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MASS TRANSIT

Needs Projections Could Better Reflect Future Costs

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Resources, Community, and
Economic Development Division

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

The Honorable Norman Y. Mineta
Chairman
The Honorable Bud Shuster
Ranking Minority Member
Committee on Public Works
and Transportation
House of Representatives

In order to make important policy and funding decisions to support public transit's role in the future, the Congress needs the best information available about how states and localities intend to use transit to achieve their transportation-related goals. These goals include increased mobility, reduced traffic congestion, improved air quality, and economic development. Since 1988 the Congress has been provided with four projections of overall transit needs that range from about $3 billion to $32 billion per year. The Federal Transit Administration (FTA), an agency of the Department of Transportation (DOT), has prepared two reports as required by law; the American Association of State Highway and Transportation Officials (AASHTO) and the American Public Transit Association (APTA)—two nonprofit associations representing state transportation and transit interests, respectively—have each prepared one projection to contribute to reauthorization discussions.

Because of long-standing concerns about existing needs projections, the Congress, in section 3028 of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), required GAO to examine issues concerning estimates of transit needs. In discussions with your offices, we agreed to identify (1) why the projections of transit needs varied, (2) what other factors could affect the accuracy of future projections, and (3) any opportunities for improving future transit needs projections.

Results in Brief

The projections varied because each organization defined transit needs differently by including or excluding certain cost elements or by making different assumptions to determine cost. The key cost elements that determine transit's overall needs are (1) operating, (2) capital expansion, and (3) capital maintenance and replacement. FTA excluded all operating needs in both of its reports, whereas these costs were projected to be $14 billion/year and $16.3 billion/year by AASHTO and APTA, respectively. Three of the four projections included capital expansion costs for increasing transit services. However, FTA's projection possibly understated needs by making several conservative assumptions. For example, FTA assumed that the cost of new transit services would be the same as current average costs, while AASHTO and APTA relied on cost projections for specific new transit services. FTA also conservatively estimated human service (for the elderly and disabled) capital replacement needs by limiting these to capital that FTA has historically funded.

Several factors, including federal legislation such as the Clean Air Act Amendments of 1990 (CAA), the Americans With Disabilities Act (ADA), and the Energy Policy Act of 1992, could cause future transit needs to exceed all of the needs projections. For example, transit service may be expanded to contribute to emissions reductions required by the CAA. Additionally, states and localities may choose to increase transit services in their communities beyond projected levels to help meet a broad range of transportation-related goals, such as facilitating land use and economic development plans. Since these laws and regulations were not yet in place when FTA's 1991, AASHTO's, and APTA's reports were prepared, these projections did not include the expanded transit needs that might result. FTA's 1992 report did address some potential impacts of ADA, CAA, and some service expansion. However, none of the projections included the full range of increased transit needs that might occur.

In the short term, DOT could help to ensure that the projections are more reflective of potential future costs by including operating costs and the estimated costs to comply with laws such as CAA and ADA. In the longer term, DOT could develop more meaningful needs projections by using state and local transit investment plans as well as data on transit systems' physical conditions and service effectiveness. These data will be made available by three ISTEA requirements: (1) a state transportation plan and improvement program documenting local transit decisions; (2) a state public transportation management system (PTMS) containing data on transit performance and condition; and (3) a Bureau of Transportation Statistics (BTS) within DOT that, among other things, will compile, analyze,

and publish data on the availability, use, and condition of transit services. In developing regulations for these ISTEA requirements, DOT can help ensure that transit data are collected that will be useful in projecting needs.

History of Transit Needs Reports

FTA is required by 49 U.S.C. section 308 to biennially report to the Congress on the current performance and condition of public mass transportation systems, including a complete assessment of all public transportation facilities in the United States. FTA is also required to include an assessment of future capital, operating, and maintenance requirements for 1-year, 5-year, and 10-year periods at specified levels of service.

FTA has published five reports to satisfy section 308, although none addressed all the required elements. The last two reports (which were published in February 1991 and June 1992) discussed transit's performance (e.g., ridership and cost trends), and unlike the first three reports, these included an assessment of future transit needs for urban and commuter rail and for urban, rural, and human service bus services. FTA is also working toward a joint transit and highway needs report, and the January 1993 Federal Highway Administration's (FHWA) report, The Status of the Nation's Highways, Bridges, and Transit: Conditions and Performance, is the first DOT needs report to include both transit and highway needs. FTA officials told us that the transit needs in the 1993 FHWA report are basically those from FTA's 1992 needs report.

AASHTO and APTA have prepared several projections of the nation's transit needs. Both AASHTO's September 1988 and APTA's October 1990 needs reports, prepared to contribute to the reauthorization debate that resulted in the passage of ISTEA, concluded that needs exceeded current funding. Table 1 presents each report's projected needs. (A more complete discussion of the individual reports and how we compared them are included in app. I.)

Table 1: Summary of Transit Needs Reports

Dollars in billions per year

Needs	FTA 1991	FTA 1992	AASHTO 1988	APTA 1990
Maintenance/ replacement	$ 3.2 to 4.0	$ 3.9	$ 4.4	$ 6.5
Expansion	NA	3.6	2.0	9.2
Subtotal—capital	3.2 to 4.0	7.5	6.4	15.7
Operating	NA	NA	14.0	16.3
Total	**$ 3.2 to 4.0**	**$ 7.5**	**$ 20.5**	**$ 32.0**

Note: All figures are expressed in constant 1991 dollars. Table I.1 (app. I) describes how these values were calculated. "NA" indicates that this element was not addressed.

Different Definitions of Needs Caused Projections to Vary

Different definitions of transit needs caused FTA's, AASHTO's, and APTA's needs projections to vary from $3 billion to nearly $32 billion per year. Each organization operationally defined transit needs by including (or excluding) certain cost elements or by making different assumptions to determine cost. The three key elements that determine transit's overall needs are the costs to operate, expand, and maintain/replace existing transit services.

FTA's Reports Did Not Include Operating Expenses

Although FTA is required by law to include capital and operating needs in its transit needs projections, FTA did not include operating needs in any of its projections, addressing capital needs only. AASHTO and APTA, on the other hand, reported on both capital and operating needs. Because AASHTO's and APTA's operating needs projections were $14.0 billion and $16.2 billion, respectively, it is clear why their overall needs projections were so much greater than FTA's.

By not including operating costs in its 1991 and 1992 transit needs projections, FTA omitted the largest expense category for the nation's transit systems. Transit operating expenses are substantial, costing more than three times the amount spent on capital items. Transit services require large, continual expenditures for bus drivers, train operators, fuel, tires, and so on.

