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Better Tools Needed for Making Decisions on Using ISTEA Funds Flexibly

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The Honorable John H. Chafee
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Public Works
United States Senate

The Honorable Donald W. Riegle, Jr.
Chairman
The Honorable Alfonse M. D'Amato
Ranking Minority Member
Committee on Banking, Housing
and Urban Affairs
United States Senate

The Honorable Norman Y. Mineta
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The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) offers states and localities unprecedented opportunities to use federal highway and mass transit capital funds across modal lines. About $80 billion of the $155 billion authorized by ISTEA for the 6-year period ending in fiscal year 1997 can be used to finance either highway, mass transit, or nontraditional projects such as high occupancy vehicle (HOV) lanes. Generally, states and localities select the projects that receive federal funds and provide 20 percent of the total cost of most projects. The flexibility ISTEA provides will be critical as states and localities address such challenges as highway congestion, air pollution, and substantial investment needs for highway and mass transit infrastructure. These challenges are formidable. For example, in 1991, 70 percent of peak-hour urban travel on Interstate highways took place in congested conditions, and 6 out of 10 people lived in areas designated as not meeting national air quality standards.

In section 3028(b) of ISTEA, the Congress required GAO to examine issues related to the flexible use of ISTEA funds. As agreed with your offices, we evaluated (1) the extent to which states and localities have used ISTEA highway and mass transit capital funds flexibly to finance highway, mass transit, and nontraditional projects; (2) the factors that have influenced or will influence the flexible use of ISTEA funds; and (3) the adequacy of analytical tools for making transportation investment decisions. In reviewing the analytical tools, we followed up on recommendations made in our April 1992 report on the need for common measures to permit comparisons between highway, mass transit, and other types of projects.[1] We also examined the models used to forecast travel demand and their use in evaluating the impacts of transportation projects on air quality.

For purposes of our review, highway projects include preliminary and construction engineering, and roadway construction. Mass transit projects include the purchase of buses and railcars, the construction of transit passenger facilities, and transit administrative and operating expenses. We use the term nontraditional for those projects that are traditional transportation projects but that provide both highway and mass transit benefits. These include the construction of car pool facilities/HOV lanes, busways, park-and-ride lots, bicycle and/or pedestrian facilities, and acquisitions related to van pools.

Results in Brief

States' and localities' use of ISTEA highway and mass transit capital funds to finance projects across modal lines has been limited. Although not necessarily a forecast of the future, in fiscal year 1992 states and localities invested about 97 percent of their flexible highway funds—funds also available for mass transit and nontraditional projects—in traditional highway projects such as roadway construction. Of the $11.2 billion in flexible highway funds obligated by states and localities in fiscal year 1992, less than 3 percent ($319 million) was invested in mass transit or nontraditional projects. Similarly, of the $1.1 billion in flexible mass transit capital funds obligated by states and localities in fiscal year 1992, none was invested in highway projects. However, about 3 percent ($34 million) was invested in nontraditional projects. Six months into fiscal year 1993, investment patterns remained essentially the same, with 3 percent or less of flexible highway and mass transit funds being invested in mass transit or nontraditional projects.

[1]Transportation Infrastructure: Urban Transportation Planning Can Better Address Modal Trade-offs (GAO/RCED-92-112, Apr. 2, 1992).

A variety of factors have influenced or will influence the flexible use of ISTEA highway and mass transit funds. Requirements in the Clean Air Act Amendments of 1990 to improve air quality and the need to reduce congestion are two factors that have facilitated the flexible use of funds. Where funding flexibility has been exercised, it has largely been concentrated in the Federal Highway Administration's (FHWA) congestion mitigation and air quality improvement (CMAQ) program—a program designed to address air quality issues. In particular, urban areas experiencing severe congestion and air quality problems, such as the northeastern states, have used CMAQ funds flexibly. On the other hand, several factors hinder the flexible use of ISTEA funds. First, in some cases the use of revenues from state motor fuels taxes to finance the nonfederal portion of mass transit projects may be limited because some state laws restrict the use of such revenues to highway projects. Second, investment needs for highway and mass transit infrastructure continue to outstrip available resources. Finally, adapting to the changes brought about by ISTEA will take time. Officials from four of the five states we contacted said they have had little involvement in mass transit programs and that they will need time to begin considering projects from other modes to solve transportation problems.

Some of the analytical tools states and localities use to make transportation investment decisions are inadequate. In April 1992, we recommended that the Department of Transportation (DOT) develop common measures to compare different transportation alternatives. The measures being used by states and localities to evaluate projects within each mode generally do not facilitate comparisons between modes: Highway measures focus on the movement of vehicles, while mass transit measures focus on the movement of people. Three of the five states and all seven of the metropolitan planning organizations (MPO) we talked to continue to believe common measures of comparison are needed. However, as of August 1993 DOT had not developed these measures. Rather, the Department is taking other actions, such as developing a multimodal evaluation training course, that it believes will enhance its ability to assist state and local officials in making modal trade-offs. We continue to believe that the development of common measures would help states and localities identify the mix of projects, regardless of mode, needed to address their transportation priorities and problems. In addition, travel demand models can be improved. Among other things, these models provide information for analyzing the impact of transportation projects on air quality. Assessing the contribution transportation makes to air quality improvement will be critical in

developing strategies for complying with the requirements of the Clean Air Act Amendments of 1990. However, current travel demand models do not provide important information, such as travel by time of day, essential to such evaluations. In fiscal year 1992, DOT initiated a program to improve travel demand models. As DOT develops this program, it can help ensure successful program implementation by, among other things, adhering to its policy of establishing measurable goals and objectives and coordinating program research with related efforts.

Background

As travel on the nation's highway system has grown and the population has increased, especially in urban areas, challenges such as relieving congestion and improving air quality have become integral parts of transportation planning. To help meet these challenges, ISTEA, enacted in December 1991, authorized unprecedented opportunities for states and localities to use highway and mass transit capital funds flexibly. For example, funds from the following highway programs can be used to finance highway, mass transit, or nontraditional projects: the national highway system, surface transportation, CMAQ, bridge, Interstate maintenance, Interstate substitution, minimum allocation, and donor state bonus programs. Prior to ISTEA, highway program funds generally could not be used to finance projects of another transportation mode. Similarly, under ISTEA, mass transit section 9 capital funds may now be used for highway projects.[2] (See app. I for a description of these highway and mass transit programs.)

ISTEA addressed some of the disparities of previous law related to the flexible use of funds. For example, ISTEA made more uniform the federal matching shares for highway and mass transit projects. Before ISTEA was enacted, mass transit projects financed with federal-aid urban system highway funds generally received a 75-percent federal share.[3] Mass transit capital projects received an 80-percent federal share. Now, both types of projects generally receive an 80-percent federal share, and states and localities provide 20 percent in matching funds.

Decisions to use highway and mass transit funds flexibly are made by state and local officials within the context of ISTEA and federal transportation

[2]Section 9 is a formula grant program for urbanized areas that provides capital, operating, and planning assistance for mass transportation.

[3]The federal-aid urban system program was created in 1970 to address transportation problems in metropolitan areas. The program permitted the federal financing of highway and mass transit projects in urban areas.

planning requirements. ISTEA encourages state and local officials to use a total systems approach as they select among alternatives to deal with transportation problems. Under this approach, all modes of transportation as well as such factors as the overall social, economic, energy, and environmental effects of specific transportation projects are considered when selecting projects for funding. In general, federal transportation planning regulations, issued by FHWA and the Federal Transit Administration (FTA) in 1975 and amended in 1983, require that both highway and mass transit projects be included in transportation improvement programs—a prioritized list of projects and project segments to be carried out over a 3-year period—before states and urban areas can receive federal highway and mass transit funds.[4] The Secretary of Transportation approves the transportation improvement programs required of each state under ISTEA. FHWA apportions federal highway funds and FTA apportions federal mass transit funds to states and localities.

Decisions to use funds flexibly are also influenced by legislation such as the Clean Air Act Amendments of 1990. These amendments require that plans and programs developed by states and localities as part of the transportation planning process implement the transportation provisions of state implementation plans—plans that identify how states and localities will attain national air quality standards. If the state implementation plans require transportation control measures (TCM), the amendments also require that transportation improvement programs in nonattainment areas—those areas designated as not meeting national air quality standards—provide for timely implementation of such measures. TCMs are projects or programs designed to reduce transportation-related emissions. TCMs include mass transit improvements (e.g., the purchase of buses and the construction of bus shelters) and the construction of HOV facilities.[5] ISTEA funds, especially those from the CMAQ program, may be used to finance TCMs. Failure to comply with the requirements of the Clean Air Act Amendments may result in the loss of federal highway funds.

