BY THE COMPTROLLER GENERAL

Report To The Congress

OF THE UNITED STATES

20 Years Of Federal Mass Transit Assistance: How Has Mass Transit Changed?

The Department of Transportation has spent over $30 billion to help improve mass transit. This report examines changes in transit service and ridership since federal assistance began and the extent to which they have resulted in the social, economic, and environmental benefits generally associated with mass transit improvements.

Federal funds have helped reverse the service and ridership declines that prompted federal mass transit funding. However, service costs have grown rapidly, and ridership gains nationwide have not increased transit's share of the commuting market.

Mass transit has helped address a number of urban problems of congressional concern such as traffic congestion, air pollution, energy consumption, and transportation for low-income, elderly, and handicapped persons. However, the general expansion of transit service may not be the most effective or efficient means of addressing these problems.

GAO/RCED-85-61
SEPTEMBER 18, 1985

COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON D.C. 20548

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The President of the Senate and the
Speaker of the House of Representatives

This report summarizes the results of our review which focused on describing the broad trends and general effects of federal mass transit assistance. It discusses changes in the provision and use of mass transit and examines transit's role in helping to mitigate various social, economic, and environmental problems confronting urban areas. We initiated the review because of the substantial federal investment in urban mass transit. The report is intended to assist the Congress in future deliberations concerning the federal mass transit program.

We are providing copies of this report to the Director, Office of Management and Budget; the Secretary of Transportation; interested congressional committees; and other interested parties.

Charles A. Bowsher
Comptroller General
of the United States

COMPTROLLER GENERAL'S REPORT TO THE CONGRESS

20 YEARS OF FEDERAL MASS TRANSIT ASSISTANCE: HOW HAS MASS TRANSIT CHANGED?

D I G E S T

Because of concern over the transit industry's deteriorating financial condition, decreasing availability of service, and declining ridership, the Congress enacted the Urban Mass Transportation Act of 1964, which authorized grants to local communities to improve existing mass transit systems and develop new systems. Over the past 20 years, the federal government has spent over $30 billion to help communities purchase transit vehicles, construct transit facilities, and subsidize transit operating costs. Such assistance, administered by the Department of Transportation's Urban Mass Transportation Administration (UMTA), has grown from $50.7 million in 1965 to over $4 billion in 1984.

The Congress envisioned that improving transit services would not only help stem ridership declines but also help solve various urban problems such as traffic congestion, air pollution, energy consumption, urban sprawl, and the unmet transportation needs of those, such as the elderly and the handicapped, who cannot afford or are physically unable to drive an automobile. Many of the anticipated social benefits depended, in part, on attracting automobile users to mass transit.

The federal role in mass transit and the amount of federal mass transit funding are complex issues which have been examined in the past and will likely undergo continued scrutiny as the Congress struggles to reduce the nation's budget deficit. Such issues require weighing program costs against anticipated benefits that sometimes are difficult to quantify--e.g., the cost of traffic congestion to urban society and the benefits of providing transportation for the physically or economically disadvantaged. The data and analyses contained in the report are intended to assist those individuals who are involved in the decision-making process regarding the federal involvement in mass transit. (See pp. 49 and 50.)

Tear Sheet

GAO/RCED-85-61
SEPTEMBER 18, 1985

Because of the large federal investment in mass transit, GAO reviewed (1) changes in transit service, using measures such as the amount of service provided, the cost of service, and the quality of service, (2) changes in ridership levels, and (3) the extent to which improved transit service has contributed to the broad social, economic, and environmental benefits generally associated with such improvements. GAO examined national data and supplemented them with case study data from five cities--Atlanta, Washington, D.C., Boston, Chicago, and Los Angeles--to present the perspectives of local transit systems and metropolitan planning organizations. Since it is impossible to say for certain how the transit industry would have fared without federal assistance, or to quantify precisely the effect of assistance received, GAO has instead focused on the broad trends and general effects of federal assistance.

GAO is providing this report to the Congress to use in its deliberations over future federal involvement in mass transit. The report provides data on mass transit's accomplishments since federal assistance began in 1965.

GAO found that federal assistance has helped to expand service and increase ridership--two principal concerns of the Congress. However, these improvements have been accompanied by rapidly rising transit deficits. Additionally, although social, economic, and environmental benefits are difficult to measure, in certain situations transit appears to help mitigate urban problems such as traffic congestion, pollution, and transportation for those without automobiles. However, the general expansion of transit services may not be the most efficient or effective means to address these problems.

GAO's analysis of mass transit is based mainly on nationwide average data for such factors as ridership and the cost of providing service. However, such national averages may not fully describe mass transit's impact on individual localities. Because of great differences between localities, caution should be used when generalizing about mass transit's impact using nationwide data. (See p. 7).

CHANGES IN THE AMOUNT, COST, AND QUALITY OF TRANSIT SERVICE

Nationwide, transit service has increased from about 2,008 million annual vehicle miles in 1965

to 2,128 million miles in 1982, about 6 percent. Thus, federal assistance, initially prompted by service level declines and the threat of some cities losing service entirely, appears to have helped stabilize and also increase the amount of service offered. Overall service growth included the addition of federally supported rapid rail lines in several cities. (See pp. 3, 10, and 11.)

While transit service has increased, nationwide inflation-adjusted operating costs per vehicle mile expressed in 1965 dollars rose from $0.72 in 1965 to $1.28 in 1982, about 78 percent. The cost growth has been largely attributed to increasing labor costs, declining labor productivity, and rising fuel costs. Similar to national trends, transit operating costs generally increased in the five systems GAO reviewed. However, in four of the systems the annual rate of cost growth had slowed down or costs actually decreased during the last few years. (See pp. 13 through 17.)

Some operating cost increases associated with labor are difficult for transit systems to control. For example, demand for transit service generally "peaks" during morning and evening rush hours. As a result, transit systems incur costs for the vehicles and people necessary to meet peak demand. However, during non-peak hours, much of the labor and vehicles are underutilized, adding to overall operating costs. Increasingly severe service peaking over the past decade has contributed to cost increases. In addition, increasingly complex vehicles (e.g., buses with air conditioning and wheelchair lifts) have also affected labor costs and productivity because they may require more frequent maintenance resulting in higher costs. (See pp. 15 through 20.)

Some researchers believe that the federal assistance program has not provided sufficient incentives for transit systems to control costs. For example, they noted that by subsidizing 80 percent of the price of new transit vehicles, the program may encourage premature vehicle replacement and capital expansion that a system cannot financially support. A Chicago Transit Authority official stated, however, that efficient capital investment decisions will be made as long as there are competing demands for limited resources. (See pp. 20 and 21.)

Tear Sheet

Operating costs at four of the five systems reviewed increased less rapidly or actually declined between 1980 and 1983 than in previous years. Transit officials noted that these improvements coincided with stabilizing or declining fuel costs and actions to control labor costs and improve labor productivity. For example, Boston transit officials believe that reducing the number of employees, reducing overtime, and contracting out certain services previously performed by the transit system have helped decrease inflation-adjusted operating costs from $2.79 per vehicle mile in 1981 to $2.45 in 1983. (See pp. 16 and 17.)

Service quality is difficult to evaluate because it can encompass many different and sometimes subjective measures such as service reliability, vehicle appearance, and passenger comfort. While no single measure captures all aspects of service quality, GAO focused on vehicle reliability because it is commonly used by the five transit systems examined and is accepted by UMTA.

Available national statistics, for 1980 through 1982, indicate that vehicle reliability has declined in about half the nation's transit systems having at least 100 vehicles. Many factors can affect vehicle reliability including vehicle age, complexity, quality, and maintenance practices. (See pp. 17 through 20.)

TRANSIT RIDERSHIP INCREASES SINCE FEDERAL ASSISTANCE

After a steady 20-year decline, transit ridership began to grow in the early 1970's, increasing from 5.3 billion passenger trips in 1972 to 6 billion in 1982, about 13 percent. Federal assistance helped to promote this growth by assisting service expansion and helping to stabilize fares. Ridership gains are also attributed to increasing gasoline prices during the 1970's and traffic congestion, both resulting in commuters' seeking an alternative to the automobile. (See pp. 24 and 25.)

While the total number of riders has increased, transit's share of the commuting market has declined. Bureau of Census data indicate that nationally the number of commuters using transit increased less rapidly than those using other forms of transportation such as the automobile. As a result, the percentage of the working population using transit decreased (from 9 percent in

1970 to 6.4 percent in 1980). Declines occurred in the North East, North Central, and South regions of the nation. However, the West experienced an increase in transit's share of the commuting market. An American Public Transit Association official stated, however, that if three transit-oriented cities were excluded from the base, transit's market share has actually increased nationwide.

Bureau of Census research indicates that the decline is related in part to factors external to transit, such as the suburbanization of population and employment centers and population declines in several cities. Several transit officials also commented that shifts in population and employment have affected transit ridership. However, when focusing on commuting to central business districts in major cities such as New York, Boston, and Chicago, the high percent of transit commuting relative to other modes suggests the fundamental importance of transit in these areas. (See pp. 29 and 30.)

Revenues generated by increased ridership have not kept up with increasing service costs. The resulting deficit, financed by federal, state, and local subsidies, increased steadily in inflation-adjusted terms from about 2 cents per passenger in 1965 to 27 cents in 1982. Policies designed to maintain low fares to attract riders have played a significant role in the growing subsidies. (See pp. 14, and 31 through 33.)

TRANSIT'S SOCIAL, ECONOMIC, AND ENVIRONMENTAL BENEFITS

Evaluating social, economic, and environmental benefits is difficult because many factors influence changes in these areas. To obtain information about transit's contribution in these areas, GAO relied upon literature identified as being widely respected by UMTA, the Urban Institute, the Transportation Research Board, and other research organizations. GAO also interviewed local transportation officials in the five cities reviewed. (See pp. 7, 8, 34, and 35.)

Services for the low-income, elderly and handicapped persons

Research and local transportation planners in the five cities GAO reviewed generally indicated that service expansion, stabilized fares, and special

transit services have benefited those who cannot afford or are physically unable to drive an automobile. Some research, however, noted that the transportation needs of the low-income might be more efficiently and equitably addressed by targeting specific subsidies for these riders rather than the current approach of subsidizing all riders. (See pp. 36 through 38.)