FTA officials told us that both FTA reports excluded operating needs for several reasons. First, since FTA is working with FHWA on joint highway/transit needs reports, FTA seeks a common definition of needs

with FHWA, which defines highway needs as capital only. Second, FTA notes that addressing operating needs would require introducing a myriad of complex issues (e.g., fare policies, demand elasticities, etc.) that would increase the report's complexity while adding little value. Third, FTA believes that the assumptions necessary to project operating needs would compromise the capital projection's integrity when presented as an overall single need. However, estimating methodologies similar to those used for capital projections are available for operating needs, and by including only capital needs in its reports, FTA did not provide the complete picture of future transit needs as envisioned in its reporting requirements.

Assumptions About Capital Expansion Needs Significantly Affected Projections

The second largest difference among the needs reports was the treatment of expanded transit capital needs to improve or increase transit services. Although FTA's 1991 report did not include any expansion needs, its 1992 report did address expansion by calculating the capital cost to provide for additional transit passenger miles. AASHTO's and APTA's reports also included capital expansion, but each took a different approach to calculating these costs. Capital expansion needs in the three studies that included them ranged from about $2 billion to over $5 billion per year.

FTA's 1992 report presented two types of capital costs in its expanded transit service scenario: the costs to improve conditions and the costs to improve performance. Improving transit conditions requires bringing all bus and rail vehicles and facilities up to "good" condition by performing historically deferred maintenance. Improving transit performance requires adding transit capacity to meet potential increases in current demand trends. This potential increased demand stems from FHWA's report entitled The 1991 Status of the Nation's Highways and Bridges: Conditions, Performance, and Capital Investment Requirements, which forecast that about 34,000 lane-miles of needed highways would not be built. FTA's 1992 report assumed that 10 percent of the passenger miles of travel that would have been served by these lane-miles could result in additional transit ridership. Although FTA acknowledged that some of the expanded service needs would likely be met by more costly rail service, the report calculated only the costs of expanded bus service to meet those needs, thereby understating the costs of needs actually met by rail service.

Both AASHTO and APTA based their capital expansion projections on estimates for specific transit projects, either approved or proposed. AASHTO quantified the capital costs for expanded transit services on the basis of FTA's "pipeline of projects"—those transit projects that FTA has approved

and begun to fund—and an APTA list of proposed high-occupancy vehicle (HOV)/busway projects. APTA based its capital expansion estimate on its 1990 survey of operating members' needs.[1]

Although Maintenance/Replacement Projections Were Similar, Some Assumptions Underestimated Needs

The smallest differences among the four projections (a gap of $3.3 billion for existing capital versus $9.2 billion for capital expansion and $16.3 billion for operating needs) were for the costs to maintain existing transit capital—the only category of needs that all four studies included. Although the specific calculation methods differed, there were relatively small differences among FTA's two maintenance/replacement cost estimates and AASHTO's because these three projections (1) used average vehicle cost and age data to estimate the cost to replace the existing operating vehicle fleet and (2) added facilities' maintenance costs as a percentage of vehicle costs. APTA, which surveyed its members on what they need to maintain their existing services, projected greater needs than the others because its methodology did not limit respondents to the current ratio of vehicles to facilities.

FTA's 1991 report calculated the average annual replacement cost of buses on the basis of minimum-useful-life standards (the minimum vehicle age or mileage for FTA to fund replacement) and average vehicle costs; the report estimated maintenance facility needs as a percentage of bus purchases. However, some of the assumptions that FTA made caused it to underestimate replacement needs. For example, FTA's calculations of the cost to replace aging human service fleets included only the vehicles FTA had funded—about one-half of the total. The other vehicles were mostly funded by the Department of Health and Human Services, and FTA did not consider these to be a "transit need." FTA's 1992 report made the same assumption.

FTA's 1992 report treatment of capital maintenance/replacement needs was an improvement over its 1991 report. For example, FTA's 1992 report increased annual replacement costs by 0.8 percent to maintain transit's current performance of increasing ridership.[2] However, by using current average costs rather than marginal costs (the incremental cost to provide new services), FTA potentially understated the costs of this ridership growth. The marginal costs to increase ridership are likely to be higher

[1]APTA operating members actually provide transit services, and these survey respondents carry over 90 percent of all persons using urban public transit in the United States.

[2]This figure is based on the fact that total transit ridership has increased by 8 percent over the last 10 years. The average annual increase, therefore, has been 0.8 percent.

than current average costs, because expenses increase (because efficiencies decline) as service is extended into less densely populated areas.

Although AASHTO's maintenance/replacement needs projections closely match FTA's, AASHTO's do not include human service and rural needs.[3] APTA's report presented the largest projection of existing transit systems' needs by allowing operators to include facility needs beyond the historical ratio of vehicle-to-facility investments. Differences among the projections also occurred because APTA relied primarily on its own data collection—a survey of its operating members expanded to reflect the entire transit industry—for its projections, while FTA and AASHTO both primarily used audited historical data.

(App. I provides more detailed information on the four different needs projections and the methods used to prepare each projection.)

New Requirements May Increase Transit Needs Beyond the Projections

All four projections excluded several factors that could significantly increase future transit needs. Specifically, none of them fully take into account the following factors: (1) costs for transit vehicles to convert to alternative fuels because of clean air or energy conservation requirements; (2) ADA requirements to make existing transit stations and vehicles accessible to persons with disabilities and to provide expanded special services for the disabled; and (3) expanded transit services to meet specific transportation-related goals, such as reduced traffic congestion or improved air quality. Furthermore, future transit operating needs may exceed those forecast by either APTA or AASHTO, since these projections did not account for the operating needs associated with their projected capital expansion needs. Until such time as these factors are taken into account, projections may understate future transit needs.

Additional Capital Investments May Be Necessary

To the extent that local communities select transit projects to help meet transportation-related goals, such as improved air quality and reduced traffic congestion, transit capital needs will increase. None of the needs reports explicitly projected transit's costs to support all these goals. Additionally, several recently enacted federal laws—CAA, ADA, and the Energy Policy Act of 1992—impose greater capital costs to maintain existing transit service levels. None of these laws had been enacted at the

[3]AASHTO recognized human service and rural transit needs but presented only additional funding needs/shortfalls (not total needs). Therefore, these costs were not included in our report.

time the AASHTO and APTA projections were made. FTA's 1992 report included projected capital costs to conform to ADA requirements and presented some possible impacts of CAA based on potential regulatory requirements. The Energy Policy Act was not enacted prior to issuance of FTA's 1992 report and therefore was not reflected in the needs projections.

Transit can contribute to improved air quality, reduced traffic congestion, enhanced mobility for the disabled, energy conservation, and land use and economic development plans. For example, increased transit is one of several CAA transportation control measures for making required air quality improvements. To the extent that expanded transit services are chosen to meet these or other goals, the nation's transit needs will increase.