Little Initial Use Was Made of ISTEA Funding Flexibility

During the first 18 months after ISTEA was enacted, states' and localities' use of highway and mass transit capital funds to finance projects across modal lines was limited. In fiscal year 1992, states and localities invested

[4]FTA was formerly called the Urban Mass Transportation Administration.

[5]For more information on TCMs, see our report Urban Transportation: Reducing Vehicle Emissions With Transportation Control Measures (GAO/RCED-93-169, Aug. 3, 1993).

about 97 percent of their flexible highway funds—funds available to finance mass transit and nontraditional projects—in traditional highway projects such as roadway construction. Less than 3 percent ($319 million) of the $11.2 billion in flexible federal highway funds obligated by states and localities in fiscal year 1992 was invested in mass transit or nontraditional projects (see table 1).[6] This trend continued in the first half of fiscal year 1993. As of March 31, 1993, about 3 percent ($185 million) of the flexible federal highway funds states and localities obligated was used to finance mass transit or nontraditional projects (see app. II). These figures do not include $84.3 million and $662.6 million in obligations for surface transportation program projects in fiscal years 1992 and 1993, respectively. These funds were invested by states that elected, under the provisions of ISTEA, to report their obligations on a quarterly basis. These states were not required to, and did not, identify to FHWA the types of projects funded.[7]

[6]To analyze the cross-modal use of flexible highway funds, we used information from FHWA's Fiscal Management Information System, which is a computerized data base containing both financial and statistical information on highway program projects. We used work codes from this system to categorize program obligations into highway, mass transit, and nontraditional categories. Because the system does not include all mass transit projects (e.g., busways) and because nontraditional project costs may be included in a number of work codes, we may not have identified all costs related to these categories. We also did not include in the mass transit and nontraditional categories any highway costs related to these projects.

[7]App. III discusses our scope and methodology and analyzes how the inclusion and exclusion of missing information would affect the cross-modal use of highway and mass transit capital funds under ISTEA.

Table 1: Flexible Federal Highway Funds Obligated by States and Localities for Highway, Mass Transit, and Nontraditional Projects, Fiscal Year 1992

Dollars in millions

		Highway		Mass transit		Nontraditional	
Highway program	**Total**	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**
National highway system	$ 2,894.3	$ 2,891.5	99.9	0	0	$ 2.8	0.1
Surface transportation[a]	2,951.7[b]	2,914.3	98.7	$ 27.4	0.9	10.0	0.3
CMAQ	339.8	169.7	50.0	155.7	45.8	14.4	4.2
Bridge	1,754.3	1,754.3	100.0	0	0	0	0
Interstate maintenance	1,899.0	1,891.5	99.6	4.0	0.2	3.5	0.2
Interstate substitution	348.4	248.2	71.2	100.0	28.7	0.1	0
Minimum allocation	771.4	770.5	99.9	0.9	0.1	0	0
Donor state bonus	276.9	276.9	100.0	0	0	0	0
Total	**$11,235.9**	**$10,917.0**	**97.2**	**$288.1**	**2.6**	**$30.9**	**0.3**

Note: Numbers may not add because of rounding.

[a]For our analysis, we considered ISTEA's 90-percent payment adjustment, "hold harmless" provisions, and additional allocations to the state of Wisconsin under section 1015 as part of the surface transportation program.

[b]The total excludes $84.3 million for which no category was indicated.

Source: GAO's analysis of FHWA's data.

For the most part, the flexible use of ISTEA highway funds has been concentrated in the CMAQ program—an FHWA program designed to address air quality problems. Approximately 50 percent of the $340 million in CMAQ funds obligated by states and localities in fiscal year 1992 was used to finance mass transit and nontraditional projects.[8] This percentage increased to about 76 in the first half of fiscal year 1993 ($144 million of $190 million obligated). These results are not surprising because, in general, ISTEA requires that CMAQ funds be used to finance projects that improve air quality. As such, ISTEA generally prohibits using CMAQ funds for projects that increase highway capacity for single-occupant vehicles unless such projects include HOV lanes.[9] States and MPOs we visited largely viewed CMAQ as offering the most flexibility of ISTEA's highway programs. This was because CMAQ was created by ISTEA: Thus, it did not have

[8]Fifty percent of CMAQ funds was invested in highway projects such as preliminary and construction engineering, right-of-way acquisition, and roadway construction. Funds in this category were also used to finance projects such as those to better synchronize traffic lights to improve traffic flow.

[9]States that have no nonattainment areas (11 states as of April 1993) also receive CMAQ funds (one-half of one percent of funds apportioned) and can use such funds for any project eligible under the surface transportation program, including general purpose highway construction.

traditional ties to previous highway or mass transit programs, and program funds could be used to finance a variety of traditional and nontraditional projects. Appendix IV shows which states used CMAQ funds for mass transit and nontraditional projects and what types of projects they financed in fiscal year 1992.

Although states and localities have also used funds flexibly in the Interstate substitution program, this flexibility has been concentrated in just a few states. This program, in place before ISTEA was enacted, allows state and local officials to withdraw from planned construction nonessential segments of Interstate highways in urban areas and to fund substitute highway and mass transit projects. As shown in table 1, in fiscal year 1992 almost 30 percent ($100 million) of total program obligations under the Interstate substitution program was invested in mass transit projects. However, two states—New York and Minnesota—accounted for the entire $100 million.[10] In the first 6 months of fiscal year 1993, virtually all funds in this program ($46.7 million) were used to finance substitute highway projects. Again, only two states—Iowa and Minnesota—used funds flexibly. They invested $67,000 in substitute mass transit projects. The concentration of the flexible use of funds from the Interstate substitution program in only a few states is similar to what we reported in April 1992. At that time we found that, if those areas with the largest investments in mass transit projects (the District of Columbia and Massachusetts) were excluded, about 73 percent of funds from the Interstate substitution program were used to finance highway projects.

The investment of mass transit funds in highway and nontraditional projects was also limited. According to FTA, there were no transfers of section 9 capital funds for highway use either in fiscal year 1992 or in the first 6 months of fiscal year 1993. However, in looking at funding for nontraditional projects, we found that about 3 percent ($34 million) of the $1.1 billion of section 9 capital funds obligated in fiscal year 1992 and an additional 2.5 percent ($13 million) of the $546 million of section 9 capital funds obligated in fiscal year 1993 (through March 31, 1993) were invested in nontraditional projects.[11] These percentages relate to limits set by ISTEA on the ability of states and localities to use mass transit funds for highway

[10]New York primarily invested its Interstate substitution funds in mass transit projects in New York City.

[11]State and local investments of section 9 capital funds in nontraditional projects may be overestimated. According to FTA, nontraditional projects may be financed by a mixture of FHWA and FTA funds. FTA's Grants Management Information System, our source of information on section 9 obligations, can identify how FHWA and FTA funds are invested in specific projects. However, it cannot identify what portion of funds, if any, invested for nontraditional purposes came from FHWA.

projects. In general, funds from only one program—section 9 capital funds allocated to transportation management areas—can be used for highway projects, and then only if certain conditions are met.[12] For example, such projects must be approved by the relevant MPO, the Secretary of Transportation must determine that the funds are not needed to meet investment requirements of the Americans with Disabilities Act, and the matching funds that states and/or localities provide must be eligible for use in financing either highway or mass transit projects. Appendix V shows the investment of section 9 capital funds in nontraditional projects by the states, the District of Columbia, and the territories.

Flexible use of funding, when it has been exercised, has been concentrated primarily in urban areas.[13] In fiscal year 1992, for those flexible highway funds that FHWA's information system identified as urban or rural and that were obligated for mass transit or nontraditional projects, about 96 percent was invested in urban areas. In addition, 100 percent of section 9 capital funds obligated for nontraditional projects was invested in urban areas. These percentages were similar in the first half of fiscal year 1993, when they were 92 percent and 100 percent, respectively.[14] The investment of flexible highway funds in urban areas is related to the concentration of the flexible use of funds in the CMAQ and Interstate substitution programs. Over the 18-month period ending March 31, 1993, about 99 percent of CMAQ funds obligated for mass transit and nontraditional projects was invested in urban areas.[15] About 67 percent of nonattainment areas are urban. Over the same period, virtually all Interstate substitution funds obligated for mass transit and nontraditional projects were invested in urban areas. For mass transit, section 9 capital funds may only be allocated to urban areas.

[12]In general, transportation management areas are urbanized areas with populations of more than 200,000.

[13]Areas with populations of 50,000 or more are considered urban, and areas with populations of less than 50,000 are considered rural. We selected this cutoff in consultation with FHWA and FTA. It corresponds to provisions in ISTEA requiring areas with populations of 50,000 or more to form an MPO.