For the elderly and handicapped, transit systems have implemented programs such as half fares during non-rush hours, lift-equipped buses on scheduled routes, and special services available on request. Research indicates that such services are costly and are generally underutilized because of the availability of other forms of transportation and the existence of non-transportation-related barriers (e.g., buildings not accessible to the handicapped) which can inhibit travel.

An Atlanta transit official stated, however, that the system's half-fare program and its specially designed accessible bus services are not very costly and are generally well-utilized. (See pp. 38 through 40.)

Energy use, pollution and traffic congestion

Transit's impact on energy use, air pollution, and traffic congestion depends on diverting auto users to transit, thereby decreasing auto use. However, transit's commuting market share has declined over the last 10 years and represents only a small portion (about 3 percent) of all urban transportation trips. As a result, research indicates that significant improvements in air quality and energy conservation may be more effectively addressed through technological improvements to the automobile rather than increasing transit ridership.

Although the impact of expanded transit service on decreasing air pollution, energy usage, and traffic congestion appears to have been minimal, research and local planning officials pointed out that such problems would have been exacerbated in the absence of transit, especially in densely populated cities. (See pp. 41 through 46.)

Land-use impacts

Because the availability of efficient transportation can influence location decisions for commercial and residential development, mass transit was viewed as a tool to control urban sprawl and help

revitalize the nation's cities. Transit can influence urban development patterns, but its influence strongly depends on other factors such as the strength of a local economy and the existence of land-use policies conducive to development. (See pp. 46 and 47.)

Studies of San Francisco's new rail system, for example, noted that high density commercial development around downtown transit stations was partly attributed to the existence of the transit system along with other factors, the most significant being the existence of a strong regional economy. Along San Francisco's suburban rail routes, however, local opposition to extensive commercial development has resulted in less concentrated development. (See pp. 46 and 47.)

Local transportation planners in cities which had extended or initiated rail services believed that such services had influenced city land development patterns, citing increases in commercial construction around new rail stations. (See pp. 47 and 48.)

AGENCY AND INDUSTRY COMMENTS AND GAO'S EVALUATION

The Department did not disagree with GAO's findings and stated that the data appeared accurate and that GAO had done a reasonably good job in treating the subject. The American Public Transit Association stated that GAO's review is comprehensive in scope and in many respects provides a needed perspective on the federal mass transit program and the transit industry. However, it believed that the report's structure and overall tenor tend to understate transit's significant achievements over the last 20 years. It was specifically concerned that broad issues are addressed through the use of extremely limited and sometimes unreliable data and that GAO's use of aggregate data provides a single, over-simplified approach to discussing critical aspects.

Three of the four transit systems and one of the four metropolitan planning organizations that commented on the report also expressed concern about the report's overall tenor and some of the negative conclusions about transit which could be inferred. However, the four systems and the four responding metropolitan planning organizations generally agreed with the information contained in the report relating to their specific systems. (See apps. VIII through XVII.)

GAO outlined in the report numerous transit achievements since the introduction of federal assistance 20 years ago, including increased service and ridership levels, improved transit equipment, stabilized fares, and special services for the transportation disadvantaged. While such data do provide a general picture of changes in transit over UMTA's 20-year involvement, GAO agrees with the Association that aggregate data can hide specific trends and variations among local systems. In an effort to recognize the problems with aggregate data, GAO used local transit system case studies to provide some perspective on system variations. Also, GAO recognized that while there are limitations to the data used in its analyses, they were the best currently available. (See pp. 8 and 9.)

Contents

ILLUSTRATIONS

ABBREVIATIONS

APTA	American Public Transit Association
BART	Bay Area Rapid Transit
CTA	Chicago Transit Authority
DOT	Department of Transportation
GAO	General Accounting Office
MARTA	Metropolitan Atlanta Rapid Transit Authority
MBTA	Massachusetts Bay Transportation Authority
MPO	Metropolitan Planning Organization
SCRTD	Southern California Rapid Transit District
TRB	Transportation Research Board
UMTA	Urban Mass Transportation Administration
WMATA	Washington Metropolitan Area Transit Authority

CHAPTER 1

INTRODUCTION

The Department of Transportation's Urban Mass Transportation Administration (UMTA) is responsible for administering programs that provide state and local governments with grants to support mass transit. The Congress started providing such assistance in the early 1960's as a result of its concern over the deterioration of mass transit service. The Congress envisioned that federal support for efficient mass transit systems would help solve a number of urban problems, such as reducing traffic congestion and air pollution and providing transportation service for people who could not afford or were physically unable to drive automobiles. Federal mass transit grants have grown significantly from $50.7 million in 1965 to over $4 billion in 1984. Between 1965 and 1984, the federal government spent over $30 billion to assist in transit capital improvements such as vehicle purchases and facility construction and to subsidize transit operating expenses.

LEGISLATIVE HISTORY OF MASS TRANSIT ASSISTANCE

During the early 1960's, the Congress became concerned about the deterioration of mass transit service. It observed that the industry found itself in a vicious circle caught between rising costs and declining patronage and noted that between 1954 and 1963, 194 transit companies went out of business. In response to these problems, the Congress enacted the Urban Mass Transportation Act of 1964 (Public Law 88-365)--the first major mass transit legislation. It provided federal capital grants assistance to local communities on a two-thirds federal to one-third local cost-sharing basis. Its stated purposes were:

> "(1) to assist in development of improved mass transportation facilities, equipment, techniques and methods, (2) to encourage the planning and establishment of area-wide urban transportation systems . . . and (3) to provide assistance to state and local governments in financing such systems."

Over the years, the Congress has (1) increased the federal share of capital projects, (2) established an operating assistance program, and (3) established a formula grant program to allow grant recipients more flexibility in allocating federal resources between capital and operating needs. The following describes significant transit legislation since the 1964 act:

- --The Federal-Aid Highway Act of 1973 (Public Law 93-87) allowed federal funds designated for highway construction to be used for mass transit. The act also increased the federal share of transit capital projects from two-thirds to 80 percent.

--The National Mass Transportation Assistance Act of 1974 (Public Law 93-503) continued capital grant assistance and established a program of operating assistance to help defray up to 50 percent of a transit system's operating costs. Operating funds were allocated on a formula basis based on an urbanized area's population and population density.

--The Surface Transportation Assistance Act of 1978 (Public Law 95-599) revised the operating assistance allocation formula to include consideration of an urbanized area's quantity of rail service.

--The Surface Transportation Assistance Act of 1982 (Public Law 97-424) dedicated 1 cent a gallon of the federal motor fuel tax to support the capital grant program and reduced the federal share under this program from 80 to 75 percent. It also established a new formula grant program which provides grantees more flexibility in determining the types of capital and operating projects to finance. Maximum federal participation in capital projects under this program is 80 percent while the federal share of operating assistance cannot exceed 50 percent.[1]

ENVISIONED BENEFITS FROM MASS TRANSIT ASSISTANCE

In addition to providing assistance to help the financially troubled transit industry maintain or improve service, the Congress believed that improved mass transit systems would benefit more than just those persons who used the service directly by helping mitigate some of the broad social, economic, and environmental problems facing the nation's cities. The 1964 act, for example, justified federal mass transit assistance in part on the basis that "the welfare and vitality" of urban areas was in jeopardy due to the deterioration of urban transportation service.

Over the years, the Congress and UMTA have identified a wide number of problem areas that improved transit was expected to help solve. These included urban traffic congestion, energy consumption, air pollution, uncontrolled and undesirable land development (e.g., urban sprawl), and service for those who cannot afford or physically cannot drive automobiles (e.g., low-income, elderly, and handicapped persons). Anticipated benefits in these areas have been used to justify federal mass transit assistance in

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[1]UMTA commented that we did not go beyond the specific langauge in the legislation to determine the congressional intent of the program. This is not the case. To determine the program's intent, we reviewed numerous documents in addition to the program's enabling legislation, including House and Senate reports and hearings transcripts.

general and, more specifically, to justify individual mass transit projects.

SIGNIFICANT FEDERAL INVESTMENT IN MASS TRANSIT

Between fiscal years 1965 and 1983, UMTA provided about $31 billion in federal assistance to the transit industry. About $24 billion (77 percent) has been used for capital projects while about $7 billion has been used to help subsidize transit operating expenses. Federal assistance has grown dramatically from $50.7 million in 1965 to over $4 billion in 1984. This growth has been accompanied by a shift in service from the private sector to the public sector.

Focus of federal assistance

Capital assistance[2] has been used predominantly for rail-related projects and has been concentrated in relatively few cities. About 66 percent ($15.8 billion) of the $24 billion in capital grants has supported such rail-related projects as constructing new rapid rail systems in eight cities, extending rapid and commuter rail systems in five other cities, and purchasing about 6,400 subway and commuter rail cars.[3] About 32 percent in capital grants has been used for bus and bus-related projects, including the purchase of over 54,000 buses and the construction of busways in three cities.[4]

Federal operating assistance has grown from $142.5 million in 1975 to $887.9 million in 1983. Operating grants, distributed to urbanized areas[5] on a formula basis, are intended to help transit systems defray service operating costs. Currently, about 373 urbanized areas are eligible to receive operating assistance. The American Public Transit Association (APTA)--a national organization representing the transit industry whose membership carry 94 percent of all transit riders in the United States--estimates, however, that only 340 to 350 urbanized areas actually request UMTA grants. Some urbanized areas do not have transit systems and therefore may not need funds. In addition, some other urbanized areas do not receive funds directly from UMTA.

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[2]UMTA provides capital assistance primarily through its Section 3 (discretionary grants) and Section 9 (formula grants) Programs.

[3]Several of the new rapid and commuter rail systems and line extensions are still under construction.

[4]Busways are special highway lanes constructed expressly for use by high occupancy vehicles such as buses and carpools.

[5]Urbanized areas are geographic locations designated by the Bureau of the Census.

Service shifts from private to public sector

After federal assistance began, the percentage of vehicles operated by public authorities versus private companies increased from less than 50 percent to its 1982 level of 91 percent. Industry officials indicated that this shift occurred basically because private companies found it increasingly difficult to operate transit services profitably. According to industry officials, many municipalities faced with the prospects of private operators ceasing business and the availability of federal assistance, adopted public ownership of the failing private systems.

