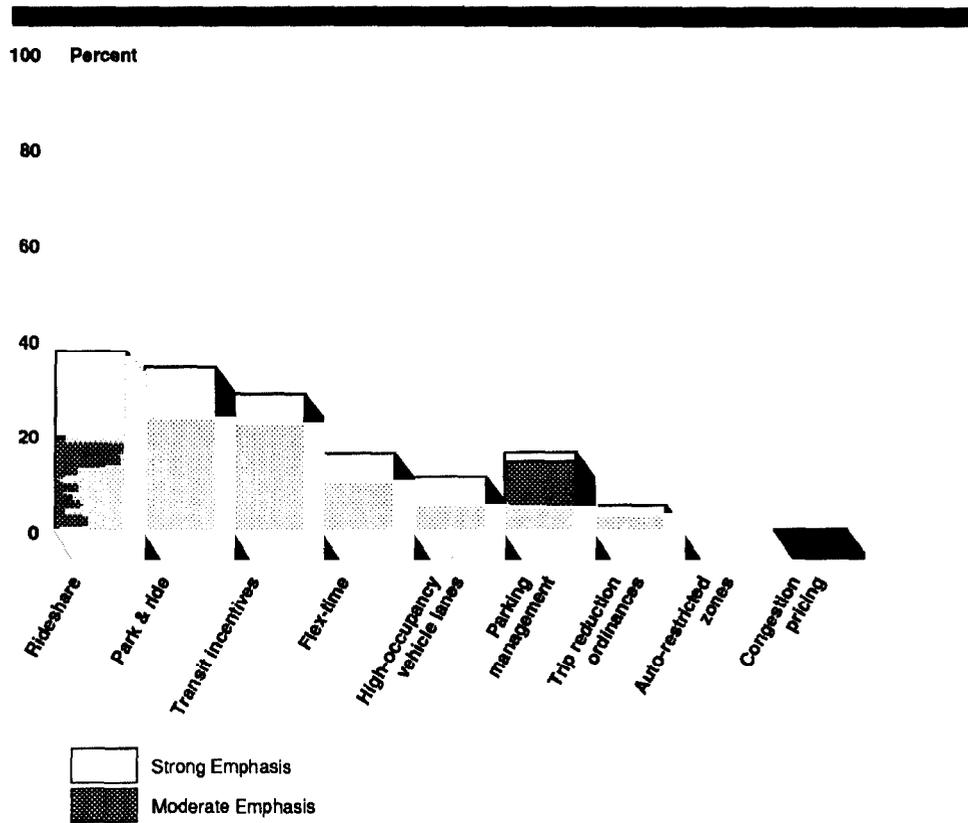


Figure 3.2: MPO Respondents Reporting Strong or Moderate Emphasis in Planning for Demand Management



Transportation Demand Management: Implementation Obstacles

Survey responses suggest that for transportation demand management, significant obstacles affect the degree to which planned activities are implemented. While supply management receives almost as much emphasis or more in implementation as in planning, demand management receives consistently less emphasis in implementation than in planning. (See figures 3.3 and 3.4.) For example, slightly more metropolitan areas place a strong emphasis on implementing traffic signal improvements than they do on planning these improvements (49 percent versus 45 percent). In contrast, only 13 percent place a strong emphasis in implementing ridesharing, while 18 percent had noted such an emphasis in their regional plans.

Figure 3.3: MPO Respondents Reporting Strong Emphasis in Planning Versus Implementation for Supply Management