Even if transit services are not expanded to meet transportation and other goals, recently enacted federal legislation imposes new costs on transit operators. For example, ADA requires transit operators to make all services fully accessible—including equipping all new buses with wheelchair lifts, putting elevators in all transit stations not at grade, and providing information in accessible formats—all of which add to transit's capital and operating costs. Because the ADA regulations were released after FTA's 1991, AASHTO's and APTA's reports were prepared, the law's effects were not included in these projections. FTA's 1992 report, however, included the capital costs to comply with ADA—$260 million by DOT's estimate. The ADA regulations (49 C.F.R. parts 27, 37, and 38) require each transit operator to develop a plan for complying with ADA's paratransit (demand-responsive service) requirements within 5 years, including cost estimates. These estimates provide a new opportunity for FTA to include the most complete and accurate data available in its needs projections concerning estimated ADA costs to be incurred by local transit operators.

Operating Needs Increase With Capital Expansion

Future operating costs could increase for a variety of reasons, including expanded transit services and deteriorating transit equipment. Future decisions to expand transit services would increase transit's future operating needs, as operating and maintenance expenses increase in conjunction with the additional miles and hours operated. Additionally, if routine maintenance and replacement activities are deferred, which has occurred in the past, operating costs and inefficiencies will increase because poorly maintained and older vehicles are more costly to operate (e.g., are less fuel efficient, break down more often).

If operating costs increase, local communities may have to reduce transit service (which reduces capital effectiveness) or provide greater transit subsidies. For example, federal operating assistance declined from $1,185 million in 1984 to $845 million in 1990, and while state and local assistance increased from $6.9 billion to $8.7 billion, not all areas were able to find sufficient funds to support current transit operations and reduced service accordingly. Two of the eight states we visited told us that they have already cut services because of shortages of operating funds, and every transit official we spoke with told us that future service cuts were a possibility because of increased requirements and potential reductions in subsidies from all levels of government.

New Requirements Offer Opportunity to Improve Future Needs Projections

New opportunities exist for improving national transit needs projections by looking to state and local transit plans as well as data on transit systems' condition, performance, and effectiveness. ISTEA's new requirements for state-developed transportation plans and improvement programs, new management systems, and the creation of the Bureau of Transportation Statistics offer an opportunity for DOT to gather improved data on future transit investments and system condition, which can serve as inputs to future needs analysis. The processes necessary to collect this information are still being developed, but over the next several years, great progress could be made to lay the foundation for improvements to future transit needs projections.

ISTEA requires states and localities to prepare transportation plans and improvement programs that reflect local assessments of transit needs. Previously, such documents were neither required nor standardized; therefore, data from all areas were not available for national transit needs projections. As a result, all of the projections assumed that current services would be maintained, and some would be expanded, without considering actual plans. The projections therefore included current services that are no longer needed and may have understated needs exceeding current services. As FTA stated in its 1992 report, FTA plans to try to include data from urban area plans and improvement programs in its future needs reports. By also looking to the new state plans, information on actual needs, as reflected by new services as well as any planned reduction in existing services, could be included in future needs projections.

Besides new planning processes ISTEA requires all states to implement several transportation management systems, including a public

transportation management system, before January 1, 1995. A PTMS can provide FTA with access to better local data and decisions from which nationwide needs can be better projected. For example, past FTA needs projections have relied on FTA's Rail Modernization Study, which describes the 1983 condition of the nation's rail transit systems. FTA would have access to more recent data on rail systems' condition if the states' PTMSs contained this type of information. DOT is still developing the regulations for these management systems, but its announcement of a notice of proposed rulemaking indicates that the PTMSs will describe the condition, efficiency, and effectiveness of transit systems in each state. However, DOT will need to provide descriptive guidance to the states and localities so that the data collected will be consistent. If DOT's regulations address these factors, the PTMSs could be an invaluable resource for future needs projections.

ISTEA also creates, within DOT, BTS to compile, analyze, and publish a comprehensive set of transportation statistics. In doing this work, BTS is to coordinate with existing DOT administrations, including FTA, to prepare, among other things, (1) statistics on the availability, use, and condition of the nation's transit services and (2) information that crosses modes, such as variables influencing travel behavior. Although FTA is working toward improving its data in these areas, in part with FHWA, when in place BTS may provide another opportunity for DOT to collect and analyze state and local information relevant to transit needs projections and to ensure data consistency between the modes.

It is important to note that ISTEA's planning and management system changes will not immediately lead to improved needs projections, since it will take several years to develop and implement these changes. However, by including improved data as they become available, FTA's national transit needs projections can become more reflective of state and local transit needs.

Conclusions

The four transit needs projections were different because they included different cost elements and made different assumptions to calculate costs. By not including operating needs in its projections, FTA omitted the largest expense category for the nation's transit systems. Additionally, FTA potentially underestimated capital needs in a number of areas. For example, to maintain the existing human service fleet, FTA limited replacement needs to only those vehicles that were purchased with DOT funds, thereby leaving out half the vehicles in this fleet.

New federal requirements, which were not finalized when the needs reports were prepared (e.g., ADA and CAA), will likely increase costs beyond the projections. Additionally, transit needs could potentially exceed all of the projections should states and localities choose to increase transit services to meet a broad range of transportation-related goals. New planning requirements for state and local transit plans could become the basis for a nationwide estimate of transit needs. These kinds of data are not being collected currently, but DOT has an opportunity to facilitate future data availability. In developing the requirements for ISTEA-mandated transportation planning, management systems, and BTS, DOT can help ensure that useful data are collected for future transit needs reports.

Recommendations

To better assist the Congress and others in the transportation community, we recommend that the Secretary of Transportation take actions to improve future Federal Transit Administration transit needs reports required by 49 U.S.C. section 308 by

- including operating needs (current as well as expanded system) for the nation's transit systems;
- including vehicle replacement needs for the entire human service operator fleet, not just the vehicles DOT has funded;
- including transit operators' cost estimates for ADA compliance as reported to FTA under 49 C.F.R. parts 27, 37, and 38;
- developing new needs projection methods that are more reflective of potential costs, such as estimating the proportion of expanded ridership that will use rail versus bus service and projecting costs accordingly, and including costs to address CAA and the Energy Policy Act of 1992;
- ensuring that standard data requirements for transit needs projections, such as planned transit expansions and transit systems' condition and maintenance information, are included in the new ISTEA transportation planning and management system regulations that are currently under development; and
- considering transit needs data requirements, such as variables that influence the selection of transit over other alternative modes, when determining BTS' future activities.