OBJECTIVE, SCOPE, AND METHODOLOGY

We initiated this review because of the substantial federal investment in mass transit. The objective of our review was to provide the Congress an overview of how mass transit has changed since federal assistance began. In doing so, we addressed the following questions:

--What changes have taken place in mass transit service with respect to the amount of service provided, the cost of providing service, and service quality?

--What changes have taken place in transit ridership?

--To what extent have the social, economic, and environmental benefits associated with transit been realized?

The answers to each of these questions are an important aspect of the program's overall impact from the standpoint that, in theory, improved transit service will attract more riders or certain types of riders (the elderly and the handicapped), which in turn will lead to a number of broad social, economic, and environmental benefits. For example, the Congress envisioned that improved transit could divert automobile drivers to transit. As a result, automobile usage would decrease, or not grow as rapidly, which could help relieve energy use and air pollution problems. It is impossible to say with certainty how the transit industry would have fared had there been no federal assistance or to quantify the precise effect of the assistance received, and we have not attempted to do either. Instead, we have focused on the broad trends and the general effects of federal assistance. We are providing this report to the Congress to use in its deliberations over the future federal role in and the funding of mass transit. It provides general data on mass transit accomplishments since federal assistance was initiated in 1965.

Our overall approach to each of the three questions addressed in the review was to analyze national data and supplement them

with case study data from five transit systems and their associated metropolitan planning organizations (MPOs).[6] We used case studies to present a local perspective on the issues addressed in the review. The results of our work at these systems cannot be projected over the 350 transit systems nationwide. The transit systems reviewed were the Metropolitan Atlanta Rapid Transit Authority (MARTA), Washington Metropolitan Area Transit Authority (WMATA), Southern California Rapid Transit District (SCRTD), Massachusetts Bay Transportation Authority (MBTA), and the Chicago Transit Authority (CTA).[7] These transit systems were chosen primarily on the basis of high percentage of federal capital grants and geographic dispersion (different local environments can affect transit operations in various ways--a harsh climate, for example, may contribute to increased operational problems for transit vehicles). The cities served by these systems have been allocated over one-third of all capital grants and represent a mix of new and old systems. All of the transit systems we reviewed were publicly operated. Chicago's and Boston's transit systems are the oldest public systems, having become public in 1945 and 1947, respectively. Los Angeles assumed direct operational control of its transit system in 1958, Atlanta in 1972, and Washington, D.C., in 1973.

To evaluate changes in the cost, quantity, and quality of transit service, we obtained data and analyzed annual trends for selected service performance measures. In order to identify key performance measures, we asked each of the five transit systems what measures they would use to evaluate trends in the provision of service. On the basis of their responses, we generally focused on measures that were similar within the systems we examined and were generally accepted within the industry (see apps. II through VII). In addition to identifying performance trends in each of the five transit systems, we obtained explanations for the trends from appropriate local transit officials who manage the systems. All cost-related measures were converted into 1965 constant dollars using the gross national product (GNP) implicit price deflator. (The implicit price deflator is an index which can be used to factor out cost increases due to inflation.)

APTA and CTA commented that using the GNP price deflator index to analyze transit cost trends, rather than a transit-specific index, may not accurately reflect some factors

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[6]MPOs are local planning organizations designated by state governors to plan and coordinate an urban area's transit and highway development.

[7]The CTA is responsible for providing bus and rail service primarily within the city of Chicago while the Northeast Illinois Railroad Corporation (NIRC) is responsible for commuter rail service in the Chicago area. While our report concentrates primarily on the CTA, a summary of NIRC's operational and financial performance is shown in appendix VII.

contributing to escalated costs. CTA noted that one transit authority computed a specific transit price index. The transit authority, using the index to trend transit costs over the 1970-77 period, found that transit costs increased considerably faster than the general inflation rate. We recognize that a transit-specific index could be developed, as the CTA pointed out. However, the GNP price deflator index has been used in other transit research to analyze cost trends in the transit industry. Further, we recognize on page 22 that (1) certain cost components (e.g., labor costs, fuel costs) have escalated at rates beyond the general inflation rate of the economy and (2) certain factors that influence costs are not totally within the control of transit systems (e.g., vehicle complexity, energy costs, rush hour passenger loads).

To examine changes in transit ridership, we obtained and analyzed annual transit passenger statistics at each of the five systems (see apps. II through VI). We also compared, when possible, ridership trends with trends in the amount of service offered, fares, and the use of other transportation such as the automobile. Similar to our approach with service measures, we obtained transit officials' explanations for ridership trends at each system.

Other than overall trends, precise comparisons of transit performance and ridership data cannot be made among the transit systems we reviewed because of differences in their operating characteristics. Factors which can affect a transit system's operation trends include size, age, modal-mix (e.g., bus and/or rail), and management practices. Because of these same factors, actual comparisons cannot be made of an individual transit system's performance and ridership data against nationwide aggregate trends. Comparative analyses of systems are further complicated by the fact that until recently there was no national uniform accounting or data collection systems.[8] Thus, while transit systems may use the same general performance measure, the definitions of the components of that measure could vary and misleading comparisons could result. Additionally, in each of the five systems reviewed, we attempted to obtain service and ridership data beginning in 1965 (the start of federal assistance) or since the system became public, whichever came most recently. However, data were not always readily available. As a result, the trend analyses of the five systems contained in this report generally start in 1975--the earliest date that most statistics were available from all five systems.

In addition to examining service and ridership trends at each of the five systems, we analyzed similar data at a national level. National trend data were obtained principally from the American

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[8]The National Transportation Assistance Act of 1974 directed UMTA to develop a uniform system of records and accounts under a uniform reporting system for all mass transit grantees. Data collection under the new system began with fiscal year 1979 data.

Public Transit Association and UMTA, and exclude commuter rail data. To obtain explanations for national trends, we reviewed various studies, including several which were sponsored by DOT (see app. I for bibliography), and discussed the trends and study results with an UMTA official.

APTA and CTA commented that the use of national aggregate data to chart service performance and ridership trends can disguise significant changes within time periods and variations among systems. As APTA pointed out, system operating characteristics vary, and the use of federal funds by transit systems nationwide also varies. We agree that there are variations in system operating characteristics. Further, we agree that aggregate trend data can mask changes which occurred within the overall period analyzed in the report. While we believe, as do transit analysts, that an examination of nationwide aggregate trends is useful for identifying overall change in the industry, caution should be used when generalizing about mass transit's impact using nationwide data. Further, we used our transit system case studies to show variations among systems and to acknowledge changes that occurred between time periods.

To examine transit's social, economic, and environmental benefits at each of the five transit systems, we reviewed available studies and obtained MPO comments on transit's impact in the following areas:[9]

--Decreasing urban traffic congestion.

--Improving air quality.

--Providing service for the transportation disadvantaged (e.g., low-income, elderly, and handicapped persons).

--Promoting controlled urban land development.

--Decreasing an urban area's energy needs.

For a national perspective on the above benefits, we requested various research and government organizations to provide literature references for each of the areas identified above. These organizations included the Congressional Research Service, the Transportation Research Board, the Congressional Budget Office, the Urban Institute, and UMTA. Many of the literature citations we obtained from these sources only indirectly addressed

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[9]In many cases only limited data were available at the local level concerning transit's impact in these areas. We therefore largely relied on MPO officials' judgments and opinions to obtain a local perspective of social, economic, and environmental benefits.

transit benefits. Thus, our discussion of transit's benefits relies heavily on research done by Alan Altshuler--The Urban Transportation System: Politics and Policy Innovation, 1979--and John Meyer and Jose Gomez-Ibanez--Autos, Transit and Cities, 1981. (See app. I for a complete bibliography.) These researchers were widely respected by the organizations we contacted. However, we did not evaluate the analyses of the researchers cited in the report.

In collecting statistical data for this report, we used many different data systems, including those at the five transit systems, UMTA, and APTA. It was, therefore, impractical for us to verify the accuracy of each data system. Other than this, our review was conducted in accordance with generally accepted government auditing standards. We performed our review between April 1984 and January 1985.

AGENCY AND INDUSTRY COMMENTS AND GAO's EVALUATION

We requested written comments on a draft of this report from the Department of Transportation, the American Public Transit Association, the five transit systems we reviewed, and their associated metropolitan planning organizations. We did not receive comments from one transit system, the Massachusetts Bay Transportation Authority; and one metropolitan planning organization, the Southern California Association of Governments.

The Department did not disagree with our findings and commented that the data appear to be accurate and that we prepared a reasonably good analysis of the subject matter. The American Public Transit Association commented that the report is comprehensive in scope and, in many respects, provides a needed perspective on the federal transit program and the transit industry. APTA believed, however, that the structure and tone of the report understate mass transit's significant progress and achievements in the last 20 years. It was particularly concerned about our use of aggregate data to portray national trends, because the data are not reflective of such differences as system size or modal-mix. It also stated that some broad issues were addressed using extremely limited and sometimes unreliable data.

Three transit systems and one metropolitan planning organization expressed concern about the report's overall tenor and some of the negative interpretations about mass transit which, in their opinion, could be inferred from the report. One of the transit systems stated that while the report was basically a fair representation of recent trends in transit, it believed that the report understates some of transit's social, economic, and environmental benefits. Overall, however, the four transit systems and the four responding metropolitan planning organizations generally concurred with the specific facts contained in the report and made suggestions to clarify specific points related to their transit systems.

Our report does outline several noteworthy benefits associated with the initiation of federal transit assistance, including service and ridership increases, modernized transit fleets, stabilized average fares, and specific services for the transportation disadvantaged (e.g., the elderly and the handicapped). Further, we acknowledge that aggregate data can mask notable changes within periods and differences among systems. Our five transit case studies were used to point out system variations and changes between time periods. Aggregate long-term data do provide a good overall national perspective for the 20 years of federal mass transit assistance and are generally used for analysis purposes by UMTA and other transit researchers. As we stated previously, caution must be used in generalizing about such data. For our analysis, we used the best available data, recognizing their limitations throughout the report. We have evaluated all the comments received and have incorporated the comments and our evaluation, where appropriate, in the final report. (See apps. VIII through XVII.)