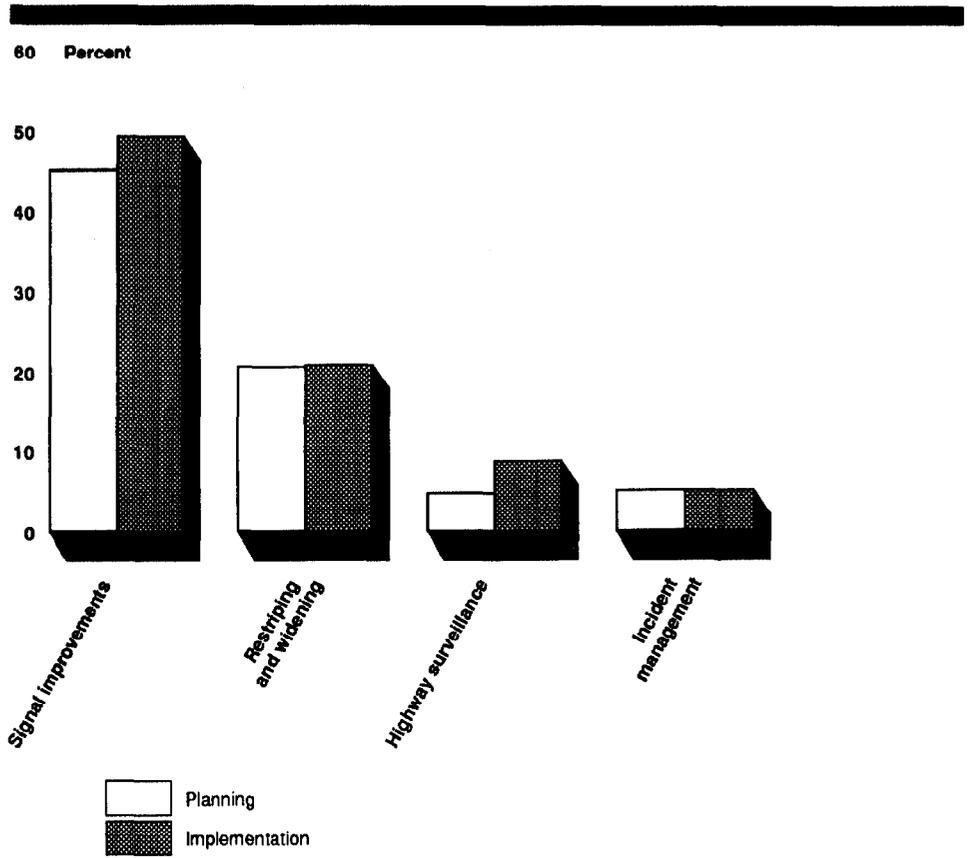
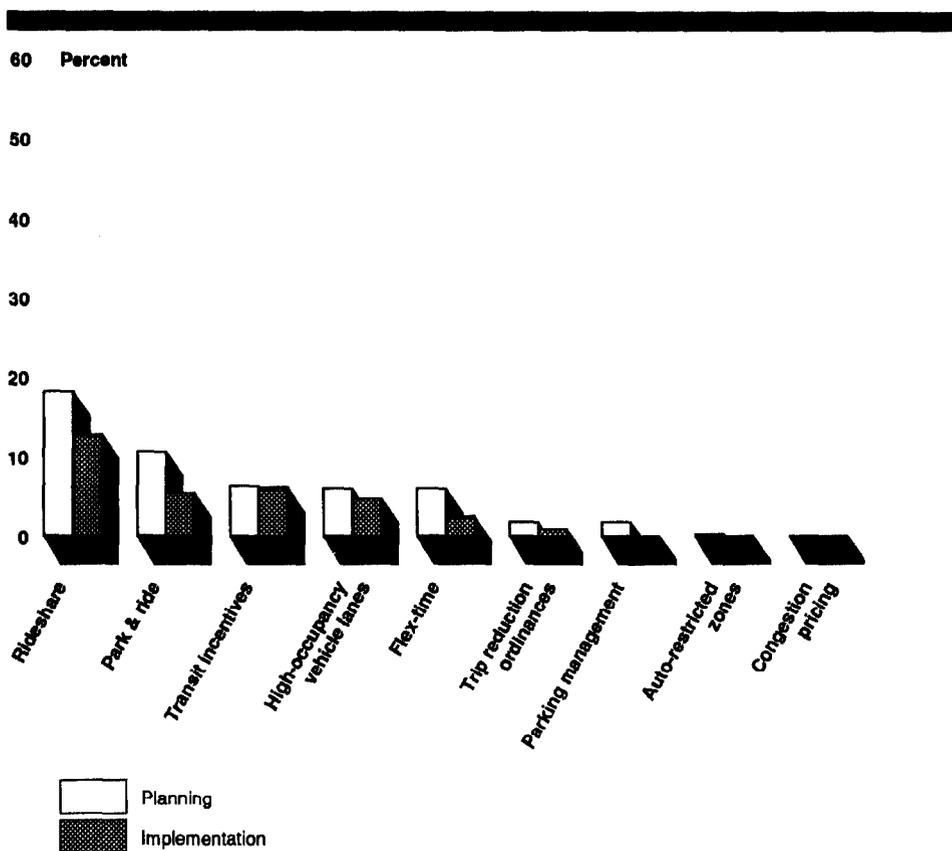