[14]The urban/rural split of flexible highway investments does not include $9.2 million and $93.1 million in fiscal year 1992 and fiscal year 1993 funds, respectively. In FHWA's financial information system, the projects associated with these investments were not designated as urban or rural. App. III discusses how the urban/rural split would change if the missing information were included in our calculations.

[15]This percentage does not include about $72 million in program obligations. Projects associated with these investments were not designated as urban or rural in FHWA's financial information system. This issue is discussed further in app. III.

A Variety of Factors Influence Decisions to Use Funds Flexibly

Because ISTEA is relatively new, it is difficult to assess whether funds will be used flexibly over the long term. However, initially a number of factors have influenced decisions on the flexible use of funds. The desire to reduce traffic congestion and the need to improve air quality to meet requirements of the Clean Air Act Amendments of 1990 are two factors that have facilitated the flexible use of funds. On the other hand, restrictions on how fuels taxes can be used, unmet investment needs for highway and mass transit infrastructure, and the time it will take states and localities to adapt to ISTEA's changes have hindered the flexible use of funds.

Flexible Use of Funds Is Facilitated by Congestion and Air Quality Concerns

The flexible use of ISTEA funds has been facilitated by the need to address concerns about congestion and air quality. The flexible use of highway funds has been concentrated in the CMAQ program, a program designed to address air quality issues. In particular, those areas experiencing severe congestion and air quality problems, such as the northeastern states, have made use of the option to use CMAQ funds flexibly. In many cases, state and local officials in nonattainment areas have financed mass transit improvements and other TCMS with highway funds as they develop strategies to comply with requirements of the Clean Air Act Amendments. Officials from four of the five states we visited said that the ability to use funds flexibly allows them to fund the projects they need to address congestion and air quality problems.[16]

The need to reduce congestion and improve air quality will likely continue to encourage decisions to use funds flexibly. Congestion will continue to be a problem in some areas: In 1991, 70 percent of peak-hour urban travel on Interstate highways took place in congested conditions. This figure has increased from 49 percent just 10 years earlier. Moreover, in fiscal year 1993, nonattainment areas have been designated in 39 states. The Clean Air Act Amendments of 1990 impose strict deadlines for taking actions in these areas to improve air quality. For example, serious ozone nonattainment areas must reach national air quality standards by November 1999; severe areas, by no later than November 2007. Since, in 1991, transportation accounted for approximately 70 percent of carbon monoxide emissions and 30 percent of the volatile organic compounds that form ozone, state and local governments will need to continue to rely on actions related to transportation to help improve air quality.

[16]Officials from the fifth state believe current restrictions on the use of state gas tax revenues will limit the state's ability to finance congestion and air quality improvement projects for mass transit and other options not related to highways.

State Fuels Tax Restrictions and Infrastructure Needs Hinder Flexible Use of ISTEA Funds

Not all state funds can be used to finance the nonfederal portion of mass transit projects. Some states legally restrict the use of their motor fuels tax revenues to highway or bridge projects only. Information from The Road Information Program indicates that, in 1991, 35 states had such restrictions; as a result, about $13.5 billion out of total collections of state motor fuels taxes of $19.3 billion could not be considered for use in mass transit projects. Officials from two MPOs we visited said restrictions on how fuels tax revenues in their state can be used will limit their ability to use funds flexibly, in part because poor economic conditions make it difficult for them to raise matching funds locally. The transit operator in one of these areas told us that his company has abandoned plans to seek flexible federal funds because there is little, if any, state financial support for mass transit, and local matching funds are not available. A transit operator in another area noted that, without access to fuels tax revenues and other state financial resources, transit systems are limited to funding derived from local sales taxes, which is often inadequate to meet their needs.

Significant unmet investment needs for highway, bridge, and mass transit infrastructure also limit states' and localities' ability to use funds flexibly. In January 1993, FHWA reported that the condition of the nation's highway pavement and mass transit infrastructure had improved over the last 10 to 20 years. In addition, bridge conditions had stabilized. However, even with these improvements, according to the report, simply maintaining 1991 conditions and performance of the nation's highways, bridges, and mass transit systems through the year 2011 will cost $55.5 billion annually. An additional $18.2 billion a year will be needed to improve conditions. Officials from all five states we visited expressed concern about their ability to meet infrastructure investment needs. As an official from one state we visited noted, any new money received under ISTEA was not enough to cover the tremendous backlog of projects in the pipeline. As a result, according to this official, even though funds can be used flexibly, in his state, highway projects will probably be considered before flexible funds are used for mass transit projects. An official in another state said that many MPOs and local governments in his state are not interested in giving up their highway projects and using flexible funds to finance mass transit projects. In part, this reluctance resulted from the overwhelming investment needs for highways.

Adapting to Changes Resulting From ISTEA Will Take Time

States and localities will need time to adapt to the changes brought about by ISTEA. Officials from four of the five states we visited expected little initial use of the option to use funds flexibly.[17] One reason is that states and localities lack experience in considering and making trade-offs between different transportation modes—an integral part of ISTEA's planning requirements and total system approach to decision-making on investments. For example, officials from four of the five states we visited told us that historically they have had little involvement with mass transit programs and that adapting to changes resulting from ISTEA will take time.[18] In two of these four states, state officials said that restrictions against using revenues from state fuels taxes for mass transit may make it even more difficult for them to increase their involvement with mass transit projects. There is already evidence that some states may have difficulty adapting to ISTEA's changes. One state we visited asked localities to specifically identify which highway projects they were willing to forgo in order to use the funding available to finance mass transit projects. Officials from another state said the flexible use of funds for mass transit was basically precluded because federal and state transportation funds are allocated according to state formulas that are oriented towards highways. Although these formulas were under review, state officials agreed that, until changes are made to the state allocation formulas, the flexible use of funds will largely be restricted to the CMAQ program.

Better Tools Are Needed for Making Investment Decisions

If states and localities are to make effective use of flexible funding, they must be able to analyze highway, mass transit, and other projects across modes and evaluate the impacts of such projects on air quality. Cross-modal comparisons will be critical for identifying the right mix of projects, regardless of mode, to meet transportation priorities and address such problems as congestion and air pollution. Analysis of the impacts of transportation projects and strategies on air quality will be essential in developing approaches to comply with the requirements of the Clean Air Act Amendments of 1990. However, common measures have not been developed for comparing transportation projects across modes, and models used to provide information for forecasting travel demand can be improved. DOT has established a program to improve travel demand models, but it will be important for the Department to, among other things,

[17]Officials in the fifth state also said that because the state's transportation funds were already being used flexibly to meet high-priority needs, regardless of mode, the opportunity to use ISTEA funds flexibly would have little initial impact.

[18]The fifth state operates several large transit systems.

establish measurable program goals and objectives and coordinate program research with related efforts.

Common Measures Would Enhance State and Local Governments' Ability to Make Modal Trade-Offs

In our April 1992 report, we recommended that the Secretary of Transportation, in coordinating and initiating policies to promote efficient intermodal transportation as required by ISTEA, develop common measures for comparing different transportation alternatives, including highway and mass transit projects, and fully encourage the use of these measures by state and local officials. Such measures would provide a common basis for (1) quantifying a project's ability to meet mobility, environmental quality, safety, cost-effectiveness, and social and economic objectives and (2) assisting states and localities in identifying the most efficient mix of projects, regardless of mode, to address congestion and air quality problems. The measures currently being used by states and localities to evaluate major projects within each mode generally do not facilitate comparisons between modes: Highway measures focus on the movement of vehicles, while mass transit measures focus on the movement of people. As of August 1993, DOT had not developed common measures. Federal transportation planning regulations do not mention these measures, nor do changes to these regulations proposed in March 1993.

In responding to our April 1992 report, DOT said it did not believe federally developed common measures were appropriate since they could not be easily adapted to local conditions and would be seen as prescriptive. DOT continues to support this position. However, the Department is taking other actions, such as developing a training course in multimodal evaluation for state and local officials and forming an interagency task force to explore multimodal evaluation techniques. The Department believes these actions will enhance its ability to assist state and local officials in comparing transportation alternatives. Although it will be important for DOT to enhance its ability to offer technical assistance through such actions as developing training courses, the development of common measures, rather than being prescriptive and inflexible, would provide a framework within which state and local governments can apply locally determined weights and values to identify the right mix of projects, regardless of mode, that meet their needs.

The transportation community continues to believe that common measures for cross-modal comparisons are needed. Officials from three of the five states and all seven MPOs we visited agreed such measures are needed and should be developed. These officials believed that such

measures would help facilitate the flexible use of ISTEA funds. In addition, in April 1993 the Transportation Research Board reported on the need for cross-modal comparison measures.[19] The board is part of the National Research Council, which, among other things, provides independent advice to the federal government on scientific and technical questions. In reporting the results of a conference held in 1992, the board concluded that in order to make multimodal trade-offs and set priorities among transportation alternatives, it will be important to develop project evaluation criteria that can be applied across all transportation modes. Finally, a recent survey by the American Association of State Highway and Transportation Officials found that one of the major challenges and opportunities facing state departments of transportation as a result of ISTEA is having the ability to set priorities for and select projects considering all modes and modal alternatives.