CHAPTER 2

CHANGES IN MASS TRANSIT SERVICE

The growth of federal mass transit assistance since 1965 has been accompanied by changes in the quantity of service offered, service costs, and service quality. Trends in each of these areas are summarized below:

--The amount of transit service offered nationwide as measured by transit vehicle mileage increased by 6 percent between 1965 and 1982, reversing the steady declines which prompted initial congressional concern. Included in this increase were new rail systems in cities which previously had bus-only systems.

--Costs of providing transit service have increased more rapidly than inflation. Such growth has been attributed to rapid labor wage gains, increased fuel costs, and decreased labor productivity. Some factors affecting cost growth are not directly within the control of transit systems.

--Limited data are available on vehicle reliability--an aspect of service quality. However, data for 1980 through 1982 show that buses in half the transit systems that operate at least 100 buses have become less reliable. Reliability problems can be associated with a number of factors such as poor preventive maintenance, poor quality vehicles, and bad roads.

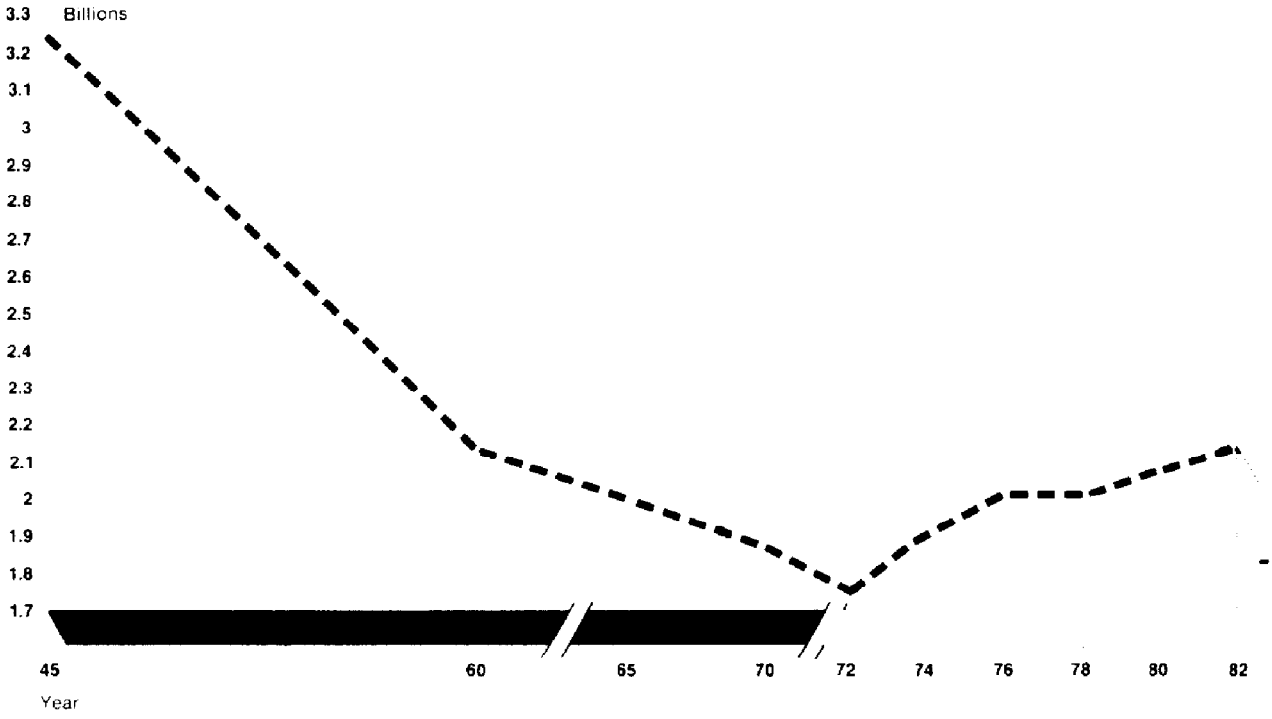
Until recently, receipt of federal assistance has not been linked to transit service performance in cost or other areas. Thus, some researchers believe that federal assistance has provided few incentives for improvements in these areas and may have contributed to the cost growth discussed above. However, the Surface Transportation Assistance Act of 1982 set aside portions of federal funds to reward transit systems that improved their cost efficiency.

AMOUNT OF SERVICE OFFERED HAS FLUCTUATED BUT GENERALLY INCREASED SINCE FEDERAL ASSISTANCE BEGAN

Prior to federal assistance in 1965, transit service levels had declined about 38 percent since 1945. A 1963 report by the House Committee on Banking and Currency noted that 105 urban areas had lost transit service entirely since 1954. In providing federal assistance for mass transit, the Congress was initially concerned with stopping this deterioration of transit service. While the amount of service has fluctuated since federal assistance began, the following graph shows that there has been a steady increase since 1972 and an overall net increase of 6 percent between 1965 and 1982 as vehicle miles increased from 2,008.2 million to 2,128.3 million. Service expansion reflects additional service

within city boundries as well as service expansion into the suburbs in response to population and employment dispersion.

Vehicle Miles Operated Nationwide 1945 To 1982



The graph, based on APTA statistics, shows annual levels of service nationwide as measured by vehicle miles of service offered, a commonly accepted measure of service quantity. Vehicle miles--the number of miles traveled by a transit vehicle (bus, subwaycar, or streetcar) in regular, charter, and nonrevenue service--is however a somewhat limited measure, because it does not take into account the passenger-carrying capacity of transit vehicles (e.g., a subwaycar can carry more people than a bus and thus offers more potential service per vehicle mile than does a bus). Long-term data on vehicle carrying capacity were not readily available and therefore not included in our review.

Service level trends varied between the principal transit modes with bus service expanding more rapidly than rail. Bus vehicle miles increased from 1,528.3 million to 1,668.8 million miles (9 percent) between 1965 and 1982 while rail[1] miles expanded from 436.9 to 445.8 million miles (2 percent) during the same period.

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[1]Excludes commuter rail (passenger trains on mainline railroads that provide commuter service between a central city and adjacent suburbs).

Service expansion varied among individual transit systems

Trends in service levels among the five systems we examined varied considerably. Service levels in Chicago and Boston, the two largest and oldest public transit systems in our review, declined or remained relatively stable between 1975[2] and 1983, while the remaining three systems expanded service. Additionally, of the three cities that expanded service, Atlanta and Washington added new rapid rail systems to their previously bus-only transit systems. The following summarizes trends in service levels at each system. Fleet-size data are based on 1982 Section 15 data. Further detail is contained in appendixes II through VI.

MARTA (Atlanta)--has a transit fleet of 885 buses and 120 rail vehicles. Between 1975 and 1983, MARTA increased its total annual vehicle miles of service offered from 27 million miles to 33.9 million miles, or about 26 percent. According to a transit official, service levels increased due to the addition of a new rail system, additional bus routes, and a decrease in the intervals between buses. MARTA is still bus oriented; about 85 percent of its total vehicle miles were bus related.

WMATA (Washington, D.C.)--has a fleet of 2,043 buses and 296 railcars. Between 1975 and 1983, WMATA increased annual vehicle miles of service offered from 53.6 million to 69.9 million miles, or about 30 percent. WMATA officials noted that adding a new 47-mile rail system and increasing the frequency of bus service expanded service considerably. As of 1983, about 75 percent of WMATA's systemwide vehicle miles were bus related.

SCRTD (Los Angeles)--has a fleet of 2,960 buses. Between 1975 and 1983, annual vehicle miles increased from 69 million miles to 103.3 million miles, or about 50 percent. SCRTD does not have a rail system.

CTA (Chicago)--has a fleet of 2,420 buses and 1,100 railcars. In numbers of transit vehicles, it is the second largest operator in the United States. Between 1975 and 1983, annual revenue vehicle miles[3] offered by the CTA decreased from 137.8 million miles to 128.8 million miles, or about 7 percent. Officials attributed the decline to service cuts resulting from a severe financial crisis and decreased demand for transit service resulting from population and employment declines in the city of Chicago

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[2]1975 was the earliest date that data were readily available from all five transit systems.

[3]The CTA maintained its data in terms of revenue vehicle miles as opposed to total vehicle miles. Revenue vehicle miles basically exclude the mileage in which transit vehicles are not involved in transporting passengers (e.g., trips to maintenance facilities).

and a recent 50-percent fare increase. Of the total systemwide vehicle mileage, about 38 percent is rail related.

MBTA (Boston)--Operates a fleet of 1,115 buses, 496 railcars, 300 streetcars (light rail transit vehicles operated on city streets), and 50 trolley buses. Total annual revenue vehicle miles of service offered dropped from 40.5 million miles in 1975 to 38.7 million miles in 1983. However, according to a transit official, rail vehicle mile increases during this period could have offset declines in bus service levels because of the larger capacity of rail vehicles compared to buses. About one-third of MBTA's total systemwide service in terms of vehicle miles is rail related, about 14 percent is streetcar and trolley bus related, and the remaining 53 percent is bus related.

COSTS OF TRANSIT SERVICE HAVE INCREASED SIGNIFICANTLY

Industry-wide, inflation-adjusted operating costs per vehicle mile, a generally accepted measure of service costs, increased by 78 percent between 1965 and 1982. In 1976 UMTA identified mounting operational and construction costs as a major problem in the transit industry. Research studies indicated and transit officials that we spoke with confirmed a number of factors contributing to cost increases, including rising transit labor compensation costs, decreasing labor productivity, and fuel costs rising faster than inflation. Several transit officials pointed out, however, that increasingly complex vehicles (e.g., introduction of lift-equipped buses and air conditioning) had also increased operating costs.

Because transit revenues, which are generated primarily by ridership, have not kept pace with increasing costs, deficits have also grown dramatically from 1965 to 1982, requiring increasing levels of federal, state, and local subsidies. The following chart, based on APTA statistics, illustrates trends in transit revenues and expenses in 1965 constant dollars.[4]

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[4]This chapter concentrates on discussing the service cost aspects of transit deficits while the next chapter, dealing with ridership, discusses the revenue aspects.