Figure 3.4: MPO Respondents Reporting Strong Emphasis in Planning Versus Implementation for Demand Management



Several obstacles appear to limit the implementation of transportation demand management.² In fact, about 79 percent of MPOs asserted that transportation demand management was underused in their areas. (See figure 3.5.) Several reasons for the underuse of transportation demand management were offered, primarily the unavailability of funding for transportation demand management projects and the low priority placed on congestion reduction by local officials. Additionally, our survey indicated that an emphasis on transportation demand management can conflict with the need to seek funds for capital construction projects. Finally, in some areas surveyed, congestion is reported not to be a problem. (See figure 3.6.)

²These results pertain to implementation obstacles as reported by MPOs. After this survey, we conducted site visits in three metropolitan areas (San Francisco, California; Tampa, Florida; and Minneapolis, Minnesota) to obtain the perspective of TSM implementors (for example, local highway and transit agencies). The results of these visits provide useful and complementary information on many MPO-reported implementation obstacles. We will present the site visit findings in a later report.

Figure 3.5: MPO Respondents Reporting Sufficient Use Versus Underuse of Transportation Demand Management

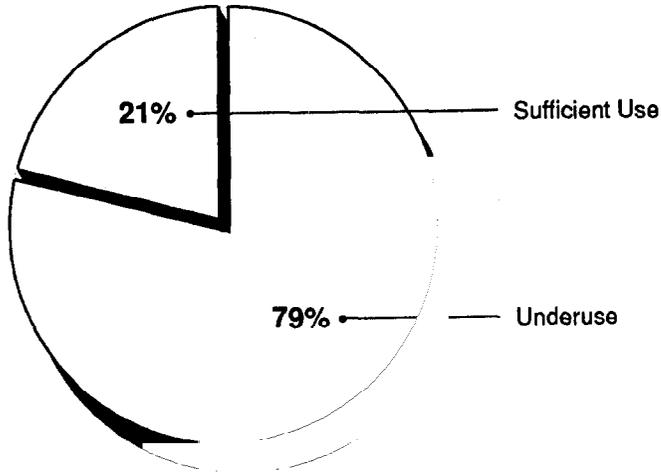
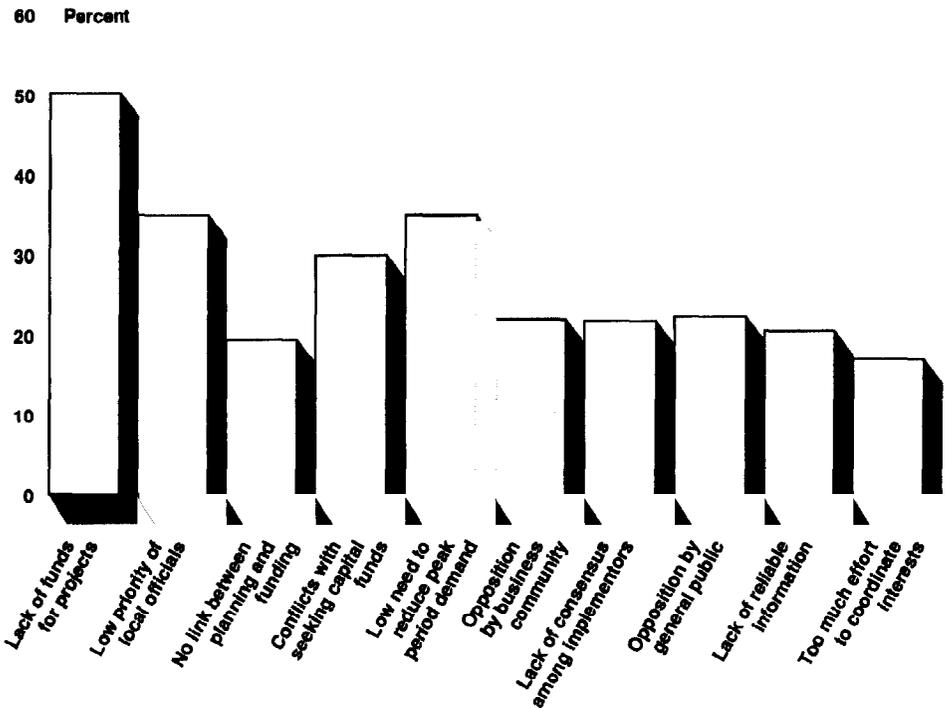