Improved Travel Demand Models Are Needed to Analyze the Impacts of Transportation Projects on Air Quality

Analyzing the impacts of transportation projects on air quality is complex and, in general, a multistep process. Information from travel demand models is one part of this process. First, such models are used to generate information about travel demand. This information identifies how many trips are made, where travelers are going, what mode of transportation they use to get there, and what the volume of traffic is on highway and mass transit networks. This information is then used in conjunction with data on vehicle emissions to predict total emissions from mobile sources. Air quality models incorporate information on mobile-source emissions with information on emissions from nonmobile sources (e.g., manufacturing plants, dry cleaners) and meteorological conditions to predict future levels of air pollution. Such predictions then help identify what actions, if any, must be taken to reach national air quality standards.

The models available for forecasting travel demand are not adequate for analyzing the impacts of transportation projects on air quality. These models were originally developed some 20 to 30 years ago to analyze the need for new or modified highway facilities. However, demographic and other changes have occurred over time, and the models do not now provide the detailed information needed for predicting travel behavior. For example, travel demand models do not provide details on such things as the time of day travel takes place, the way changes in land use affect travel behavior, and the way highway congestion affects travel decisions. For example, if highways are congested, travelers may make several stops in

[19]Transportation Planning, Programming, and Finance: Proceedings of a Conference, Transportation Research Circular Number 406, Transportation Research Board, National Research Council (Washington, D.C.: Apr. 1993).

one trip, change the time of their trip, or forgo the trip altogether. These data are critical for forecasting travel demand and for analyzing the impact of travel behavior on vehicle emissions and air pollution levels.

The accuracy of traffic volume predictions from travel demand models can also vary. An FHWA official told us that although the acceptable difference between actual traffic volumes and the volumes predicted by travel demand models is typically between 10 and 15 percent for more heavily traveled roads (80,000 vehicles or more a day), a difference of as much as 50 percent is not uncommon for lesser traveled roads (3,000 vehicles or less a day). He also said such differences are generally considered in decisions to modify highway facilities. However, errors in predicting traffic volume could potentially affect analyses of air quality. Accurate, detailed travel information (e.g., traffic volume and travel by time of day), in combination with information on vehicle emissions and meteorological conditions, is required for predicting air pollution levels.

Officials from the 10 states and 9 MPOs we contacted about analyzing the impacts of transportation projects on air quality cited similar problems in using information from travel demand models as inputs for air quality analyses.[20] Moreover, they said it was difficult to determine the impacts on air quality of specific projects, particularly such things as HOV lanes and bicycle and pedestrian projects. One reason is that travel demand models are generally regional in scale and not geared to specific projects. In a recent survey of MPOs conducted for our August 1993 report on TCMs, we found that among MPOs in serious, severe, and extreme ozone nonattainment areas, 59 percent did not believe that the available tools were adequate for determining the impacts of TCMs on emissions. As one MPO we contacted noted, travel demand models do not adequately consider factors that influence changes in the motoring public's behavior nor the practical compromises associated with mode choice decisions, such as the value of time compared with the value of air quality improvements. One MPO expressed such concern about the existing tools for air quality analysis that it had deferred use of CMAQ funds until it had more confidence in its ability to determine the effects on emissions of CMAQ proposals.

[20]We contacted five states and seven MPOs for our study. However, we contacted five additional states and two additional MPOs to obtain information on analyzing the impact of transportation projects on air quality.

Travel Model Improvement Program Has Not Followed DOT's Policy on Research and Development Programs

Officials from FHWA, FTA, and the Environmental Protection Agency (EPA) acknowledge that travel demand models can be improved, particularly for use in air quality analysis. Therefore, FHWA—in cooperation with FTA, the Office of the Secretary of Transportation, and EPA—initiated a research and development program in fiscal year 1992 to develop improved travel demand models. This program, called the Travel Model Improvement Program (TMIP), is still in the development stage and is expected to be a multiyear effort to explore new approaches to travel demand forecasting. Among the issues to be researched is how the output from travel demand models can be better aligned with data needed for air quality analysis. As of April 1993, the TMIP had contracted for seven studies related to travel forecasting and behavior. Included was a contract with the Los Alamos National Laboratory to help develop the next generation of travel demand models. The current budget for the TMIP is about $2 million per year.

Although the TMIP is a step in the right direction, the design of the program has not adhered to DOT's policy for establishing research and development programs. DOT's A Statement of U.S. Department of Transportation Research and Development Policy (January 1991) sets out the principles and criteria for establishing such programs. Included are requirements that (1) research and development programs be appropriately managed to promote effectiveness and reduce duplication; (2) to the degree possible, program plans be based on defined and measurable goals; and (3) mechanisms for disseminating and promoting the application of program results be provided. However, for the TMIP these requirements have not been met. According to DOT officials, management at the administrator's level has generally not been involved with decisions about the TMIP, measurable program goals and objectives have not been established, and plans have not been developed for testing and evaluating new procedures and disseminating program results.[21] In addition, although discussions have been held with other agencies and a review panel of outside experts has been established, research efforts under the TMIP have not been formally coordinated either within or outside of DOT.[22] Without input from a broad range of individuals and organizations with a knowledge of or interest in travel demand issues, DOT has no assurance that (1) the TMIP is benefiting from related efforts, (2) there is no duplication of effort, and (3) the needs of the ultimate users will be met.

[21]According to FHWA and FTA officials, management participation in the TMIP has largely been limited to division chief levels and below. However, actions are under way to increase top management's involvement in the program.

[22]DOT officials said that TMIP projects are subject to a formal review and approval process within FHWA.

Research efforts in the TMIP have also excluded elements that are important in assessing travel demand. For example, although the aim of the TMIP is to explore and develop new models and methods for forecasting travel demand, research on urban freight transport and the urban aspects of intercity passenger travel is not included among the issues to be considered. Movement of freight within urban areas, particularly by truck, can affect highway congestion levels and therefore travel times and travel behavior. We have reported that in Chicago alone, as a result of increased rail transportation of truck trailers and containers, an additional 8,000 truck trips per day were moving to and from terminals and storage depots.[23] Similarly, intercity passenger travel, particularly by automobile, may affect the number of trips within an urban area. As we testified in May 1993, few data exist on the origin and destination of intercity automobile trips.[24] Instead, forecasts of such trips have been made using less precise proxies, such as toll ticket collections. However, data on toll ticket collections usually do not provide information on origins or destinations and may not reflect the total volume of intercity trips originating or terminating within an urban area. Considering these issues in TMIP research will result in a more realistic representation of travel behavior. As a result, the improved models developed will be useful not only for highway and mass transit decision-making but also for decisions in other areas, such as the development of high-speed ground transportation systems.

Finally, DOT has done little to ensure coordination of the TMIP with the Office of Intermodalism and the Bureau of Transportation Statistics. These DOT offices were created by ISTEA and are still in the development phase. However, as they compile information and develop expertise, they could assist the TMIP in its data collection and analysis efforts. For example, the Office of Intermodalism is responsible for developing, maintaining, and disseminating data on intermodal transportation. If the work of the TMIP is not coordinated with this office, the program will have little assurance that the intermodal aspects of travel demand (including freight transport) are being adequately considered in its research. Likewise, the Bureau of Transportation Statistics will compile statistics directly related to travel demand, such as travel times and the variables influencing travel behavior. Thus, if the work of the TMIP is not similarly coordinated with this office,

[23]Intermodal Freight Transportation: Combined Rail-Truck Service Offers Public Benefits, but Challenges Remain (GAO/RCED-93-16, Dec. 18, 1992).

[24]High Speed Ground Transportation: Funds Need to Be Focused Under Proposed Legislation (GAO/T-RCED-93-45, May 20, 1993).

the program will have little assurance that pertinent travel demand data are being collected for analysis.

Conclusions

The use of ISTEA highway and mass transit funds across modal lines has been limited and, for the most part, concentrated in FHWA's CMAQ program. Flexible use of funds in this program is not surprising, since CMAQ has no traditional ties to previous highway or mass transit programs and is expected to finance a variety of projects, both traditional and nontraditional, that address air quality issues. The initial use of CMAQ funds has been concentrated in areas experiencing severe problems with congestion and air quality, such as the northeastern states. Although the need to address congestion and air quality issues has encouraged the flexible use of funds, a number of factors will influence the future use of flexible funding. These factors include state restrictions on the use of revenues from state fuels taxes for mass transit, and states' and localities' ability to meet significant unmet investment needs for highway and mass transit infrastructure. Finally, states and localities will not adapt to changes resulting from ISTEA overnight. It will take time for them to become familiar with ISTEA's provisions and to take the actions necessary for planners and decisionmakers to think and act across modes.