Year	Revenues		Expenses[a]		Operating profit (loss)	
	Total (millions)	Per vehicle mile	Total (millions)	Per vehicle mile	Total (millions)	Per vehicle mile
1960	$1,522.9	$.71	$1,489.7	$.70	$ 33.2	$.01
1965	1,443.8	.72	1,454.4	.72	(10.6)	(.00)
1970	1,388.1	.74	1,622.4	.86	(234.3)	(.12)
1972	1,289.9	.73	1,672.8	.94	(382.9)	(.21)
1974	1,251.4	.66	2,089.9	1.10	(838.5)	(.44)
1976	1,214.1	.60	2,167.1	1.07	(953.0)	(.47)
1978	1,178.8	.58	2,247.1	1.11	(1,068.3)	(.53)
1980	1,109.5	.53	2,602.7	1.24	(1,493.2)	(.71)
1982 est.	1,133.8	.53	2,716.9	1.28	(1,583.1)	(.75)

[a]Expenses for 1976-82 exclude depreciation, amortization, and other reconciling items.

Cost increases--a national perspective

Research examining industry costs has focused on labor as a key contributor to overall cost increases, because 70 to 80 percent of transit operating costs are labor related. For example, a 1981 DOT-sponsored study[5] pointed out that about 71 percent of the constant dollar operating cost increases between 1967 and 1976 were attributed to labor wage gains and productivity declines. Additionally, Meyers and Gomez-Ibanez (1977)[6] stated that "Even using the most optimistic estimates of the industry's performance, however, transit's record of productivity growth is substantially inferior to that experienced by most other industries." In addition to labor-related factors, research indicates that increased fuel costs also contributed to overall growth service costs. However, an APTA draft report on transit productivity, comparing changes in transit performance for 44 transit systems for the 1970-75 and 1975-80 periods, concludes that significant improvements in the transit industry's productivity occurred during the latter period. (See discussion on pp. 21 and 22.)

Labor compensation costs for the transit industry have increased rapidly since 1970. In a survey of 74 transit systems, a 1983 Harvard study[7] noted that average transit bus operator wages had doubled between 1970 and 1980. The study noted that this increase could have accounted for 60 percent of the increase in

[5]K.M. Chomitz and C.A. Lauve, Part-Time Labor, Work Rules and Transit Costs, January, 1981, p. 10.

[6]J.R. Meyer and J.A. Gomez-Ibanez, Improving Urban Mass Transportation Productivity, February, 1977, pp. 183-184.

[7]Don H. Pickrell, The Causes of Rising Transit Operating Deficits, July, 1983, pp. 86-87.

inflation-adjusted operating expenditures. According to Kemp,[8] most of the transit wage gains took place during the early 1970's, and from the mid-1970's on, wages have generally kept pace with other public employees' and industrial workers' wages. Kemp noted that the early gains may be in part a result of "catching up" for losses occurring during the height of transit's financial problems prior to federal assistance.[9]

In regard to labor productivity, UMTA and other research points to statistics showing losses in labor productivity over the years. UMTA, for example, noted that in terms of vehicle miles per transit employee (essentially a measure of output per employee), transit labor productivity dropped from about 13,500 miles per employee to 11,800 miles per employee between 1967 and 1979, or by about 13 percent. American Public Transit Association data through 1982 show a continuing decline in productivity.

Reasons for declining productivity and rising labor costs are complex. These problems have been attributed to, among other things, transit service peaking and certain federal regulations. Peaking is a transit service characteristic describing the high level of transit service needed during the morning and evening rush hours in order to accommodate maximum or "peak" passenger demand. Since transit authorities gear services--vehicles, operators, etc.--to meet demand during peak periods, these resources, including labor, are underutilized during off-peak hours. A 1982 study done by Pucher[10], revealed that bus system peaking in 50 large U.S. cities became more severe between 1960 and 1980. According to an UMTA official, this increase in peaking could be reflected, in part, in productivity declines.

A March 17, 1983, GAO report entitled Spreading Commuter Work Hours Could Reduce Transit Costs (GAO/RCED-83-17) also noted the increased costs associated with transit peaking. Using case examples, the report projected that significant savings could be achieved by reducing peak transit demand using variable work hour programs to spread employee arrivals into and departure from a city. While acknowledging that changing employee work hours is largely beyond the control of an individual transit system, the

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[8]M.A. Kemp with C.T. Everett, R.F. Kirby and F. Spielberg, Public Transport in Tommorrow's Cities, October, 1983, p. 4.

[9]APTA points out that the industry's financial problems prior to federal assistance played a role in the overall cost increases during the succeeding years. They note that prior to federal assistance, private transit systems had been forced to defer maintenance and eliminate routes and customer services in order to reduce costs. When public authorities took over, increased spending was needed to restore service and improve maintenance.

[10]John Pucher, A Decade of Change for Mass Transit, February 1982, pp. 4-5.

report recommended that the Secretary of Transportation direct UMTA do more to encourage state and local governments and transit authorities to promote variable work hour programs. In commenting on the report, the Department agreed with the benefits to be gained from reducing peak transit demand, but believed that actions to do so were the responsibility of state and local jurisdictions.

Increased costs in general and labor costs in particular have also been attributed to federal regulations. For example, Section 13 of the Urban Mass Transportation Act (49 U.S.C. app. §1609) conditions receipt of federal assistance on the grantee's assurance that the rights, privileges, and benefits of transit employees are protected. It was designed to protect transit employees who might be adversely affected by federal assistance grants or the public takeover of private transit service. According to Kemp, Everett, Kirby, and Spielberg, transit managers have argued that the Secretary of Labor's administration of the regulation has unfairly increased the bargaining power of labor unions, forcing transit authorities to make concessions they otherwise would not have made. The extent to which this has actually occurred is uncertain.

In addition to labor costs and productivity, research also cites the increase in fuel cost as a significant factor in the overall rise in transit costs. The 1983 Harvard study, for example, noted that inflation-adjusted fuel and electric costs increased by 164 percent between 1970 and 1980. In the study's survey of 74 bus systems, about 20 percent of the inflation-adjusted operating cost increases during the period could have been attributed to rising diesel fuel costs.

Rising costs--transit system perspective

Inflation-adjusted operating costs per vehicle mile in the five[11] transit systems reviewed generally increased between 1975 and 1983 (see apps. II through VI). All systems attributed at least part of the cost increases to labor costs and fuel costs. Additionally, the transit systems noted that transit vehicles have become more complex and therefore more difficult and costly to maintain. Although the long-term trends showed increased costs per vehicle mile, the annual rate of increase had slowed down or actually decreased during the 1980-83 period in four of the five systems.

Increasing labor costs were a primary concern of the transit systems we reviewed. A WMATA transit official noted that its current labor contract calls for cost-of-living increases of 6.5

[11]MBTA officials noted that the cost trend data for its system were unreliable. However, it was the only information available that went back at least to 1975. Additionally, SCTRD computed operating cost on a service hour versus vehicle mile basis.

percent, which is above the local consumer price index of 4.2 percent. Similarly, a MARTA official indicated that wages and fringe benefits between 1973 and 1983 had increased 34 percent more than the rate of inflation. Some of these compensation increases may be beyond the control of a transit system to influence. For example, SCRTD officials noted that state worker compensation legislation had contributed to a tripling of fringe benefits over the past 10 years.

Increased vehicle complexity was identified as a problem in terms of its impact both on productivity and on fuel costs. Officials at both MARTA and CTA, in explaining decreases in maintenance labor productivity, stated that buses have become more complex (for example, the addition of air conditioning and wheelchair lifts) and now require more maintenance to keep them on the road. CTA, in its comments on the report, noted that increased vehicle complexity is also related to federal research efforts and construction specification guidance. MARTA noted that new buses are heavier, which cause brakes to wear out faster and increases maintenance costs. SCRTD stated that the heavier buses consume more fuel. Commenting on cost increases experienced by the transit industry as a whole, SCRTD stated that increases beyond the general inflation rate are in line with other labor-intensive industries dependent upon petroleum. However, it pointed out that costs have been accompanied by various benefits, including more frequent and extensive service, air-conditioned vehicles, and better designed wheelchair lift-equipped buses.

According to transit officials, other factors contributing to cost increases were the initiation of rail service, increased public liability insurance costs, and high costs for replacement parts.

In four of the five systems we reviewed, costs had increased less rapidly or actually declined between 1980 and 1983. Officials in the four systems noted that the slowdown coincided with actions affecting labor or with stabilizing fuel costs. In regard to initiatives to control labor costs, for example, the state of Massachusetts in 1980 passed legislation reorganizing the MBTA and granting management tighter controls over long-standing labor practices. This led to many management initiatives during 1981 and 1982, including hiring part-time employees to work during peak hours, eliminating certain positions, and contracting out services such as vehicle cleaning at costs below those at which the transit system was previously able to perform such services. As a result, cost per vehicle mile in inflation-adjusted dollars dropped from $2.79 in 1981 to $2.45 in 1983.

TRANSIT SERVICE RELIABILITY

The Congress, in providing federal assistance, expressed concern about the quality of transit service. Service quality can include vehicle reliability, vehicle appearance, crowding, convenience, and the type of service offered (e.g., bus versus

rail). There is no single all-inclusive measure of service quality; therefore, we focused on vehicle reliability because it is a measure of service quality most commonly used by the transit systems we reviewed and is also used in UMTA section 15 reports. Because historical data on vehicle reliability are limited, we based our analysis of industry-wide trends upon the aforementioned Section 15 reporting system. This relatively new data base is the primary source of national data on which reliability is measured--vehicle miles between roadcalls.[12]

Based on an analysis of the section 15 data[13] for 1980-82, many transit systems showed declining trends in service reliability. Vehicle reliability depends on a large number of factors. Declines have been attributed to such factors as poor preventive maintenance, increasingly complex vehicles, and age.

GAO examined section 15 data for transit systems with at least 100 vehicles. The systems examined represented approximately 73 percent of the nation's bus fleet and all of the nation's rapid rail vehicles. The statistics indicate that buses in 40 out of 78 systems, or about half of the systems, became less reliable between 1980 and 1982. For systems whose vehicle reliability decreased, the average number of miles between breakdowns dropped from 3,624 to 2,639 miles, a decline of about 27 percent. Reliability trends did not appear to vary according to the size of the transit system. In regard to rail systems, three improved their reliability and six showed decreases from 1980 to 1982.