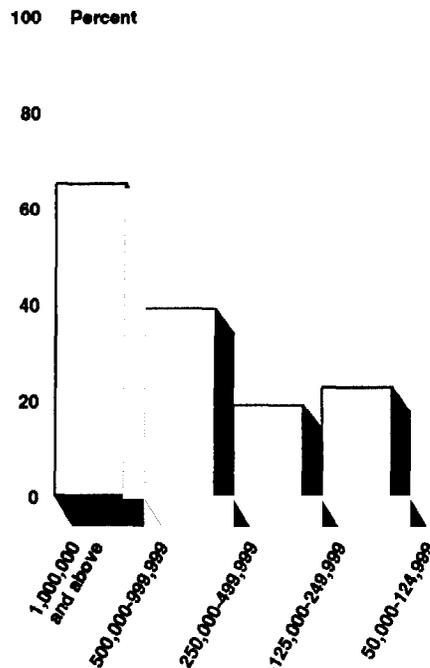
Figure 3.6: Major Reasons Given by MPOs for Transportation Demand Management Underuse



Link Between Air Quality and TSM Planning

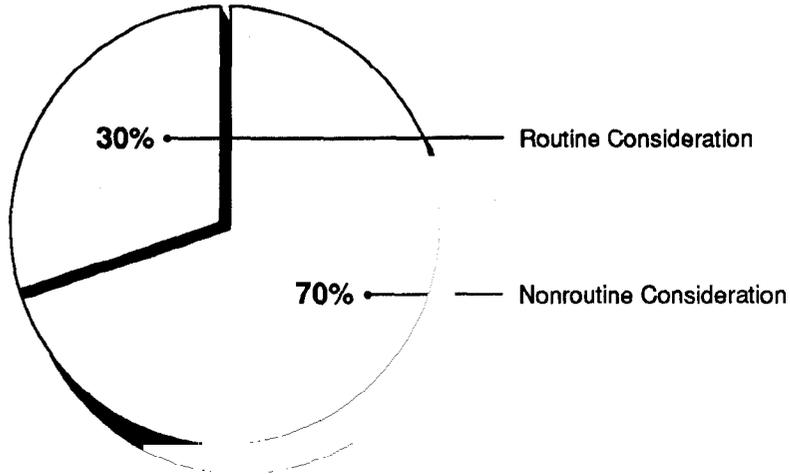
Our survey analysis indicates that for the majority of metropolitan areas with fewer than 1 million inhabitants, there has not been a close link between air quality concerns and transportation planning. (See figure 3.7.) For areas over 1 million, 65 percent of the respondents did note at least some link between air quality and transportation planning. However, even in these large metropolitan areas, in the TSM decision-making process, less than one third routinely consider whether or not a particular TSM activity can function to improve air quality as a transportation control measure. (See figure 3.8.)

Figure 3.7: MPO Respondents Reporting at Least Some Link Between Air Quality and Transportation Planning^a



^aBy population size of metropolitan statistical areas.

Figure 3.8: Large Metropolitan Statistical Area MPOs Reporting Routine Versus Nonroutine Consideration of Air Quality Concerns in TSM Decisionmaking



Summary

Acting under general federal requirements for transportation planning, metropolitan planning organizations develop regional transportation plans that in most cases include TSM; however, the extent to which these planning priorities are translated into programming and implementation support is limited by several factors. TSM implementation, especially for transportation demand management, is limited by the reported unavailability of funding for planned transportation demand management projects, by the low priority placed on congestion reduction by local officials, and, to some extent, by conflicts between seeking funds for transportation demand management projects and seeking funds for capital construction projects. Such factors suggest that while low-cost TSM measures might be appealing from the viewpoint of transportation planning, actually getting the various implementors to support these efforts in a coordinated fashion is a more difficult undertaking. And in a related manner, coordination with concurrent consideration of TSM for air quality is lacking in many areas as well.

Innovative TSM Strategies and Federal Technical Assistance

For the third component of our review, we examined innovative ways in which the public and private sectors can enhance the effectiveness of transportation demand management strategies. We also reviewed the extent to which the federal government supports such efforts through technical assistance and the extent to which related federal policies serve to encourage or discourage innovative transportation demand management techniques.