Agency Comments

We discussed the contents of this report with officials from the Office of the Secretary of Transportation; FTA's Deputy Associate Administrator, Office of Budget and Policy; and other FTA officials from the Offices of Grants Management and Budget and Policy. We also obtained the views of

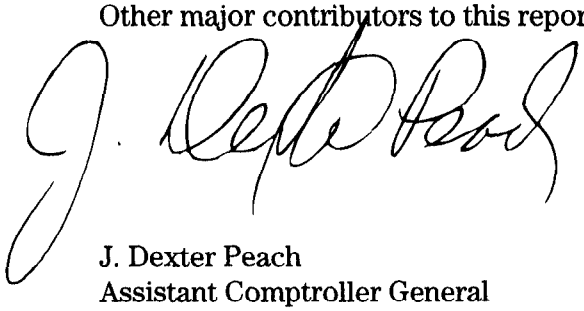
AASHTO's Program Director and APTA's Director of Policy Analysis and other officials from these organizations. Officials from each of these offices generally agreed with our findings and recommendations, and we have incorporated their comments and clarifications where appropriate. However, the DOT officials disagreed with our recommendation to project operating needs in future DOT/FTA transit needs reports for several reasons, including that such projections would make their report inconsistent with the highway needs report, which includes only capital needs. FTA officials told us that consistent needs definitions are important because FTA and FHWA are working toward a consolidated report. We support the move to a consolidated report and agree that improved consistency in needs definition is an important component of this effort. However, we continue to believe that operating needs should be included in future FTA needs reports, because (1) transit's operating expenses are a significant portion of transit costs (far exceeding capital expenses); (2) FTA's statutory requirement specifically calls for capital, operating, and maintenance projections; and (3) acceptable methodologies for projecting operating needs are available. As agreed with your offices, we did not obtain written comments on a draft of this report.

Scope and Methodology

To evaluate the four transit needs reports, examine other factors that could affect the accuracy of these reports, and identify opportunities to improve future reports, we obtained information from FTA, AASHTO, APTA, and state and local transportation officials in eight states. Our review was conducted between April and November 1992 in accordance with generally accepted government auditing standards. Our objectives, scope, and methodology are discussed more fully in appendix II.

We are sending copies of this report to the Secretary of Transportation; the Administrator, Federal Transit Administration; the Director, Office of Management and Budget; participating organizations; and interested congressional committees. We will also send copies to other interested parties upon request.

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



J. Dexter Peach
Assistant Comptroller General

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Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ADA	Americans With Disabilities Act of 1990
APTA	American Public Transit Association
BTS	Bureau of Transportation Statistics
CAA	Clean Air Act Amendments of 1990
CTAA	Community Transportation Association of America
DOT	Department of Transportation
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
GAO	General Accounting Office
HHS	Department of Health and Human Services
HOV	high-occupancy vehicle
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
PTMS	public transportation management system
RMS	Rail Modernization Study

Comparison of Transit Needs Projections

The Federal Transit Administration (FTA), American Association of State Highway and Transportation Officials (AASHTO), and American Public Transit Association (APTA) have prepared projections of the nation's transit investment needs. Each projection was prepared at a different time and covered different time periods. In addition, each projection made different assumptions about what constituted either an existing or expanded transit system need. As a result of these differences, the projections' needs ranged from about $3 billion to $32 billion per year.

Overview of Transit Needs Reports

Within the last 5 years, FTA has published two needs reports, and AASHTO and APTA have published one each—a total of four reports. FTA's 1991 Report did not quantify needs over a specified time frame, whereas the other three reports specified periods from 1 to 33 years. The two FTA reports were required by federal law, while the other two reports were produced for planning and legislative purposes. As table I.1 shows, FTA's 1991 report presented the most conservative amount for the nation's transit needs, as low as $ 3.2 billion per year. At the other extreme was APTA's projection of nearly $32 billion per year.

FTA's 1991 Report

FTA released its fourth transit needs report in February 1991.[1] This report did not specify any time frame for its projections. The report presented one scenario of transit needs (replacing existing capital) and reported the annual cost to maintain the conditions of the nation's existing transit systems to be between $3 billion and $3.7 billion. FTA's 1991 report did not include any transit system expansion or operating needs.

[1]DOT is required by 49 U.S.C. section 308 to biennially report to the Congress on the current performance and condition of public mass transportation systems, including an assessment of future capital, operating, and maintenance requirements for 1-year, 5-year, and 10-year periods at specified levels of service. The requirement was established by 1983 technical corrections to the 1982 Surface Transportation Assistance Act; FTA also published reports in 1984, 1987, and 1988.

Table I.1: Overview of Transit Needs Reports

Dollars in millions per year[a]

	FTA—1991 report	FTA—1992 report	AASHTO—1988 report	APTA—1990 report
Report time frames	**Indefinite period**	**1992 through 2001**	**1988 through 2000[b]**	**1992 through 1997**
Capital:				
Status quo	$3,238 to 3,994	$3,891	$4,440	$6,459
Expanded system	NA[c]	$3,607	$2,008	$6,166
Other[d]	NA	NA	NA	$3,057
Subtotal:	**$3,238 to 3,994**	**$7,498**	**$6,448**	**$15,682**
Operating:				
Status quo	NA	NA	$14,019[e]	$16,269[f]
Expanded system	NA	NA	NA	Unquantified, new services would increase needs
Total need	**$3,238 to 3,994**	**$7,498**	**$20,467**	**$31,951**

Source: GAO analysis of FTA, AASHTO, and APTA data.

[a]Table presents constant 1991 dollars per year for all studies for comparative purposes. These needs are the overall needs projections and are not adjusted to reflect receipts of individual operators. Both of FTA's reports presented needs in annual amounts, whereas AASHTO and APTA presented a total amount for a multiyear time period. Annual amounts for both AASHTO and APTA were calculated by dividing total amounts by the number of years included in the time period. FTA's 1991 report presented needs in 1989 dollars, FTA's 1992 report presented 1991 dollars, AASHTO's report presented 1988 dollars, and APTA's 1990 report presented 1990 dollars. All values have been converted to constant (1991) dollars using the Gross Domestic Product implicit price deflator. Except as otherwise noted, dollar values do not include inflation.

[b]AASHTO projected transit needs from 1988 through 2020. For this analysis, AASHTO's projections have been abbreviated to reflect only needs from 1988 through 2000. This more closely matches the time frames in FTA's and APTA's projections. However, AASHTO's analysis assumes heavy investment from 1988 through 2000 to address the backlog of deferred maintenance needs. Annual costs after 2000 are projected to be lower than those for 1988 through 2000.

[c] NA indicates that an element was not addressed in the study.

[d]Other capital items include service vehicles, computers, fare collection systems, and communications equipment.