As noted earlier, many factors can affect vehicle reliability including age, quality, complexity, and operating environment (e.g., poorly maintained roads increase wear and tear on buses). While it is difficult to quantify the extent to which various factors can affect vehicle reliability, GAO and others have noted that preventive maintenance is not always adequately performed. Most industry officials believe that proper maintenance is important to improve vehicle reliability and to assure the maximum economic life of transit vehicles. Meyer and Gomez-Ibanez noted, however, that vehicle complexity may be even more important to reliability than the failure of transit systems to perform preventive maintenance.

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[12]APTA and CTA commented that trends in service reliability should not be based upon road call data, since definitional inconsistencies exist among reporting systems. We agree that inconsistencies exist and measurement problems can therefore result. As we point out in our discussion, however, this measure currently is the best one available and is used by the industry as well as UMTA.

[13]At the time of our review, section 15 data were available for fiscal years 1979 through 1982. However, UMTA officials advised us that data for the first year, 1979, were not reliable because of inconsistencies in interpretation of data requirements. We therefore did not use fiscal year 1979 data in our review.

Several studies have shown that some transit systems are not performing preventive maintenance on their fleets. For example, a DOT Inspector General report in July 1981 indicated that one large transit system had discontinued its preventive maintenance program in order to increase the amount of service offered. This resulted in the deterioration of its fleet: 29 buses purchased with federal assistance were taken out of service after 9 years although their expected life was about 15 years. More recently, a March 25, 1983, GAO report, DOT Needs Better Assurance That Transit Systems Are Maintaining Buses (GAO/RCED-83-67), stated that UMTA had little assurance that buses purchased with federal assistance were being maintained and that some large transit systems were not performing maintenance in accordance with their own maintenance schedules. The report recommended that UMTA develop flexible maintenance guidelines and that all federally assisted bus purchases be subject to maintenance certification and independent audit requirements under UMTA's new formula grant program. UMTA generally agreed with the report's findings and recommendations.

As we discussed previously, vehicle reliability is but one measure of service quality. SCRTD, in commenting on the draft report, pointed out that since the infusion of federal assistance, transit service has been increased, equipment has been improved, and service has been developed for those with mobility restrictions.

Transit system perspectives

Like data at the national level, long-term data on vehicle reliability were not always available for the five systems we reviewed. Variances in the availability of data beyond 3 years make it difficult to compare long-term trends among the systems. As such, each system is discussed individually. The most frequently cited factors influencing reliability trends were vehicle age and maintenance practices. Vehicle reliability trends for each transit system can be found in appendixes II through VI.

MARTA--Between 1973 and 1983 bus reliability generally improved. A MARTA official attributed the long-term improvement to the fact that MARTA purchased new buses, which reduced the average fleet age from 8.7 years in 1973 to 3.2 years in 1974. The new buses required fewer service calls. A recent short-term decrease in reliability was attributed to buses getting older and requiring more maintenance. Rail service reliability, as measured by on-time performance, has been measured at a minimum of 97.7 percent during the 4 years that data were available. Transit officials believed that the reliability of the rail system was helped by the relatively young vehicle fleet age.

WMATA--Between 1978 and 1983 bus reliability decreased, although more recently (1981-83) there has been a slight improvement. WMATA officials noted that prior to 1979 the bus fleet was

younger and more reliable. Declines were attributed to inadequate attention to preventive maintenance; poorly trained and insufficient numbers of mechanics; increasing complexity of buses; and shortages of critical repair parts. Recent improvements were attributed generally to increased management attention to maintenance. That attention resulted in a number of improvements to maintenance programs, including improved mechanic training and revised maintenance procedures and controls. WMATA's rail reliability improved significantly between 1979 and 1983. Improvements were attributed to the improved technical abilities of maintenance personnel and closer adherence to preventive maintenance schedules.

SCRTD--Service reliability improved between 1980 and 1983 (no earlier data were available). Officials attributed the improvement to their preventive maintenance program and special analysis of oil to determine component life and identify problems before they occur. Also, in 1981 the system introduced certain components of a new computerized information system to make preventive maintenance more visible and to improve methods for tracking problems.

MBTA--Service reliability at the MBTA, as measured in terms of missed trips, varied widely between 1976 and 1983. MBTA officials could not identify all the reasons for the variations. In general, however, they attributed decreases to a lack of management consistency, which was caused by high management turnover. Improvements were attributed to improved system management.

CTA--Vehicle reliability of CTA's bus operations fluctuated between 1978 and 1983; reliability generally improved over the last 3 years. A large downward trend between 1980 and 1981 was attributed to financial difficulties leading to deferred maintenance, while the recent improvements were attributed to new bus purchases. CTA's rapid rail reliability generally declined between 1978 and 1983. Although CTA officials were unable to fully comment on the trend, they did note that the purchase of air-conditioned rail cars during the mid-1970's resulted in frequent failures that contributed to the downward trend.

FEDERAL EFFORTS TO ENCOURAGE SERVICE EFFICIENCY

Originally, receipt of federal assistance was not tied directly to achievements in various aspects of the quantity, quality, or cost of transit service. In part because of this, some researchers believe that where costs are concerned, the federal grant program has not provided sufficient incentive for service efficiency. The Surface Transportation Assistance Act of 1982, however, provides incentives for transit systems to control costs and also emphasizes that transit systems perform proper maintenance--a key factor affecting vehicle reliability.

Some researchers believe that the capital and operating assistance program provided few incentives to control costs and may have contributed to the burgeoning industry deficits. Kemp,[14] for example, indicated that federal assistance had encouraged capital expansion beyond local operating support capabilities. His reasoning is based in part on the idea that a system receiving grant assistance pays only 20 percent of the cost of new capital equipment. This relatively small cost could promote the purchase of more equipment, which in turn could result in service expansion beyond the local system's ability to provide financial support. The relatively small local purchase cost was also thought to encourage early replacement of transit vehicles because poorly maintained vehicles could be replaced more frequently. In contrast, CTA's opinion was that the competing demands for limited resources of transit properties would tend to promote efficient capital investment decisions.

Researchers have indicated that operating assistance may have also weakened incentives to control costs. Pucher, for example, noted that urban systems receiving relatively large operating assistance grants have initiated or maintained highly unprofitable routes and types of service that local officials would probably not have been willing to support in the absence of subsidies.[15] Transit researchers have noted that the allocation formula for operating assistance may not have been geared to provide incentives for desired transit improvements such as increased ridership or cost control. Instead, operating assistance was first allocated solely on the basis of population size and density. Subsequent amendments to mass transit legislation introduced quantity of rail service as a factor for allocating operating assistance.

In commenting on the draft report, APTA took issue with research linking declines in transit productivity with the availability of federal operating assistance. An APTA draft study of transit productivity shows that transit industry productivity increased during the 1975-80 period, when compared with productivity in the 5-year period (1970-75) prior to the introduction of federal operating assistance. On the basis of its comparison of these two periods, APTA concludes that the improvements occurring during the latter period may have been fostered by the infusion of federal operating subsidies that were initiated and increased during this period. Its analysis is based on data obtained from a sample of 44 transit systems that, in 1980, accounted for 70 percent of all passengers carried and for 65 percent of total vehicle miles. National long-term trends for the various measures of productivity discussed in our report (i.e., cost per vehicle mile,

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[14]Kemp, 1983, pp. 7-8.

[15]John Pucher, Allocating Transit Subsidies: A Critical Analysis of Alternatives, 1983, p. 9.

cost per passenger) indicate declines in transit productivity. However, as noted previously, we recognize that trends can vary based upon the sample and time periods selected for review. As we discussed on page 9, the use of nationwide aggregate long-term data is a generally accepted practice among transit analysts and is considered useful for examining general trends in the transit industry.

Most recently, the Surface Transportation Assistance Act of 1982 established a new formula grant program, section 9, which includes a set-aside provision intended to serve as an incentive for transit systems to control their operating costs. Under the act, a small portion of these funds is distributed among transit systems based on operating cost per passenger ratios. Systems with lower ratios receive greater portions of the set-aside funds. Additionally, the act placed special emphasis on vehicle and facility maintenance by requiring grant recipients to certify annually that facilities and equipment will be maintained. The act requires annual UMTA reviews to assure, among other things, that the certification is accurate. The act is too new for GAO to evaluate the impact these changes may have on cost efficiency or vehicle maintenance.

SUMMARY

The financial condition of the transit industry in the early 1960's was deteriorating--many private transit services could not operate profitably, services were being reduced, and some companies were going out of business. Since federal assistance began, the significant decline in service levels (a decrease of 38 percent between 1945 and 1965) has not only stabilized but has increased slightly. Thus, it appears that federal assistance helped to mitigate a primary concern that prompted initial congressional action to provide assistance for mass transit.

However, when transit service trends are viewed from cost and reliability perspectives, improvement is less encouraging. Service costs have increased by 78 percent over the cost of inflation during the period of federal assistance, in large part related to labor and fuel cost increases. Cost increases have been exacerbated by transit peaking and increasingly complex transit vehicles. Notably, fuel cost increases, peaking, and vehicle complexity are in part beyond the control of transit systems. While cost problems associated with peaking are difficult to control, GAO has previously recommended in a March 1983 report that UMTA do more to encourage state and local governments to promote variable work hours and thereby reduce transit peaking. In addition, the MBTA's use of part-time employees has helped it to control costs associated with peaking. Regarding service reliability, half of the nation's systems with at least 100 vehicles during the 1980-82 period became less reliable.

Trends in service costs and reliability may in part be a reflection of the relative emphasis placed on maintaining or expanding service as opposed to controlling service costs, or improving service reliability. During the decade of the 1970's, UMTA's formula grant program was not tied directly to cost efficiency but to population density, service levels and population size. The Congress has since placed more explicit emphasis on controlling transit costs and indirectly on improving vehicle reliability. The Surface Transportation Assistance Act of 1982 contains incentives to reward cost-efficient systems. Additionally, it emphasized that systems perform adequate maintenance--an important aspect of service reliability.

As discussed in chapter 1, caution should be used in generalizing about changes in mass transit service based on aggregate data. As APTA points out, such data can hide mass transit's impact on individual transit systems when considering service costs and service reliability.