Innovative Strategies

On the basis of our literature review and interviews with transportation experts, we found that innovative strategies exist for enhancing local transportation demand management effectiveness. Nonetheless, the four specific strategies included in our review varied with regard to key elements, such as their approach, actions, and the level of empirical support for their effectiveness. These elements are outlined in table 4.1.

Table 4.1: Innovative Strategy Summary

Key element	Transportation management association	Trip reduction ordinance	Parking management	Congestion pricing
Approach	Voluntary	Regulatory	Market-based	Market-based
Action	Private sector involvement in commuter programs	Municipal and regional governments require travel demand management plans	Employer charges for parking	Tolls on roads or bridges
Implementation issues	Hinges on employer commitment	Mandates employer participation	Ends free parking for employees	Charges for peak period highway use
Research findings	Limited	Major study in progress	Strong empirical support	Strong theoretical support
Example				
Location	128 West Transportation Council, Massachusetts	Regulation XV, Southern California	Nuclear Regulatory Commission, Maryland	Singapore
Research	<u>Transportation Management Through Partnerships by Urban Land Institute</u>	<u>Preliminary Evaluation of Regulation XV by G. Giuliano et al.</u>	<u>Parking Subsidies and Commuter Choice: Assessing the Evidence</u> by R. Willson, D. Shoup, and M. Wachs	<u>Road Work by the Brookings Institution</u>

Contrast of Approaches

Both the private sector and the public sector (at the local level) are participating in innovative transportation demand management strategies. These approaches include

- transportation management associations—which are organizational forums for facilitating private sector involvement in a wide range of

transportation management issues. Because transportation management associations are relatively new, there is limited information on their effectiveness.

- trip reduction ordinances—which are local governmental efforts to mandate various forms of commuter management actions. Regulation XV, the nation’s first regionwide trip reduction ordinance, was enacted in southern California to address air quality concerns. A major evaluation of this regulation is under way.

Market-based mechanisms are emerging as potentially effective transportation demand management strategies because they provide a cost disincentive for commuters to drive alone to work and an incentive for considering transportation alternatives. These include

- parking management—which involves the provision of various parking incentives and disincentives aimed at discouraging single occupancy travel. Because these mechanisms, particularly parking pricing, have been heavily studied and have a strong empirical basis supporting their effectiveness, the major issues pertain to overcoming political and public reluctance to imposing charges on previously free activities.
- congestion pricing—which entails charging tolls for peak period highway use. It is potentially very effective, although its implementation has been limited and concerns about its acceptability abound (including charging on previously free highways).

Federal Role

We found that the federal government can directly encourage the local implementation of innovative demand management techniques through technical assistance efforts and that it will need to further stress these approaches under the recently passed clean-air amendments. However, we also found that other federal policies indirectly serve to discourage demand management.

Technical Assistance

Within DOT, the Urban Mass Transportation Administration has recently been active in examining transportation demand management strategies. UMTA’s suburban and regional mobility initiatives have sponsored research and technical assistance on transportation management associations, trip reduction ordinances, and parking management. Over the last decade, FHWA has sponsored a number of travel demand management studies and has provided courses and related technical assistance. However, while UMTA is presently organizing an enhanced regional

mobility program, FHWA has not developed a formally organized transportation demand management program. (The two agencies have collaborated to initiate a pilot operational action project that has demand management elements.)

Clean-Air Policy

The 1990 Clean Air Act will have important implications for the extent to which communities consider transportation demand management approaches. According to one expert, this act will be the force behind many demand management actions taken by metropolitan areas in the foreseeable future. Under the act, states that fail to meet certain air quality standards must implement transportation control measures, such as trip reduction ordinances and employer-based transportation management programs. Consequently, many communities will be looking for evaluative information on transportation demand management strategies. The act requires EPA to provide such information within a year of the act's passage. Further, EPA and DOT must report to the Congress triennially on how well DOT and state and local programs are achieving the goals of the Clean Air Act and what programmatic or statutory changes need to be made, if any, to improve the achievement of the act's goals.

Related Federal Policy

Certain federal policies serve to discourage the implementation of transportation demand management techniques.