[e]AASHTO's needs projection assumed a 4.1 percent inflation rate in its calculation of transit's operating needs. For comparative purposes, GAO took AASHTO's base year (1988) needs estimate and converted the estimate to its 1991 dollar equivalent.

[f]APTA's needs projection stated that 1990 operating needs were $15.7 billion and that nearly $100 billion would be needed over the 1992 to 1997 period. For comparative purposes, GAO took APTA's base year (1990) needs estimate and converted the estimate to its 1991 dollar equivalent.

FTA's 1992 Report

FTA released a subsequent transit needs report in June 1992. This report projected costs over a 10-year period, from 1992 through 2001. FTA's 1992 report presented two different scenarios for transit needs: (1) maintain conditions and performance and (2) improve conditions and performance. The first scenario focused primarily on replacing existing capital equipment, but also included costs to modestly increase transit services—consistent with transit's ridership growth trends. The second scenario included the additional costs to improve transit facilities and services over those in the maintain scenario. FTA's report discussed bus and rail needs within each scenario. FTA calculated annual costs for each of these elements and then added them to present a total annual cost of $7.5 billion to maintain and improve transit conditions and performance. The report projected a limited amount of growth in transit services, but it did not project any operating needs.

AASHTO's 1988 Report

AASHTO's 1988 transit needs report was published in September 1988 as an appendix to The Bottom Line report.[2] AASHTO's transit needs report presented several different categories of transit needs without combining them into one total needs requirement. The categories presented were maintenance of the current system, new starts, operations, rural, and specialized services. Within each category, AASHTO projected transit needs and funding for the 1988 to 2020 time period.[3] If all of AASHTO's categories of needs for 1988 through 2000 are added together, a total annual transit investment of about $20 billion is required.

APTA's 1990 Report

APTA's transit needs report was published in October 1990, in time to be included in the pre-ISTEA congressional debate. The report projected needs from 1992 through 1997 for most types of needs, such as maintaining and improving current capital equipment and facilities, expanding transit services, and operating transit systems. Although APTA did not explicitly request data on human service transportation needs, some respondents may have included human service transit needs in their response to APTA's survey. APTA's total projection was nearly $32 billion per year.

[2]The Bottom Line and related reports were part of AASHTO's 2020 effort, a long-term planning effort to reach consensus on alternatives for meeting the nation's transportation requirements through the year 2020.

[3]For this analysis, AASHTO's projections have been abbreviated to reflect only needs from 1988 to 2000. This more closely matches the time frames in FTA's and APTA's projections. However, AASHTO's analysis assumed that higher levels of transit investment are made immediately (in the near term) to restore the condition of the nation's transit systems to a state of good repair. If these higher investments are made, AASHTO estimates that needed annual expenditures would decrease after the year 2000.

Assumptions Made Regarding Existing Transit System Needs

Although all of the transit needs reports included the costs to maintain current transit systems, each projection calculated these costs differently. For example, FTA and APTA collected and generated their own data that fed their calculations, whereas AASHTO largely relied on existing sources of data. Table I.2 summarizes the assumptions made about existing transit system needs. These needs are divided into bus, rail, and human service for comparative purposes, although the original studies may not have followed this same organization.

FTA's 1991 Report

FTA's 1991 report focused on replacing existing capital equipment and facilities that were already in service. The report categorized needs into two types: bus and rail. To quantify replacement needs, FTA calculated the annual cost to replace existing fleet vehicles on the basis of its information on current vehicle fleet age, standards for vehicle useful life, and average costs of replacement vehicles.

Table I.2: Assumptions Made to Determine Existing System Maintenance Needs

	FTA—1991 report	FTA—1992 report	AASHTO—1988 report	APTA—1990 report
Bus systems:				
Vehicle replacement	Minimum useful life for peak fleet in service	Average current age for peak fleet, plus ridership growth trends[a]	Average current age for peak fleet in service	1990 APTA survey of transit operators polled operator needs[b]
Vehicle rehab	NA[c]	NA	NA	1990 APTA survey of transit operators
Service vehicles	NA	NA	NA	1990 APTA survey of transit operators
Maint. facilities	Ratio (1:2) of vehicle grants	Ratio of vehicle grants (1:1 urban) (1:2 rural)	Urban: 1983 APTA survey. Rural: (1:2) ratio of vehicle grants	1990 APTA survey of transit operators
Operating facilities	NA	Included in maint. facilities above	NA	1990 APTA survey of transit operators
Non-DOT-funded systems	NA	NA	NA	1990 APTA survey expanded to include all operators

(continued)

	FTA—1991 report	FTA—1992 report	AASHTO—1988 report	APTA—1990 report
Rail systems				
Vehicle replacement	1987 Rail Modernization Study (RMS) (for services in operation in 1983)	1987 (RMS)	Average current age and cost for peak fleet in service	1990 APTA survey of transit operators polled operator needs
Vehicle rehab	1987 (RMS)	1987 (RMS)	NA	1990 APTA survey of transit operators
Service vehicles	NA	1987 (RMS)	NA	1990 APTA survey of transit operators
Maint. facilities	1987 (RMS)	1987 (RMS)	1987 (RMS)	1990 APTA survey of transit operators
Operating facilities	1987 (RMS)	1987 (RMS)	1987 (RMS)	1990 APTA survey of transit operators
Human service systems				
Vehicle replacement	Minimum useful life for 1/2 of DOT-funded operator fleet (estimated by CTAA)	Average life for 1/2 of DOT-funded operator fleet (estimated by CTAA)	Minimum useful life for fleet (estimated by CTAA)	Only if included in 1990 APTA survey of transit operators
Vehicle rehab	NA	NA	NA	NA
Service vehicles	NA	NA	NA	NA
Maint. facilities	NA	Ratio (1:2) of vehicle grants	NA	Only if included in 1990 APTA survey of transit operators
Operating facilities	NA	Include in maint. facilities	NA	NA
ADA services in place	NA	ADA requirements included in bus services above	NA	NA
Non-DOT-funded systems	NA	NA	NA	NA

[a]FTA treats continued system growth (at recent historical levels) as "maintaining the performance" of existing transit systems, although this does represent system expansion.

[b]APTA conducted a survey of all its U.S. operating members between February and June 1990. A total of 166 transit operators, representing nearly 60 percent of the U.S. fleet of transit passenger vehicles, responded to the survey. The survey asked operators to project capital needed from all funding sources to meet their communities' requirements for public transportation improvements from 1992 through 1997. Estimated total needs for all transit agencies were projected from survey responses.

[c]NA indicates that this element was not addressed.