CHAPTER 3

TRANSIT RIDERSHIP DECLINES REVERSED

Nationwide transit ridership began to increase in the early 1970's after a 20-year decline; by 1982 transit accounted for over 6 billion trips annually. Federal grants have helped promote such increases through assisting transit service expansion and helping to stabilize transit fares. Other factors contributing to the ridership increases included rising gasoline prices and greater traffic congestion, both of which encouraged commuters to look to mass transit as an alternative to the automobile.

Despite ridership gains, the percentage of workers using transit versus other means of transportation has generally decreased from 9 percent in 1970 to 6.4 percent in 1980. These figures, however, understate the dependency of some cities on transit because they are based on all commuting in urban areas. Statistics on commuting to central business districts only show that transit carries a significant portion of commuters in some cities.

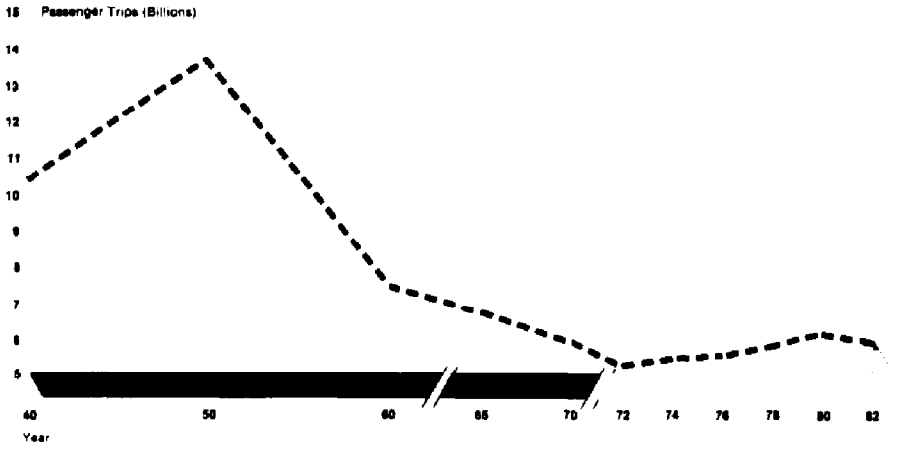
Additionally, the costs of providing service have increased more rapidly than passengers and revenues generated from ridership growth. As a result, the difference between cost per passenger and revenue per passenger (subsidy) has grown substantially in inflation-adjusted dollars from about 2 cents per passenger in 1965 to 27 cents in 1982. Part of the increase in subsidization has resulted from fare policies designed to maintain low fares in order to achieve other transit objectives, such as increasing ridership and providing transportation for low-income persons.

TRANSIT RIDERSHIP GROWS DURING PAST DECADE

When first authorizing federal assistance for mass transit, the Congress expressed concern over the dramatic decline in transit ridership, noting that between 1956 and 1960 the number of transit passengers had decreased by about 22 percent. In 1978, it stated that reducing nonessential auto travel and increasing use of transit were needed to preserve urban mobility. While ridership declines continued after federal assistance first began, between 1972 and 1982 ridership grew from 5.3 billion passenger trips to 6 billion--an increase of about 13 percent. Federal assistance, in part, contributed to this increase through grants for service expansion and through operating grants that helped reduce transit fare increases. However, many other factors have and will continue to influence transit ridership. Some of these factors, such as gasoline prices and population and employment locations, are beyond the control of a transit system operator's influence.

The following graph, based on APTA statistics, illustrates the trend in passenger trips since 1940.

Passenger Trips[a] Nationwide 1940 To 1982



[a] Includes transit trips taken by transit passengers paying full fare, reduced fare, or no fare; does not "double count" trips involving a transfer from one service to another; excludes charter trips. Prior to 1977, originating passenger trips excluded free-fare passengers.

Ridership grew rapidly during World War II as a result of the booming economy and gasoline rationing, with transit ridership reaching an all-time peak in 1946. After the war years, ridership declined quickly due to the shortening of the work week to 5 days, increasing suburbanization into areas not well served by transit, and expanding automobile ownership accompanied by low gasoline prices. After 1972, a reversal of the long-term ridership decline began. Factors contributing to this reversal included the increasing cost or unavailability of gasoline; declining average fares (the average fare declined from 22.4 cents in 1970 to 16.5 cents in 1980, or about 26 percent, in 1965 inflation-adjusted dollars); increasing traffic congestion; expanding bus service; and the development of several rapid rail transit systems.

Transit ridership trends vary among five systems--many factors influence trends

Between 1973 and 1983 ridership more than tripled in Washington, more than doubled in Los Angeles, and grew by about 16 percent in Atlanta. All three cities expanded their systems significantly during this period. Boston's ridership increased by 5 percent, and in Chicago ridership slightly declined; service levels in these two cities remained relatively stable or declined. (See apps. II through VI for ridership data.)

Many factors can affect ridership trends. Some factors such as service levels, fares, and service reliability are more within the control of transit authorities or local governments to influence. Others, however, are not within their sphere of influence. Such factors include changes in population, in employment and in the price of gasoline, all of which can influence transit ridership.

Controllable factors

Transit officials in at least three of the five systems we visited cited fares, the amount of service offered, and service quality (especially reliability) as important influences on ridership trends.

--Fares--Officials at all five systems noted the important relationship between fares and ridership levels. For example, MARTA officials attributed part of a 15-percent decline in ridership between 1980 and 1981 to a doubling of transit fares from 25 to 50 cents. Similarly, CTA's 50-percent fare increase in 1981 was followed by a 4.5-percent ridership decline partly caused by concurrent service cuts.

--Service levels--Transit systems that significantly expanded their services starting in the mid-1970's (SCTRD, WMATA, and MARTA) showed greater ridership growth rates than systems whose service levels declined or remained stable. In discussing service levels, a MARTA official noted a 17-percent increase in ridership between 1979 and 1980 after the authority opened the 12-mile portion of its rapid rail system. WMATA officials also attributed part of the general upward trend in ridership to the opening and expansion of its rapid rail system.

--Service quality--Transit officials in four systems stated that service quality had influenced ridership levels. MBTA officials, for example, noted that reliability problems between 1980 and 1982, during which the percent of missed trips increased from 2.21 to 3.58, contributed to a drop in ridership from about 158.3 million to 144.4 million trips. Similarly, WMATA officials noted that a recent short-term decline in systemwide ridership was in part due to decreases in vehicle reliability. In its comments, WMATA said that subsequent to the period of our review, significant improvements in bus and rail reliability have contributed to system ridership growth.

It is difficult to determine the relative influence any one of the above factors may have on ridership levels. However, some studies indicate that increases in service quality or reduced travel time may have a greater effect than fares. APTA pointed out in its comments that a relationship exists between transit ridership increases, service reliability, and convenience. It stated that reliability and convenience are the most critical factors attracting transit riders.

Uncontrollable factors

Changes in the size or location of population, changes in or relocation of employment centers, and fluctuating gasoline prices were the most frequently mentioned uncontrollable factors within the transit systems we reviewed.

--Population--The size of an urban area's population influences the number of potential transit users. Thus, increases or decreases in population can affect transit ridership. In Chicago, for example, transit officials noted a 10-percent decline in the city's population between 1970 and 1980 and stated that, in part, the decline had contributed to ridership losses. Conversely, SCRTD transit officials cited Los Angeles' growing population as one reason why ridership increased during the 1970's. In addition to the size of an urban area's population, the location of that population is also a factor. For example, a MARTA official noted that population in the Atlanta suburbs is increasing faster than in the downtown area. They added that MARTA found it is more difficult and costly to serve suburban areas because of the larger territory covered and fewer passengers.

--Employment--Because transit is largely geared toward transporting people to and from work, both employment levels and location can influence ridership. For example, CTA officials cited employment shifts from the city to the suburbs, areas less well served by transit, as a contributing factor in overall ridership decreases. Between 1972 and 1981, jobs in the city of Chicago declined by 9.3 percent while employment opportunities outside the city increased by 26 percent.

--Price of gasoline--Changes in the price of gasoline can change costs of using an automobile and therefore create incentives or disincentives for using transit. All transit systems noted that gasoline prices and/or availability had affected past ridership. For example, MBTA officials attributed an upturn in transit ridership from 1975 to 1980 to increases in gasoline prices and costs associated with using automobiles. Conversely, WMATA noted that part of the reason for ridership declines from 1980 to 1983 was the greater availability and stabilization of gasoline prices.

In addition to population, employment, and gasoline prices, transit officials identified parking fees as a negative influence on ridership. In theory, high parking fees make transit more desirable by raising the costs of automobile use to unacceptably high levels. But MARTA officials noted that parking in Atlanta was relatively inexpensive, while WMATA officials also cited low federal government parking rates and low or free private-sector rates.

OTHER PERSPECTIVES ON RIDERSHIP GROWTH

The Congress envisioned that improved mass transit at reasonable cost to the user would provide a viable alternative to the automobile. The previously discussed trend in transit ridership is one way of examining change toward this end. However, such a

perspective does not provide a complete picture of the significance of the trends. This section provides other perspectives on ridership trends which indicate that

--transit ridership has increased less rapidly than service expansion,

--transit ridership as a percentage of the commuting market has decreased, and

--revenues generated by ridership increases have not kept pace with the costs of providing transit service.

Intensity of transit use decreases

An approximation of ridership trends in relation to trends in the amount of service available is passengers per vehicle mile. An increase in passengers per vehicle mile should indicate that the service is more intensively utilized. National data, based on APTA statistics, show that this measure varied with an overall net decrease of 16 percent between 1965 and 1982. This decrease in the intensity of transit use partly reflects transit expansion into lower density suburbs, characterized by dispersed travel patterns, which are generally not well served by conventional fixed-route transit. As a result, fewer transit riders are being transported over longer distances.

Year	Total passengers[a] per vehicle mile	Bus passengers[a] per vehicle mile	Rail passengers[a] per vehicle mile
1960	3.51	3.22	4.31
1965	3.39	3.09	4.31
1970	3.15	2.88	3.96
1972	2.96	2.72	3.81
1974	2.94	2.79	3.38
1976	2.79	2.64	3.38
1978	2.94	2.70	3.92
1980	3.08	2.90	3.73
1982 est.	2.84	2.65	3.43

[a]Originating transit passenger trips.