We continue to believe that common measures need to be developed to help states and localities make the cross-modal comparisons envisioned by ISTEA's total systems approach, as we recommended in April 1992. Such measures, adapted to local conditions, will be important in helping states and localities identify the projects that meet their needs and priorities, regardless of mode. Moreover, improved models will also be required for forecasting travel demand. Information on travel demand is used for, among other things, analyzing the impacts of transportation projects on air quality. Given the strict deadlines contained in the Clean Air Act Amendments of 1990, as well as the importance transportation will play in addressing air quality issues, development of both common measures and improved travel demand models will be essential in helping states and localities position themselves to meet the legislative requirements.

DOT's establishment of the TMIP is a step in the right direction. It can provide the vehicle for exploring new approaches and developing travel demand models that respond to both the requirements of ISTEA's total systems approach and the need for strategies to meet the air quality standards of the Clean Air Act Amendments of 1990. The results of this program will be applicable in a number of areas, including decisions not

only about highway and mass transit investments but also about investments in new technologies such as high-speed ground transportation systems. Since the TMIP is in its initial stages of development, now is the time to establish measurable goals and objectives; coordinate program research with related efforts; and develop plans for testing, evaluating, and disseminating the results of the program. In addition, to help ensure that travel demand models include all relevant data, researchers will need to address such issues as urban freight movement and the urban aspects of intercity passenger travel. In determining the appropriate emphasis for research and in implementing all phases of the program, it will be important to consider the costs and benefits of program decisions. Such considerations can help ensure effective use of program funds. Finally, using the data collection and analysis capabilities of the Office of Intermodalism and Bureau of Transportation Statistics, once these capabilities have been developed, will help the TMIP to accomplish its goals.

Recommendations

To ensure that the Travel Model Improvement Program helps states and localities address their transportation priorities and comply with both the air quality standards set out in the Clean Air Act Amendments of 1990 and the intent of ISTEA that a total systems approach be used in decision-making, we recommend that the Secretary of Transportation do the following:

- In consultation with the Administrator of EPA, (1) establish measurable program goals and objectives; (2) develop a plan for testing and evaluating new procedures; (3) develop a plan for disseminating program results; (4) coordinate program research efforts, both within and outside of DOT; and (5) develop travel demand models that provide information—such as travel by time of day and the impacts of changes in land use on travel behavior—essential for analyzing the impact of transportation projects on air quality. In addition, the impacts of urban freight movement and the urban aspects of intercity passenger travel on travel demand and behavior should be incorporated into TMIP research. To make the most effective use of program funds, consideration should be given to the costs and benefits of program decisions.
- To the maximum extent possible, use the capabilities of the Office of Intermodalism and the Bureau of Transportation Statistics, once these capabilities are developed, in implementing the TMIP.
- In cooperation with the Administrator of EPA, solicit input from states, MPOs, localities, and others that have an interest or expertise in evaluating

the impact of transportation projects on air quality in order to ensure that appropriate approaches are developed.

Agency Comments

We discussed the contents of this report with representatives of FHWA's Office of Environment and Planning, including the Chiefs of the Intermodal Division and Noise and Air Quality Branch; the Chief, Policy Development Division in FTA's Office of Budget and Policy; the Associate Director of Data User Services in the Bureau of Transportation Statistics; and officials from other FHWA and FTA offices. We also discussed this report with representatives of EPA's Office of Policy and Office of Mobile Sources. As agreed, we did not obtain written comments on a draft of this report.

In general, both DOT and EPA agreed with the contents of our report, including the conclusions and recommendations. Both agencies suggested, however, that we clarify the definition of nontraditional projects, since this term is not commonly used in either agency. DOT officials also commented that (1) although the Department had not developed common measures for comparing transportation alternatives as recommended by GAO in April 1992, it was enhancing its ability to help state and local officials compare transportation alternatives by developing a training course in multimodal evaluation and by establishing an interagency task force to explore multimodal evaluation techniques; (2) actions were under way to increase top management's involvement in the TMIP; and (3) actions will be taken to establish goals and objectives for the TMIP with the assistance of the TMIP review panel. Although we have made changes to reflect DOT's recent actions on comparing transportation alternatives, we continue to believe that DOT should develop common measures because states and localities need such measures to determine the best projects to meet their transportation needs, regardless of mode. We have also made changes to clarify our definition of nontraditional projects; to reflect recent actions on the TMIP; and, where appropriate, to respond to other DOT and EPA comments.

Scope and Methodology

To evaluate the cross-modal use of ISTEA funds, we obtained financial data from FHWA and FTA; reviewed the laws and regulations pertinent to the flexible use of ISTEA funds; and interviewed federal, state, MPO, and local officials from five states, seven MPOs, and six providers of mass transportation services. Our review was conducted between May 1992 and June 1993 in accordance with generally accepted government auditing

standards. Our objectives, scope, and methodology are discussed more fully in appendix III. Appendix VI lists the organizations we contacted.

We are sending copies of this report to the Secretary of Transportation; the Administrator of the Environmental Protection Agency; the Administrators of the Federal Highway and Federal Transit Administrations; interested congressional committees; the Director, Office of Management and Budget; and organizations that participated in our review. We will make copies available to others on request.

Our work was performed under the direction of Kenneth M. Mead, Director, Transportation Issues, who can be reached at (202) 512-2834. Other major contributors to this report are listed in appendix VII.

J. Dexter Peach
Assistant Comptroller General

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Abbreviations

CMAQ	congestion mitigation and air quality improvement program
DOT	Department of Transportation
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FMIS	Fiscal Management Information System
FTA	Federal Transit Administration
GAO	General Accounting Office
GMIS	Grants Management Information System
HOV	high occupancy vehicle
ISTEA	Intermodal Surface Transportation Efficiency Act
MPO	metropolitan planning organization
NHS	national highway system
STP	surface transportation program
TCM	transportation control measure
TMIP	Travel Model Improvement Program

Flexible Highway and Mass Transit Capital Programs

In this appendix, we briefly describe each of the highway and mass transit programs that, under the provisions of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), may be used to finance highway, mass transit, or nontraditional projects.

Highway Programs

National Highway System

The national highway system (NHS) is to consist of 155,000 miles of major roads (plus or minus 15 percent), including all Interstate highways. The system is to be approved by the Congress no later than September 30, 1995. Fifty percent of NHS program funds may be transferred to the surface transportation program and used to finance mass transit or nontraditional projects. Any or all of the remaining 50 percent of program funds may be transferred with the permission of the Secretary of Transportation. NHS funds may be used directly to finance mass transit projects if such projects (1) are close to an NHS-designated corridor, (2) will improve the level of service of an NHS facility, and (3) are a more cost-effective improvement than constructing or improving a freeway.

Surface Transportation Program

The surface transportation program (STP) is a block grant-type program that states and localities may use for any roads (including roads in the NHS) that are not classified as local or rural minor collectors. Aside from set-asides for safety and transportation enhancement, STP funds may also be used to finance the capital costs of mass transit projects. In addition, program funds may be used to finance such nontraditional projects as high occupancy vehicle (HOV) lanes and bicycle and pedestrian facilities.

Congestion Mitigation and Air Quality Improvement Program

The congestion mitigation and air quality improvement program (CMAQ) directs funds primarily to transportation projects in areas that have not attained national air quality standards for ozone and carbon monoxide. However, states with no nonattainment areas are guaranteed an apportionment of at least a one-half of one percent and may use their funds for projects eligible under the STP. Program funds may be used to finance transportation control measures, including mass transit improvements and nontraditional projects such as HOV lanes and bicycle and pedestrian facilities.

Bridge Program

In general, bridge program funds are used to repair, replace, and/or rehabilitate bridges on public roads. Forty percent of a state's funds under

the bridge program may be transferred to the NHS or the STP and may be used for mass transit or nontraditional projects.

Interstate Maintenance Program

Funds from this program are used to restore, rehabilitate, and/or resurface the Interstate highway system. Highway reconstruction is also eligible as long as it does not add capacity. However, increasing capacity by constructing HOV lanes is permitted. Up to 20 percent of a state's Interstate maintenance program funds may be transferred to the STP and/or the NHS. Funds transferred to the STP may be used for any STP purpose, including mass transit and nontraditional projects.

Interstate Substitution Program

This program allows state and local officials to withdraw from planned construction nonessential segments of Interstate highways in urban areas and to fund substitute highway and mass transit projects. Mass transit projects financed with these funds are limited to the construction of fixed rail facilities, the purchase of passenger equipment, including rolling stock, or both.