Bus needs were divided into urban, rural, and human service transportation needs. FTA calculated the urban bus fleet inventory on the

basis of the maximum number of peak-hour vehicles in service.[4] FTA added a 20 percent spare ratio (additional buses) to the reported peak-service inventory to allow for buses to receive needed maintenance and other contingencies. FTA then determined the average cost for a new bus on the basis of information contained in recent grant applications. Since FTA specifies that the minimum useful life for a full-size bus is 12 years, FTA assumed that urban bus replacement needs were 1/12 of the bus fleet multiplied by the average bus cost identified above.

Rural bus needs were calculated similarly, except that FTA relied on a contractor for fleet size information. Information on rural transit systems is difficult to obtain, since rural operators are not required to report to FTA in section 15 reports, and many rural operators are small systems (often fewer than five vehicles). The Community Transportation Association of America (CTAA) prepared a 1986 fleet inventory of rural transit operators under a contract to FTA. FTA multiplied the fleet, divided by an average useful life of 5 years (since rural buses are smaller and less durable than urban buses), by the average vehicle cost to determine annual replacement needs.

Human service bus needs were calculated similarly to rural needs, except that FTA limited needs to only those vehicles purchased with FTA/DOT funds. CTAA prepared the estimate of the vehicles operated by FTA section 16(b)(2) recipients—nonprofit human service agencies. However, since many of these nonprofit human service agencies also receive vehicle funds from the Department of Health and Human Services (HHS), CTAA estimated that just over half of the fleets' vehicles were purchased with FTA 16(b)(2) funds. FTA then assumed that only one-half of the total vehicle replacement represented a "transit need." Replacement costs for these vehicles were based on average cost and a 5-year useful life. FTA multiplied the annual vehicle replacement costs by FTA's portion of the total fleet to determine the total replacement needs for human service transportation.

In addition to vehicle replacement needs, FTA included an amount for bus maintenance facilities (maintenance buildings, etc.). FTA assumed capital costs for bus facilities to be one-half the annual bus replacement costs for urban and rural providers.

[4]FTA collects this information in its annual section 15 reports. The 1988 section 15 reports were used to determine the maximum number of vehicles in peak service (vehicle inventory) for the 1991 report's calculations.

Rail needs were calculated differently than were bus needs. FTA based its rail needs projections on the 1987 Rail Modernization Study.[5] The study estimated the costs to restore the nation's rail transit systems to a "state of good condition" on the basis of the systems' 1983 conditions. The study did not include the cost of any service or technology improvements to the systems and was limited to only services in operation before 1983. Costs for new rail systems and new extensions to existing (pre-1983) systems were not included in the study.

FTA made two changes to information in the rail modernization report before including it in the 1991 needs report. First, FTA inflated the reported costs to 1989 dollars, since the rail modernization study used 1983 dollars for its calculations. Second, FTA calculated the amount of replacement and rehabilitation that had occurred since 1983. Because FTA was not able to identify whether improvements identified in the rail modernization study had been completed, FTA presented a range of remaining rail investment needs. The range reflected the percentage of total rail capital funds that may have been used to reduce the backlog of rail modernization needs between 1983 and 1989.

FTA's 1992 Report

FTA's 1992 report included three basic categories of existing transit system needs: maintaining current conditions, maintaining current performance, and the effects of recent legal requirements. FTA assumed that current conditions could be maintained by replacing rolling stock according to its present age, as opposed to its minimum useful life. To maintain current performance, FTA assumed that transit ridership would need to increase 8 percent over the next 10 years, which would match actual ridership increases over the last 10 years. Finally, FTA included the costs to meet Americans With Disabilities Act (ADA) requirements and discussed potential requirements that may be effected by the Clean Air Act Amendments of 1990 (CAA).

To maintain current conditions, FTA calculated the annual costs to replace the nation's bus and rail systems. Bus systems were divided into urban, rural, and human service fleets. The urban peak-service inventory was obtained from 1990 section 15 data. Unlike the 1991 report, which grouped all buses together, the 1992 report identified the number and replacement costs of several types of buses (full-size, mid-size, and small). Annual vehicle replacement costs were estimated to be the average bus purchase

[5]Rail Modernization Study: Final Report, April 1987, Gannett Fleming Transportation Engineers, Inc., prepared under contract to FTA.

price (by vehicle type) divided by twice the current average age of the vehicle fleet. This resulted in a slower replacement schedule than was used in the 1991 report, e.g., maintaining the current age of the fleet rather than replacing vehicles according to their minimum useful life. For example, the 1991 report assumed replacement of full-size buses every 12 years, FTA's minimum useful life. The 1992 report calculates costs based on replacing buses every 15 years, thus maintaining the current average bus age of about 8 years.

Since no information was available on the average age of the rural and human service operator fleets, FTA used average useful life. CTAA's estimates of these fleets were used to determine the vehicle replacement needs for the rural and 16(b)(2) operators. FTA included only about half of the 16(b)(2) operators fleets' needs in its replacement needs, as it did in its 1991 report.[6]

FTA's 1992 report treated bus facilities differently from its 1991 report. Whereas the 1991 report assumed that replacement needs for bus maintenance facilities were roughly half of annual vehicle purchases, the 1992 report includes both maintenance and nonmaintenance facilities (e.g., shelters, transit malls, etc.). The costs for both types of facilities were estimated to be equal to annual vehicle replacement costs, since FTA grants for all facilities have averaged about the same as bus purchase grants. FTA assumed that rural and human service bus facilities (maintenance and other) are only half of FTA-provided bus purchase grants, since these operators have fewer needs for nonmaintenance facilities.

Rail systems maintenance needs were based on the 1987 Rail Modernization Study (like the 1991 report). The study identified an annual amount of investment needed to bring rail systems to a state of good repair over a 10-year period. Since the Rail Modernization Study provided costs in 1983 dollars, FTA inflated the amounts into 1991 dollars and included this amount in its needs report.

FTA's 1992 report included cost estimates to comply with recent legal requirements, such as the ADA and the CAA. ADA requires operators to make fixed-route systems accessible to the disabled and to provide equivalent services for individuals unable (due to disabilities) to use fixed-route service. The CAA could require some transit operators to purchase only

[6]Only half of the fleet needs were included because CTAA estimated that just over half of all the vehicles were purchased with DOT funds. HHS also provides substantial assistance to these operators.

vehicles that could run on alternative fuels. FTA included costs to comply with ADA, such as installing lifts on buses, on the basis of DOT's ADA Regulatory Impact Assessment. Since CAA requirements for alternative fuels had not been determined, for informational purposes FTA presented costs of converting transit fleets but did not include these costs in its total needs projections.