Tax Policy

Federal tax policy has a direct link to parking management policies. Currently, employer-provided free parking is treated as a tax-free benefit and therefore serves to encourage the provision of free parking by employers. Conversely, ridesharing and a portion of transit benefits are treated as taxable fringe benefits. According to experts, in order to effectively change commuter behavior, federal policy should affect both ends of the parking issue: increasing the incentives for alternative modes of transportation and decreasing incentives (such as free parking) for driving alone to work.

Federal Agency Policy

The federal government employs over 3 million civilian employees throughout the nation and is therefore in a position to set a visible example as an employer that encourages transportation demand management involvement. Conversely, the federal government can obstruct the federal policy of encouraging TSM by insufficiently complying with local trip reduction ordinances or by not participating in transportation

management organizations. Consequently, federal agency policy has also been noted as an area for transportation demand management attention.

Summary

Innovative transportation demand management strategies exist for enhancing the effectiveness of local surface transportation systems. They represent a range of approaches, from voluntary to regulatory. Increasing attention had been paid to the potentially very effective market-based strategies such as parking management and congestion pricing, although local acceptance of them remains uncertain.

Federal technical assistance supports innovative transportation demand management practices, although primarily through the various efforts by UMTA. The need for a comprehensive approach to transportation demand management technical assistance is heightened by the provisions contained in recently passed clean-air legislation. In order to overcome local hesitancy to adopt transportation demand management, the federal government should take an active role in the investigation, demonstration, evaluation and, where appropriate, encouragement of innovative transportation demand management efforts.

Beyond the technical assistance role, other policies, such as tax policy, need to be addressed as part of a consistent federal approach to transportation demand management.

Matters for Consideration and Legislative Implications

Overall, our review has shown that the federal government plays a key role in facilitating local consideration of low-cost traffic mitigation techniques. This role encompasses funding assistance, planning requirements, and technical support. However, our findings suggest that these current efforts have not been fully successful in achieving widespread TSM—and particularly transportation demand management—usage. Consequently, we note several matters for the Congress to consider as it deliberates on the nature and content of future surface transportation programs.

Matters for Consideration

Given the growing concerns with traffic congestion, air quality, and energy consumption, we think there is sufficient basis for considering an enhanced federal role in encouraging traffic management techniques. Based on our review, the following represent policy options for such a role and should be considered in the design and implementation of the reauthorization of the Surface Transportation Act (as well as in other related legislation).

Funding Incentives

A true “incentive” system could be created that targets federal-aid highway funds specifically for transportation system management activities. The value of this incentive would be enhanced if it represented bonus funding (that is, in addition to allocated funds). Such a bonus could also be awarded to states that implement innovative travel demand management strategies for the dual purpose of resolving congestion and clean-air problems. (Conversely, we should note that continued use of low-local-match type incentives—such as G-Funding Code—would not appear to provide a strong incentive for increasing local TSM implementation.)

Planning and Implementation Links

A more direct connection should be established between the TSM planning and TSM implementation processes. This would involve developing a local planning process that highlights low-cost approaches to congestion mitigation and giving identified TSM activities first priority or more certain funding once they have been incorporated in these regional congestion management or clean-air plans.

Technical Assistance

DOT could establish a technical assistance program with consistent funding for the purpose of examining, demonstrating, and providing technical assistance, training, and outreach on innovative transportation

demand management strategies. Among the strategies to be examined, particular attention should be paid to assessing local experiences with market-based strategies such as congestion pricing and parking management. A joint agency oversight committee under FHWA and UMTA could be established with participation by EPA to review the optimal implementation of new strategies.

TSM-Related Policies

Federal policies should be examined and policies that work counter to federal TSM policy, and inconsistencies, should be resolved. For example, the potentially positive transportation implications of amending the tax code to treat all forms of commuting on an equal basis should be considered.

Inherent in these considerations is the concern that, as currently structured, federal transportation policy does not contain measures with sufficient strength to achieve desired transportation efficiency. Consequently, federal leadership is needed to move national and local transportation policy toward a greater emphasis on these low-cost management measures in order to achieve important mobility, air quality, and energy conservation goals.