Minimum Allocation Program

The minimum allocation program is an equity adjustment program designed to guarantee certain returns of Highway Trust Fund contributions. The minimum allocation program guarantees each state an amount so that its percentage of total fiscal year apportionments and prior year allocations is not less than 90 percent of its percentage share of estimated contributions to the highway account of the Highway Trust Fund. Program funds may be used for any project eligible under the STP as well as certain projects under the NHS, Interstate, bridge, CMAQ, hazard elimination, or rail-highway crossing programs.

Donor State Bonus Program

This program, also an equity adjustment program, is designed to guarantee certain returns to states of Highway Trust Fund contributions. Under the donor state bonus program, a set amount of funds (called a bonus) is distributed each year based on a comparison of each state's projected contributions to the Highway Trust Fund in a fiscal year with the apportionments the state will receive in that fiscal year. Starting with the state or states with the lowest return (contributions compared with apportionments), each state is brought up to the level of return for states with the next highest level of return. This process is repeated until all bonus funds for the fiscal year are exhausted. According to the Federal Highway Administration (FHWA), only states that receive funds under the minimum allocation program are eligible to receive funds under the donor state bonus program. Donor state bonus funds may be used for any project eligible for the STP.

Mass Transit Program

Section 9

Section 9 is an FTA formula grant program to provide capital, operating, and planning assistance for mass transportation in urbanized areas. Section 9 funds may be used to finance such nontraditional projects as busways and park-and-ride facilities as long as they provide a benefit to mass transportation. In transportation management areas—generally those areas with populations of more than 200,000—section 9 capital funds may also be used to finance title 23 highway projects. Title 23 projects are those projects eligible under title 23 of the U.S. Code and include projects funded by the NHS, the STP, CMAQ, and the other highway programs described above. However, if section 9 funds are to be used for highways, (1) such projects must be approved by the relevant metropolitan planning organization, (2) the Secretary of Transportation must determine that the funds are not needed to meet the investment requirements of the Americans with Disabilities Act, and (3) the matching funds that states and/or localities provide must be eligible for use in financing either highway or mass transit projects.

Flexible Federal Highway Funds Obligated for Highway, Mass Transit, and Nontraditional Projects, First Half of Fiscal Year 1993

Dollars in millions

	Flexible Federal Highway Funds Obligated by States and Localities						
		Highway		Mass transit		Nontraditional	
Highway program	**Total**	**Amount**	**Percent**	**Amount**	**Percent**	**Amount**	**Percent**
National highway system	$2,010.5	$2,007.8	99.9	0	0	$ 2.7	0.1
Surface transportation program[a]	1,346.7[b]	1,312.8	97.5	$ 32.5	2.4	1.4	0.1
Congestion mitigation and air quality improvement	190.7	46.6	24.4	121.0	63.5	23.1	12.1
Bridge	1,016.3	1,016.3	100.0	0	0	0	0
Interstate maintenance	1,240.0	1,235.7	99.7	4.3	0.3	0	0
Interstate substitution	46.4	46.8	100.9	0.1	0.2	–0.5[c]	–1.1
Minimum allocation	131.5	131.4	99.9	0	0	0.1	0.1
Donor state bonus	71.3	71.3	100.0	0	0	0	0
Total	**$6,053.2[b]**	**$5,868.6**	**96.9**	**$157.9**	**2.6**	**$26.8**	**0.4**

Note: Numbers may not add because of rounding. Amounts are as of March 31, 1993.

[a]For our analysis, we considered ISTEA's 90-percent payment adjustment, "hold harmless" provisions, and additional allocations to the state of Wisconsin under section 1015 as part of the surface transportation program.

[b]Excludes $662.6 million for which no category was indicated.

[c]Negative amount represents deobligations of four projects.

Source: GAO's analysis of FHWA's data.

Objectives, Scope, and Methodology

The objectives of our study were to (1) evaluate the extent to which Intermodal Surface Transportation Efficiency Act of 1991 (P.L. 102-240) highway and mass transit capital funds were used flexibly to finance highway, mass transit, and nontraditional projects such as high occupancy vehicle lanes; (2) identify the factors that have influenced or will influence the flexible use of funds; and (3) assess the adequacy of analytical tools for making transportation investment decisions. We made our review in response to section 3028(b) of ISTEA, which required GAO to examine issues related to the flexible use of funds.

To evaluate the extent to which ISTEA highway and mass transit capital funds were used flexibly to finance highway, mass transit, and nontraditional projects, we obtained financial data from the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). In particular, we obtained information on program obligations for fiscal years 1992 and 1993 (through March 31, 1993) from FHWA's Fiscal Management Information System (FMIS) and FTA's Grants Management Information System (GMIS). FMIS is a computerized data base containing financial and statistical information about highway program projects. GMIS is an automated data system used to track and control FTA grant funds. In consultation with FHWA, for those highway programs that offered flexible use of funds, we divided program obligations into highway, mass transit, and nontraditional categories using FMIS work codes. Because FHWA's FMIS does not include all mass transit costs (e.g., busways and transitways) and because nontraditional costs may be included in a number of work codes, we may not have identified all costs related to these categories. In consultation with FTA, we divided obligations of section 9 capital funds into mass transit and nontraditional categories using GMIS expenditure detail codes. We also used data from FMIS to analyze the urban/rural division of the flexible use of highway funds. We did not independently verify the accuracy of either FHWA's or FTA's data.

For purposes of this study, projects in the highway category included preliminary and construction engineering and roadway construction. Since we used data from two different information systems—FMIS and GMIS—the types of projects included in the mass transit and nontraditional categories differed slightly for the flexible highway and flexible mass transit programs. For flexible highway funds, the mass transit category includes the purchase of buses and railcars, the construction of transit passenger facilities, and the administrative and operating expenses of transit systems. We used the term nontraditional for projects that, although considered to be traditional transportation projects, provide both highway

and mass transit benefits. The nontraditional category for flexible highway funds includes the construction of (1) car pool facilities and HOV lanes, (2) fringe parking facilities, (3) pedestrian walkways and bicycle facilities, and (4) terminal and transfer facilities. It also includes acquisitions associated with van pools. For flexible mass transit capital funds, this category included the construction of (1) busways, (2) intermodal terminals, and (3) park-and-ride lots. It also included the acquisition of vehicles, equipment, and facilities for bicycles.

In some cases, we were unable to divide highway program obligations into specific highway, mass transit, or nontraditional categories because FMIS work codes were missing. Program obligations associated with these data were excluded from our analysis. Table III.1 categorizes flexible highway program obligations into highway, mass transit/nontraditional, and unknown. The latter category represents obligations that, because of missing work codes, could not be included as either highway or mass transit/nontraditional. As the table shows, less than 1 percent ($84.3 million) of fiscal year 1992 funds could not be categorized, so including these funds in our analysis would have had little effect on our results. However, about 10 percent ($662.6 million) of fiscal year 1993 (through March 31, 1993) funds could not be categorized. If these obligations were included in the highway category, highway obligations would increase from about 87 percent to about 97 percent and mass transit/nontraditional obligations would remain at about 3 percent. If the obligations that could not be categorized were included in the mass transit/nontraditional category, highway obligations would remain at about 87 percent and mass transit/nontraditional obligations would increase to about 13 percent. The $662.6 million in obligations from the first half of fiscal year 1993 for which FHWA's information system was missing work codes were largely associated with states that elected, under the provisions of ISTEA, to report their surface transportation program obligations on a quarterly basis. As such, they were not required by, and did not, identify to FHWA how they used their funds.

Table III.1: Categorization of Flexible Highway Program Obligations Into Highway, Mass Transit/Nontraditional, and Unknown, FY 1992 and First Half of FY 1993

Dollars in millions

	Highway		Mass transit/Nontraditional		Unknown[a]		Total obligations	
Fiscal year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1992	$10,917.0	96.4	$319.0	2.8	$ 84.3	0.7	$11,320.2	100.0
1993[b]	5,868.6	87.4	184.7	2.8	662.6	9.9	6,715.8	100.0

Note: Includes obligations for the following highway programs only: the NHS, the STP, CMAQ, bridge, Interstate maintenance, Interstate substitution, minimum allocation, and donor state bonus. Numbers may not add because of rounding.

[a]Unknown obligations are those for which FMIS work codes were missing. Therefore, these obligations could not be placed in the highway or mass transit/nontraditional categories.

[b]Data are as of March 31, 1993.

Source: GAO's analysis of FHWA's data.