FTA's 1992 report included costs to maintain the "performance" of the nation's transit systems, defined as continuing the recent ridership growth trends, in its treatment of existing system needs. FTA estimated the additional dollars needed to maintain performance levels in terms of meeting continuing transit growth. During the 1980s transit ridership increased 8 percent, or about 0.8 percent per year. FTA assumed for the purposes of projecting needs that a 0.8 percent increase in the number of vehicles would result in an additional 0.8 percent increase in the number of passenger miles. FTA provided for 0.8 percent annual rail ridership growth by including cost estimates for additional rail cars for existing systems and some additional capital funds for new-start rail projects. However, FTA likely underestimated the costs of new rail service, because it based its projections on forecast costs that were all exceeded by actual costs.

AASHTO's 1988 Report

AASHTO presented several types of needs for maintaining the nation's transit systems, including capital maintenance, human service transportation, and operating assistance. In calculating the costs for these different needs, AASHTO did not utilize any original sources of data for its projections, relying instead on FTA section 15 and APTA survey data.[7] AASHTO's total projections of need differ significantly from those in both FTA reports because AASHTO assumed that transit needs include more than just capital maintenance costs.

To quantify capital maintenance needs, AASHTO assumed that transit vehicles should be replaced at a rate that would maintain the current average age.[8] Accordingly, AASHTO calculated the annual needed expenditure to replace the current bus and rail (car) fleet (similar to the methodology used by FTA for bus facilities in its 1991 needs report). The

[7]AASHTO acknowledged in its report that the level of accuracy among different data sources varied, since some information was based on surveys while other information came from actual audited filings and field studies.

[8]AASHTO also included the costs to reduce the average vehicle age to one-half the minimum useful life.

source of urban fleet information (both bus and rail) was 1985 FTA section 15 reports. The rural fleet size was based on DOT's 1986 Directory of Rural and Specialized Transit Operators.

To determine facilities and equipment needs, AASHTO used different sources of information. Unlike FTA, AASHTO did not assume that bus facilities and equipment needs were proportionally related to annual vehicle replacement costs. Instead, AASHTO based its bus facilities estimates on the results of a 1983 APTA survey of transit operators in which respondents reported what they considered to be their future needs. For rail facilities needs, AASHTO used FTA's Rail Modernization Study instead of APTA's survey. Overall, the different data sources used for calculating current capital infrastructure did not result in a large difference between AASHTO's and FTA's estimates of capital maintenance needs (see table I.1).

Human service transportation needs were assumed to include the replacement of all vehicles for FTA 16(b)(2) operators' fleets. Like FTA, AASHTO relied on CTAA's estimate of the nation's section 16(b)(2) operators' fleets. Unlike FTA, AASHTO included replacement costs for the entire fleet, rather than limiting the number of vehicles to those originally purchased with DOT funds. Vehicle replacement costs were calculated by multiplying average vehicle costs by the number of vehicles needed to maintain the current average age of the fleet.

AASHTO included operating assistance needs in its discussion of maintaining existing systems. AASHTO obtained actual operating cost information from the 1987 Transit Fact Book prepared by APTA. To project future operating needs, AASHTO assumed that operating costs would increase at an annual rate of 4.1 percent. AASHTO then presented three different scenarios for operating revenues. The scenarios assumed that (1) current funding (federal, local, and passenger fare revenues) would remain constant; (2) passenger fare revenues would increase the same as the cost of inflation, with federal and local subsidies remaining constant; and (3) passenger fare revenues and local subsidies would increase at 4.1 percent, with federal assistance remaining constant. All three scenarios for future funding availability predicted that there would be insufficient funds to sustain current operations, resulting in cutbacks in existing services should new sources of revenue not be found.

APTA's 1990 Report

APTA's report presented the largest projection of existing transit systems' needs. APTA distinguished needs for passenger vehicle replacement,

passenger vehicle rehabilitation, service vehicles, maintenance facilities, and operating (nonmaintenance) facilities. APTA relied primarily on its own data collection for its needs report, although APTA compared its own sources with FTA's information (e.g., section 15 reports).

APTA projected needs on the basis of a survey of its operating members. Survey respondents were asked to report their total "needs," without considering existing or future financial constraints. APTA expanded the actual reported needs to reflect the entire transit industry on the basis of the ratio of respondents to the total U.S. fleet (by vehicle type), not including human service transportation other than that provided by FTA section 9 grantees.[9] APTA's responding operating membership included primarily urban operators, which represented most of the nation's rail fleet and more than half of the nation's bus fleet.

Assumptions Made to Determine Expanded and Improved System Needs

While all four needs reports generally agreed that the costs to maintain existing transit systems should be included in their projections, they disagreed on how expansion needs should be included, if at all (see table I.3). FTA's 1991 report did not include any expansion needs in its projections. FTA's 1992 report acknowledged that some unmet highway demand could result in greater demand for transit services and attempted to develop an estimate of the costs to provide these additional services. AASHTO's report included the projected costs of completing transit projects already approved by FTA for planning. APTA's report presented the most robust projection of future needs by including costs for all projects that transit operators stated were needed to meet their communities' transportation goals.

FTA's 1991 Report

FTA's 1991 report did not quantify expansion needs and stated that building new transit systems goes beyond maintaining the existing transit infrastructure. The report goes on to indicate that several new projects are under development, and several appear to have the potential to be cost-effective. However, the report does not quantify the costs of these projects and does not include them in its transit needs estimate.

[9]Limited human service by section 16(b)(2) grantees was included if these grantees were APTA members, although only a small number of these operators reported to APTA.

Table I.3: Assumptions Made to Determine System Expansion and Improvement Needs

	FTA—1991 report	FTA—1992 report	AASHTO—1988 report	APTA—1990 report
Bus systems:				
Vehicle replacement	NA[a]	Reduction of avg. bus age to one-half minimum useful life	Included in existing system maintenance needs	1990 APTA survey of transit operators polled operator needs
Vehicle rehab	NA	NA	NA	1990 APTA survey of transit operators
Service vehicles	NA	NA	NA	1990 APTA survey of transit operators
Maint. facilities	NA	Ratio of vehicle grants (1:1)	NA	1990 APTA survey of transit operators
Operating facilities	NA	Included in maint. facilities above	NA	1990 APTA survey of transit operators
Service expansion	NA	Added bus capacity to serve increased passenger trips (10 percent of unmet highway demand)	Bus-related new-start projects, already receiving FTA funds (FTA's pipeline)	Bus-related new-start projects, (FTA's pipeline) or 1990 APTA survey of operating members
Non-DOT-funded systems	NA	NA	NA	1990 APTA survey of operating members
Rail systems:				
Vehicle replacement	NA	1987 Rail Modernization Study (RMS)	Included in existing system maintenance needs	1990 APTA survey of transit operators polled operator needs
Vehicle rehab	NA	1987 (RMS)	NA	1990 APTA survey of transit operators
Service vehicles	NA	1987 (RMS)	NA	1990 APTA survey of transit operators
Maint. facilities	NA	1987 (RMS) plus FTA estimates for improving condition of older rail facilities	1987 (RMS)	1990 APTA survey of transit operators
Operating facilities	NA	Included in maint. facilities above	1987 (RMS)	1990 APTA survey of transit operators
Service expansion	NA	NA[b]	Rail-related new-start projects, already receiving FTA funds (FTA's pipeline)	Rail related new-start projects, (FTA's pipeline) or 1990 APTA survey of operating members
Human service systems:				
Vehicle replacement	NA	NA	NA	NA
Vehicle rehab	NA	NA	NA	NA
Service vehicles	NA	NA	NA	NA
Maint. facilities	NA	NA	NA	NA