Legislative Implications

After our March briefing, several legislative proposals were considered in both the Senate and the House of Representatives regarding the future structure of the surface transportation programs. Some of these proposals are based on the administration's reauthorization policy and legislative recommendations.¹ Other suggestions are based on the substantive concerns of the authorizing committees.² Included in these proposals are several components that could strengthen the federal role in ways suggested by our matters for consideration. Consequently, we believe the following are elements that should be included in final federal surface transportation reauthorization legislation:

- congestion monitoring and planning requirements, conducted as part of the metropolitan planning process and linked to TSM-related funding (for

¹For example, see *Moving America: New Directions, New Opportunities* for the administration's surface transportation policy statement and H.R. 1351 for the administration's legislative recommendations.

²For example, see S. 1204 and the accompanying committee report for the legislative recommendations of the Senate Environment and Public Works Committee.

- example, metropolitan innovative bonus funds or congestion-mitigation funds);
- congestion-mitigation bonus programs designed to target specified funding for low-cost TSM techniques; the extent to which these funds are linked to metropolitan congestion and air-quality planning, highlight the use of demand management techniques, and represent bonus and not replacement funding would enhance their functioning as a TSM incentive;
 - technical assistance programs, as conducted through DOT research and planning activities. Activities should focus on supporting demonstrations, evaluations, and technical guidance for communities aiming to experiment with or implement innovative transportation demand management approaches, including testing of market-based strategies (for example, congestion pricing).

While the overall effectiveness of the federal policy that is eventually developed will depend on the strength of the final combination of mechanisms chosen, we believe those mentioned above do represent the appropriate elements of a more potent federal congestion-mitigation strategy.

Request Letter

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United States Senate

COMMITTEE ON ENVIRONMENT AND PUBLIC WORKS

WASHINGTON, DC 20510-8175

January 25, 1990

The Honorable Charles A. Bowsher
 Comptroller General of the United States
 U.S. General Accounting Office
 441 G Street, NW
 Washington, D.C. 20548

Dear Mr. Bowsher:

The nation's systems of highways and streets are essential components of our country's infrastructure. However, growth in travel demand, combined with an insufficient financial commitment to meeting transportation infrastructure needs, has made farm-to-market transportation almost impossible in some areas and has produced high rates of traffic congestion in cities across the country. Clearly, these conditions have an adverse effect on economic productivity, personal mobility, fuel conservation, and ambient air quality levels. The Committee is interested in the possibility of low-cost transportation improvements that can improve mobility in both urban and rural areas, and also contribute to the nation's economic, energy, and air quality goals.

During the last three decades, Congress has supported Federal demonstrations of transportation systems management techniques. The Traffic Operations Program to Increase Capacity and Safety (TOPICS), the Comprehensive Transportation Systems Management Program, and the Ridesharing Discretionary Grant Program are examples of prior congressional support for Federal efforts in this area. These and other programs have demonstrated that there are low-cost measures that can be taken to improve mobility on the roads, and lessen automobile emissions through increased use of carpooling, vanpooling, and mass transit. Private firms and local governments have also been active in developing many such initiatives.

With the upcoming reauthorization of the Federal-aid highway program, the committee is interested in determining effective as well as innovative ways to encourage better management of our transportation systems. Pursuant to this, we would like to know the strengths as well as the shortcomings in the Department of Transportation's present transportation systems management efforts and what changes, if any, should be made in the Federal role. The Committee is also interested in learning about similar efforts being made by the private sector, local governments, or combined public-private entities.

Appendix I
Request Letter

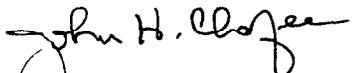
The Honorable Charles A. Bowsher
January 25, 1990
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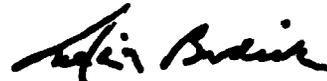
As part of this inquiry, we would like to know how coordination of transportation planning efforts and air quality planning efforts can be improved and how Federal policies facilitate or discourage promising State, local, or private efforts such as coordinated parking management and transportation management organizations. We are interested in the effect tax policies may have as well.

Therefore, we request that GAO conduct a study to evaluate transportation systems management techniques. We expect that staff from GAO's Program Evaluation and Methodology Division will work closely with committee staff to design this study so as to address specific concerns of the committee. We would like the results of the study to be available by early 1991.

We very much appreciate your assistance.

Sincerely,


John H. Chafee
Ranking Minority Member


Quentin N. Burdick
Chairman


Steve Symms
Ranking Minority Member
Subcommittee on Water Resources,
Transportation, and
Infrastructure


Daniel Patrick Moynihan
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