In some cases, we were also unable to divide flexible highway program obligations invested in mass transit or nontraditional projects into urban or rural categories because FMIS urban/rural identifiers were missing. We excluded program obligations associated with these data from our analysis. Table III.2 categorizes flexible highway program obligations invested in mass transit or nontraditional projects as urban, rural, and unknown. As the table shows, about 3 percent ($9.2 million) of the fiscal year 1992 funds did not have an urban/rural identifier. If these obligations were included in the urban category, urban obligations would increase from 93.6 percent to 96.5 percent and rural obligations would remain at 3.5 percent. If these obligations were included in the rural category, urban obligations would remain at 93.6 percent and rural obligations would increase from 3.5 percent to 6.4 percent. In the first half of fiscal year 1993, about 50 percent ($93.1 million) of cross-modal obligations did not have an urban/rural identifier. If the obligations missing urban/rural identifiers were included in the urban category, urban obligations would increase from 45.8 percent to 96.2 percent and rural obligations would remain at about 3.8 percent. If these obligations were included in the rural category, urban obligations would remain at 45.8 percent and rural obligations would increase from 3.8 percent to 54.2 percent.

Table III.2: Urban/Rural Split of Flexible Highway Obligations Invested in Mass Transit and Nontraditional Projects, FY 1992 and First Half of FY 1993

Dollars in millions

	Urban		Rural		Unknown[a]		Total obligations	
Fiscal year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1992	$298.6	93.6	$11.2	3.5	$ 9.2	2.9	$319.0	100.0
1993[b]	84.6	45.8	6.9	3.8	93.1	50.4	184.7	100.0

Note: Includes obligations for the following highway programs: the NHS, the STP, CMAQ, bridge, Interstate maintenance, Interstate substitution, minimum allocation, and donor state bonus. Numbers may not add because of rounding.

[a]Unknown indicates obligations for which urban/rural identifiers were missing.

[b]Data are as of March 31, 1993.

Source: GAO's analysis of FHWA's data.

Finally, in some cases we were unable to divide some FTA section 9 capital obligations into mass transit and nontraditional categories. For some projects that contained a mixture of mass transit and nontraditional obligations, we were unable to reconcile expenditure detail code information in the GMIS with total project obligations. Where such reconciliations could not be made, we excluded these projects' obligations from our analysis. Table III.3 categorizes section 9 capital obligations as mass transit, nontraditional, and unknown—the latter representing obligations that, because we were unable to reconcile expenditure detail code information in GMIS with total project obligations, could not be included as either mass transit or nontraditional. As the table shows, less than 1 percent of section 9 capital obligations for fiscal year 1992 and the first half of fiscal year 1993, $7.1 million and $0.1 million, respectively, could not be categorized. Including these obligations in our analysis would have had little or no effect on our results. Since all section 9 capital funds are allocated to urban areas, the urban/rural division of such funds would not be affected by missing urban/rural identifiers.

Table III.3: Categorization of Section 9 Capital Funds Into Mass Transit, Nontraditional, and Unknown, FY 1992 and First Half of FY 1993

Dollars in millions

	Mass transit		Nontraditional		Unknown[a]		Total obligations	
Fiscal year	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1992	$1,096.4	96.4	$34.1	3.0	$7.1	0.6	$1,137.6	100.0
1993[b]	533.2	97.5	13.4	2.4	0.1	0	546.7	100.0

Note: Numbers may not add because of rounding.

[a]For these obligations, we could not reconcile expenditure detail code information in GMIS with total project obligations. Therefore, the obligations could not be categorized as mass transit or nontraditional.

[b]Data are as of March 31, 1993.

Source: GAO's analysis of FTA's data.

To identify the factors that have influenced or will influence the flexible use of funds, we interviewed federal officials and state and local officials from five states, seven metropolitan planning organizations (MPO), and six providers of mass transportation services. The state and local officials and the providers of mass transportation services were selected to provide a diversity of geographic areas and a wide range of opinions and experiences with ISTEA's provisions related to the flexible use of funds. To assess the adequacy of analytical tools for transportation decision-making, we interviewed federal officials and state and MPO officials from five additional states and two additional MPOs. The additional states and MPOs were selected to provide a wide spectrum of congestion and air quality conditions and a cross-section of users of CMAQ funds in fiscal year 1992. We also reviewed relevant literature and studies related to travel demand models and how such models are used to analyze the impacts of transportation projects on air quality. For both objectives, we reviewed pertinent laws and regulations on the flexible use of ISTEA funds and air quality evaluations.

Our review was conducted between May 1992 and June 1993 in accordance with generally accepted auditing standards.

Use of Congestion Mitigation and Air Quality Improvement Program Funds, Fiscal Years 1992 and 1993

Table IV.1: CMAQ Funds Obligated for Highway, Mass Transit, and Nontraditional Projects, FY 1992

Dollars in millions

State	Total CMAQ funds obligated	Highway		Mass transit		Nontraditional	
		Amount	Percent	Amount	Percent	Amount	Percent
Alaska	$0.3	0	0	0	0	$0.3	100.0
Arizona	10.8	$5.0	46.3	$5.7	52.8	0.1	0.9
California	94.2	80.8	85.8	12.4	13.2	0.9	0.9
Connecticut	19.0	15.0	79.0	3.8	20.0	0.2	1.1
Idaho	1.5	0.4	26.7	1.1	73.3	0	0
Illinois	16.9	2.1	12.4	11.6	68.6	3.2	18.9
Kentucky	1.3	1.0	76.9	0	0	0.3	23.1
Maryland	11.2	7.9	70.5	0	0	3.3	29.5
Massachusetts	27.6	0.3	1.1	27.3	98.9	0	0
New Jersey	46.0	12.4	27.0	30.0	65.2	3.6	7.8
New York	37.6	0.6	1.6	36.7	97.6	0.3	0.8
Ohio	13.6	1.5	11.0	12.1	89.0	0	0
Rhode Island	0.4	0.1	25.0	0	0	0.3	75.0
Tennessee	1.5	0.7	46.7	0	0	0.8	53.3
Virginia	14.4	0.6	4.2	12.7	88.2	1.1	7.6
Wisconsin	2.3	0	0	2.3	100.0	0	0
Other[a]	41.3	41.3	100.0	0	0	0	0
Total	**$339.8**	**$169.7**	**50.0**	**$155.7**	**45.8**	**$14.4**	**4.2**

Note: Numbers may not add because of rounding.

[a]Includes 22 additional states and the District of Columbia. None of the U.S. territories obligated CMAQ funds in fiscal year 1992. Amounts were aggregated, since all funds were invested in highway projects.

Source: GAO's analysis of FHWA's data.

Table IV.2: CMAQ Funds Obligated for Highway, Mass Transit, and Nontraditional Projects, First Half of FY 1993

Dollars in millions

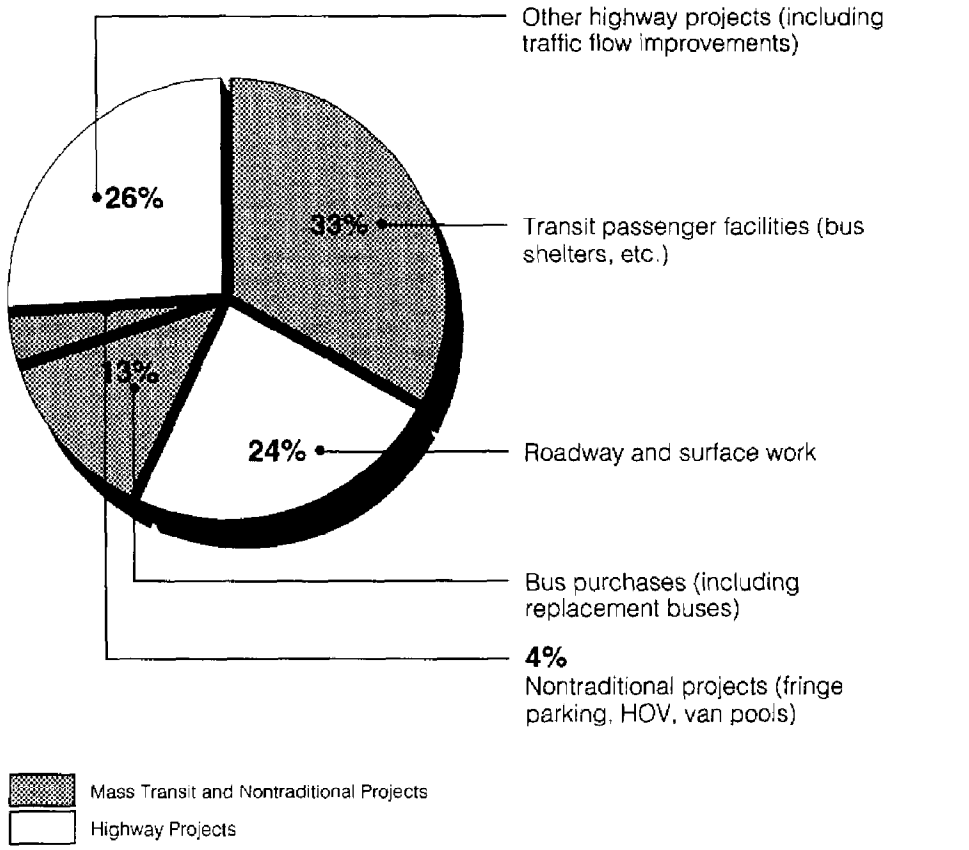
State	Total CMAQ funds obligated	Highway		Mass transit		Nontraditional	
		Amount	Percent	Amount	Percent	Amount	Percent
California	$ 34.3	$ -5.7	-16.7	$ 30.6	89.2	$ 9.5	27.7
Connecticut	3.1	2.4	77.4	0.7	22.6	0	0
Idaho	0.1	0.1	100.0	0	0	0	0
Illinois	3.8	3.4	89.5	0	0	0.3	7.9
Maryland	5.5	-1.4	-25.5	0	0	6.9	125.0
Massachusetts	34.4	2.4	7.0	31.3	91.0	0.7	2.0
Michigan	0.2	0	0	0.2	100.0	0	0
Minnesota	0.3	0	0	0.3	100.0	0	0
New Mexico	0.7	0.4	57.1	0	0	0.3	42.9
New York	42.2	1.2	2.8	38.6	91.5	2.3	5.5
Ohio	3.7	0.6	16.2	0	0	3.1	83.8
Pennsylvania	2.4	2.1	87.5	0.2	8.3	0.2	8.3
Tennessee	0.3	0.1	33.3	0	0	0.2	66.7
Texas	11.2	10.2	91.1	1.0	8.9	0	0
Virginia	6.4	0.8	12.5	5.9	92.2	-0.3	-4.7
Washington	13.6	1.7	12.5	11.9	87.5	0	0
West Virginia	0.6	0.3	50.0	0.3	50.0	0	0
Other[a]	28.0	28.0	100.0	0	0	0	0
Total	**$190.8**	**$46.6**	**24.4**	**$121.0**	**63.4**	**$ 23.2**	**12.2**