(continued)

	FTA—1991 report	FTA—1992 report	AASHTO—1988 report	APTA—1990 report
Operating facilities	NA	NA	NA	NA
New ADA-required services	Regulations did not exist when projection was made	Compliance costs taken from ADA regulatory impact assessment[c]	Regulations did not exist when projection was made	Regulations did not exist when projection was made
Service expansion	NA	NA	Statement that growing elderly population could increase needs	NA
Non-DOT-funded systems	NA	NA	NA	NA

[a]NA indicates that this element was not addressed.

[b]FTA calculated that 10 percent of the unmet demand for highway lane-miles could result in increased transit ridership. For needs projection purposes, FTA quantified the costs of providing this increased service via buses, although it acknowledged that some of the actual increase in ridership would occur on rail systems.

[c]DOT prepared a regulatory impact assessment to determine the cost to comply with ADA.

FTA's 1992 Report

To demonstrate the cost to improve the condition of the nation's bus systems, in 1992 FTA included costs to reduce the average age of the bus fleet and bus facilities to half their minimum useful life, which requires replacing vehicles faster than had been occurring. Using information on the average age of the urban fleet from its section 15 reports, FTA calculated the accelerated replacement costs that would be required to achieve the optimal vehicle age (half of the minimum useful life) in the urban fleet over a 10-year investment period. Unlike urban fleet ages, no data were readily available on the age or condition of urban bus maintenance and nonmaintenance facilities. Therefore, FTA assumed that the costs of eliminating the backlog of deferred facilities needs would equal annual vehicle replacement needs (similar to the assumption made in the "maintain" scenario above). As noted earlier, information on the average age of the rural and specialized fleets and facilities was not available; thus, costs to eliminate a backlog of needs were not included in FTA's 1992 report.

To improve the condition of the nation's rail systems, FTA included costs to restore rail cars and facilities to good condition. As noted earlier, the 1987 Rail Modernization Study identified annual expenditures (in 1983 dollars) that were needed to eliminate the backlog of deferred maintenance and restore rail systems to "good" condition over a 10-year period. FTA inflated this amount into 1991 dollars and included it in the report. FTA acknowledged that current standards have changed significantly since the

old systems were built. Consequently, FTA estimated the annual costs to bring these very old systems to current standards over a 20-year time period and included this amount in its needs assessment.

To improve the performance of the nation's transit systems, FTA included costs to provide added transit capacity to meet potential future demand for services. The source for increased future demand stems from the Federal Highway Administration's 1991 highway needs report, which forecasted that demand for about 34,000 lane-miles of highway capacity could be replaced by aggressive system and demand management. FTA assumed that 10 percent of the passenger miles of travel that would have been served by these lane-miles could potentially result in additional transit ridership. FTA calculated the costs to meet all of this potential ridership through expanded bus services, on the basis of the current reported average cost per bus passenger mile. FTA acknowledged that it is unlikely that all new service would be provided by buses and that rail costs exceed those for buses, but stated that bus capital costs could serve as an estimated amount for increased transit service. In addition, by using current average costs rather than marginal costs (the incremental cost to provide new services), FTA potentially understated the costs of this ridership growth. The marginal costs to increase ridership are likely to be higher than current average costs, because operating expenses increase (because efficiencies decline) as service is extended into less densely populated areas.

AASHTO's 1988 Report

AASHTO included the costs of constructing new-start projects in its discussion of transit needs. AASHTO included those transit projects that were in FTA's "pipeline"—projects that had been approved by FTA for preliminary planning and analysis, final design, and/or construction as of July 1987. In addition, AASHTO included costs to complete a list of high-occupancy vehicle and busway projects over the 1988 through 1992 time period.[10]

APTA's 1990 Report

APTA's report presented the largest estimate for expanded transit system service needs. APTA based this estimate on its 1990 survey of operating members' needs. APTA's survey asked transit operators to report all projects that were needed "to meet their communities' transportation goals." APTA officials told us that the resulting projections represented

[10]The projections were based on an APTA survey of costs to complete proposed HOV and busway projects from 1988 through 1992.

needs without regard to financial constraints. While it is true that APTA presented the greatest needs estimate, we were told by state and local officials we visited that they did not provide APTA with an unconstrained list of projects. Transit operators stated that they did not provide an unconstrained list of needs since their planning efforts reflect financial constraints. Nevertheless, APTA's projection was the largest of the four projections studied.

Objectives, Scope, and Methodology

The objectives of our study were to identify (1) why FTA's, AASHTO's, and APTA's transit needs projections varied, (2) what other factors could affect the accuracy of these transit needs projections, and (3) any opportunities for improving future transit needs projections. We made our review in response to section 3028 (a) of the Intermodal Surface Transportation Efficiency Act of 1991 (P.L. 102-240), which requires the General Accounting Office to study the extent to which current transit needs are adequately addressed and estimate the future transit needs of the nation.

To fulfill our three objectives, we (1) reviewed the individual needs projections and other relevant transportation literature; (2) interviewed officials at FTA (headquarters and one regional office), AASHTO, and APTA; and (3) interviewed state and local transportation officials in Massachusetts, New York, New Jersey, North Carolina, South Carolina, Alabama, Florida, and California. We chose these areas to provide variation by geographic region and types of mass transit available.

In order to compare and contrast the different needs projections, we calculated an annual amount by major need category for each transit need projection. FTA's two needs reports presented annual amounts; therefore, no change was required. However, AASHTO's and APTA's needs projections present total dollar amounts for a specific multiyear time period. For these two projections, we divided the total amount by the number of years to result in an average annual need amount, except as otherwise noted. Since all four needs projections were prepared at different times and reported in different years' dollars, we inflated all projections into same-year 1991 dollars to allow direct comparisons and to eliminate differences between the projections due to inflation.

Our review was conducted from April 1992 to November 1992 in accordance with generally accepted government auditing standards.

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