Note: Amounts as of Mar. 31, 1993. Includes the 50 states, the District of Columbia, and the U.S. territories. Negative amounts represent cancellations of projects, corrections in work type codes, changes in the funding program, and/or project cost underruns. Numbers may not add because of rounding.

[a]Includes 20 additional states and the District of Columbia. None of the U.S. territories obligated CMAQ funds in the first half of fiscal year 1993. Amounts were aggregated, since all funds were invested in highway projects.

Source: GAO's analysis of FHWA's data.

Figure IV.1: Types of Projects Funded by CMAQ in FY 1992



Note: "Other highway projects" includes such highway projects as right-of-way acquisition, construction and preliminary engineering, bridge work, and planning activities. It also includes projects designed to improve traffic flow, such as better synchronization of traffic lights.

Source: GAO's analysis of FHWA's data.

Use of Section 9 Mass Transit Capital Funds, Fiscal Years 1992 and 1993

Table V.1: Section 9 Mass Transit Capital Funds Obligated for Mass Transit and Nontraditional Projects, FY 1992

Dollars in millions

	Mass transit		Nontraditional		
State	**Amount**	**Percent**	**Amount**	**Percent**	**Total**
Arizona	$ 4.0	97.6	$ 0.1	2.4	**$ 4.1**
California	124.4	99.3	0.9	0.7	**125.3**
Florida	38.7	99.5	0.2	0.5	**38.9**
Georgia	18.0	98.9	0.2	1.1	**18.2**
Illinois	96.8	97.2	2.8	2.8	**99.6**
Massachusetts	65.1	99.5	0.3	0.5	**65.4**
Maryland	13.6	98.6	0.2	1.4	**13.8**
Minnesota	10.4	98.1	0.2	1.9	**10.6**
North Carolina	1.5	83.3	0.3	16.7	**1.8**
New York	310.2	97.5	7.8	2.5	**318.0**
Puerto Rico	-2.4	-24.7	12.0	124.7	**9.6**
Tennessee	6.2	95.4	0.3	4.6	**6.5**
Texas	41.5	82.3	8.9	17.7	**50.4**
Other[a]	368.3	100.0	0	0 3	**68.3**
Total	**$1,096.4**	**97.0**	**$34.1**	**3.0**	**$1,130.5[b]**

[a]Includes 35 additional states and the District of Columbia. Except for four states (Connecticut, Louisiana, Pennsylvania, and South Carolina) that invested a total of about $200,000 in nontraditional projects, all funds were invested in mass transit projects. Three states (Alaska, Delaware, and Nevada) did not obligate any section 9 capital funds, nor did any of the U.S. territories, except Puerto Rico.

[b]Does not include $7.1 million for which no category (mass transit or nontraditional) was indicated.

Source: GAO's analysis of FTA's data.

Table V.2: Section 9 Mass Transit Capital Funds Obligated for Mass Transit and Nontraditional Projects, First Half of FY 1993

Dollars in millions

	Mass transit		Nontraditional		
State	**Amount**	**Percent**	**Amount**	**Percent**	**Total**
Arizona	$ 15.9	99.4	$ 0.1	0.6	**$ 16.0**
Florida	26.0	99.6	0.1	0.4	**26.1**
Maryland	6.3	98.4	0.1	0.2	**6.4**
North Carolina	0.9	81.8	0.2	18.2	**1.1**
New York	53.6	99.1	0.5	0.9	**54.1**
Ohio	16.7	88.4	2.2	11.6	**18.9**
Puerto Rico	2.7	103.7	-0.1	-3.7	**2.6**
Texas	54.2	87.6	7.7	12.4	**61.9**
Washington	29.8	92.4	2.4	7.6	**32.3**
West Virginia	0.2	66.7	0.1	33.3	**0.3**
Other[a]	326.9	100.0	0	0	**326.9**
Total	**$533.2**	**97.6**	**$13.4**	**2.5**	**$546.6**

Note: Numbers may not add because of rounding. Amounts are as of March 31, 1993.

[a]Includes 41 additional states and the District of Columbia. Except for three states (Minnesota, Pennsylvania, and Tennessee) that invested a total of about $48,000 in nontraditional projects, all funds were invested in mass transit projects. Ten states (Alaska, Delaware, Georgia, Idaho, Mississippi, Montana, New Hampshire, New Mexico, Oklahoma, Wyoming) did not obligate section 9 capital funds, nor did any of the U.S. territories, except Puerto Rico.

Source: GAO's analysis of FTA's data.

Organizations GAO Contacted

Federal Government Organizations	Department of Transportation Environmental Protection Agency Federal Highway Administration Federal Transit Administration
State Government Organizations	California Department of Transportation, Sacramento, Calif. Georgia Department of Transportation, Atlanta, Ga. Louisiana Department of Transportation and Development, Baton Rouge, La. Maryland Department of Transportation, Baltimore-Washington International Airport, Md. Minnesota Department of Transportation, St. Paul, Minn. Missouri Highway and Transportation Department, Jefferson City, Mo. New Jersey Department of Transportation, Trenton, N.J. New York Department of Transportation, Albany, N.Y. Utah Department of Transportation, Salt Lake City, Utah Virginia Department of Transportation, Richmond, Va. Virginia Department of Rail and Public Transportation, Richmond, Va. Washington Department of Transportation, Olympia, Wash.
Metropolitan Planning Organizations	Athens-Clarke County Planning Commission, Athens, Ga. Atlanta Regional Commission, Atlanta, Ga. Baltimore Metropolitan Council, Baltimore, Md. East-West Gateway Coordinating Council, St. Louis, Mo. Metropolitan Washington Council of Governments, Washington, D.C. Mid-America Regional Council, Kansas City, Mo. Puget Sound Regional Council, Seattle, Wash. Spokane Regional Council, Spokane, Wash. Southwest Washington Regional Transportation Council, Vancouver, Wash.
Local Government Organizations	Potomac and Rappahanock Transportation Commission, Woodbridge, Va. City of Fairfax, Fairfax, Va.

Transit Provider Organizations

Athens Transit Service, Athens, Ga.
Bi-State Development Agency, St. Louis, Mo.
Kansas City Area Transportation Authority, Kansas City, Mo.
Metropolitan Atlanta Rapid Transit Authority, Atlanta, Ga.
Municipality of Metropolitan Seattle, Seattle, Wash.
Washington Metropolitan Area Transit Authority, Washington, D.C.

Major Contributors to This Report

Resources, Community, and Economic Development Division, Washington, D.C.

Allen Li, Associate Director
Gary L. Jones, Assistant Director
Richard A. Jorgenson, Evaluator-in-Charge
Susan A. Fleming, Senior Evaluator
Thomas F. Noone, Computer Specialist

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