Explanations of trends in passengers per vehicle mile represent a complex relationship between all the factors which have affected ridership (e.g., fares, population, employment levels) and

service levels. Similar to ridership trends, this ratio shows declines in or less intensive use of mass transit until the mid-1970's, at which time use intensified. The factors discussed earlier (see pp. 26 and 27) that influenced ridership gains during this time period also positively influenced this ratio. Additionally, the amount of transit service available grew less rapidly in the late 1970's than earlier in the decade.

Although the passengers-per-vehicle mile ratio fluctuated within the five systems we reviewed, between 1975 and 1983 there was a net increase in bus passengers per vehicle mile in all systems for which data were available. (See apps. II through VI.) Notably, these increases occurred even in two systems (Atlanta and Los Angeles) that had increased service levels, indicating that demand had not only kept pace but also exceeded service increases.

Transit's share of commuting market declines

The Bureau of the Census Journey-to-Work surveys conducted as part of the decennial census are a major source of information on transit's share of the commuting market. These data indicate that nationally the percent of workers using transit for commuting versus other means of transportation declined from 9 percent in 1970 to 6.4 percent in 1980. Bureau of the Census research attributed the decline partly to population and employment shifts from the cities to suburbs and general population declines in several cities. Declines occurred in all regions of the nation except the West, where transit increased its share of the market. More specifically, transit's market share declined in the North East and North Central regions between 1970 and 1980 from 19.1 to 14.2 percent and 6.7 to 4.9 percent respectively. A similar decline occurred in the South, as the proportion of workers commuting by public transportation decreased from 5.0 to 3.3 percent. In the West, however, transit's market share increased from 4.6 to 5.0 percent.

The Bureau of the Census data for the cities we reviewed showed Los Angeles to be the only city to increase its share of the commuter market.

City	Percent of workers using transit 1970	1980
Boston	19.7	15.6
Chicago	23.3	18.0
Washington, D.C.	16.3	15.5
Atlanta	8.4	7.6
Los Angeles	5.6	7.0

In those cities where service was expanding (Los Angeles, Washington, and Atlanta), the percent of transit commuting

slightly declined or actually increased. In cities where transit service was decreasing the transit commuting percentages dropped more dramatically. Officials in these cities noted shifts in population and employment to the suburbs that were similar to the census study's findings.

The figures in the table do not provide a full picture of a city's dependency on transit service because they are based on commuting within an entire urban area, including travel to job locations in the suburbs as well as the city. However, statistics for commuting to the central business districts of urban cities show that transit's share of the commuting market is significant. For example, in 1980, 74 percent of all commuting trips made to the Chicago central business district were by people using transit; in Boston the figure was almost 60 percent. In commenting on the report, APTA pointed out that although transit's share of the commuting market in cities such as New York and Philadelphia has declined, such declines do not diminish mass transit's fundamental importance in these areas. A Boston MPO official, commenting on the importance of transit, noted that MBTA's biggest problem is providing service for all the commuters who want to use the system.

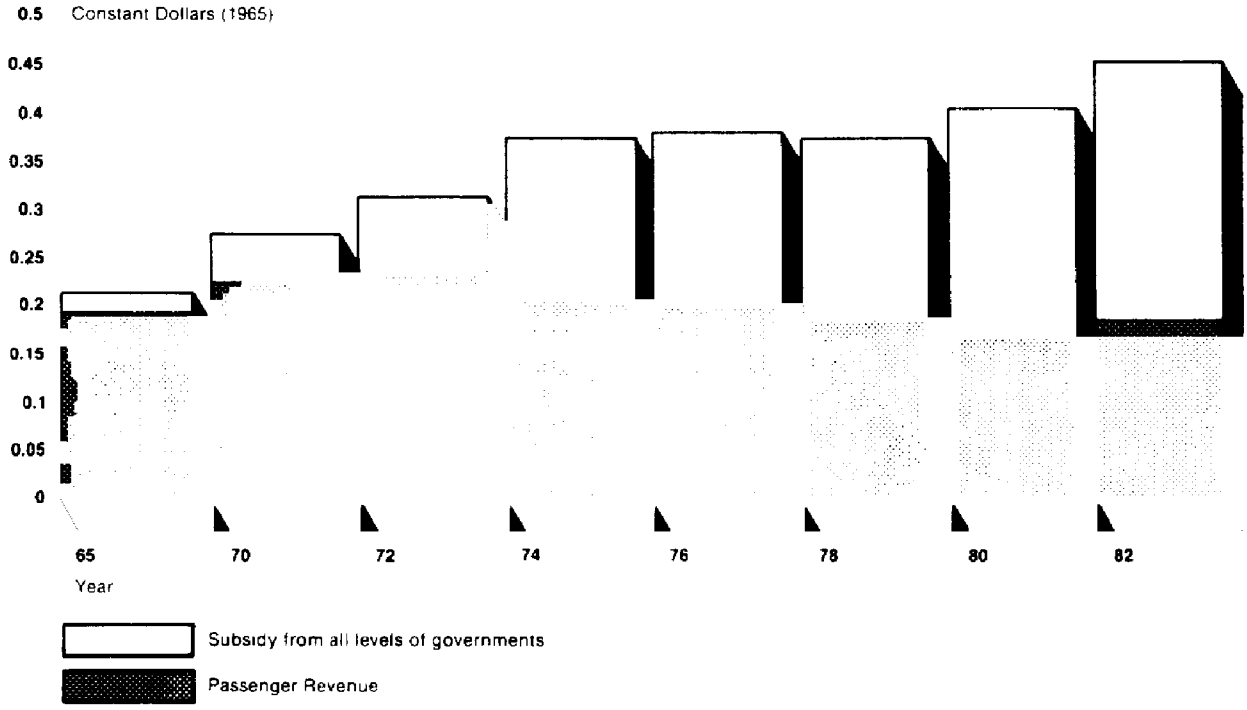
APTA and CTA, in commenting on the report, raised concerns about the utility of national aggregate journey-to-work statistics. APTA said that the data can disguise or misrepresent significant trends in transit ridership. It pointed out that (1) transit's market share would reflect an increase nationwide if the percentage declines in work trips in three transit-dependent cities were excluded from the statistics, (2) several regions have experienced significant increases in transit's share of the commuting market, and (3) the Census data mask the fact that significant ridership increases occurred in the 1970's. We agree that aggregate data can disguise trends within various regions of the country and for specific transit systems. Nevertheless, we believe that the Census data, coupled with the perspectives provided by local transit and planning officials, present a good indication of current urban commuting patterns. As noted on pages 27, 28, and 29, the present trend reflects, in part, the effects of the continuing dispersal of population and employment from central cities--factors largely out of a transit system's control.

CTA, in commenting on the report, stated that changes depicted in transit's share of the commuting market are misleading because the Bureau of the Census revised a question asked in the 1980 Census relating to commuters' transportation modes. CTA believes that, as a result of the change, the 1980 data undercount the infrequent transit commuter, which CTA estimates is about 13 percent of its ridership. We discussed this issue with the Chief of the Bureau of the Census Journey-to-Work Branch, who said that although the question was revised, it would not result in any statistically significant difference. The official also stated that, in his opinion, the 1980 Census results are generally reflective of current trends in transit commuting.

Revenue gains through ridership increases outpaced by transit costs

Operating costs on a per passenger basis have increased since federal assistance began and have grown faster than revenues generated by the ridership increases during this period. Officials at three transit systems we examined noted that expansion into the suburbs exacerbated service costs on a per passenger basis because fewer riders are transported for longer distances. GAO and others have, in the past, noted the growing gap between passenger costs and revenues and pointed out that policies designed to maintain low fares have contributed to the problem. The following graph, based on APTA data, illustrates the inflation-adjusted growth in transit passenger costs and its relationship to passenger revenues. As depicted by the graph, the resulting deficit has steadily increased in inflation-adjusted terms from about 2 cents per passenger in 1965 to 27 cents in 1982. (Costs for 1976-82 exclude depreciation, amortization, and other reconciling items.)

Transit Subsidy Per Passenger 1965 To 1982



Fare policies have played a significant role in the widening gap between transit costs and revenues. Transit systems have justified low fares to deter transit users from switching to other forms of transportation and to meet the transportation needs of low-income people. In 1974, the Congress also observed the relationship between fares and ridership and stated that continued fare increases were undesirable. As the graph illustrates, inflation-adjusted fares (revenue-per-passenger) have decreased

since federal operating assistance began. However, the success of maintaining stable fares has in part contributed to increased subsidization because fare increases have not kept pace with cost increases. CTA noted in its comments on the report that the infusion of considerable amounts of state and local financial assistance has also helped to keep fares down and service levels up.

A 1981 GAO report (Soaring Transit Subsidies Must Be Controlled, GAO/CED-81-28, Feb. 26, 1981) on controlling transit subsidies noted that federal policies provide no guidance on the degree to which passenger cost should be subsidized. We pointed out that UMTA considers fare policies to be a local decision. Also, we noted that the federal operating assistance formula is neutral with respect to the extent to which farebox revenues or state and local subsidies should cover costs. In commenting on the report, UMTA reiterated its position that the federal government should not interfere in local fare policy decisions.

Operating cost per passenger and subsidy per passenger between 1975 and 1983 fluctuated but generally increased in all but one of the systems we reviewed (see apps. II through VI). The one exception, Boston's MBTA, attributed recent decreases to cost control measures implemented in 1981 under the previously discussed management rights legislation.

SUMMARY

An analysis of transit ridership changes since federal assistance yields mixed results. Significantly, ridership levels not only stabilized but increased by 13 percent between 1972 and 1982. This is especially notable given the previous 20-year ridership decline. Transit assistance helped promote this growth by helping to expand service and defray operating costs resulting in the stabilization of fares.

Despite the ridership growth, data indicate that transit has not increased its share of the commuter market. In fact, transit's share of the commuting market declined from 9 percent in 1970 to 6.4 percent in 1980. Some factors affecting this decline reflect population and employment movements to areas not well served by transit. For example, expanding transit into the suburbs to meet population and employment shifts away from cities is costly because potential riders are more widely scattered over larger areas. In some cities, however, transit carries a significant portion of the commuters to the central business district. While population and employment shifts, in addition to other factors are beyond the control of service providers, they challenge the transit industry's ability to accommodate such changes.

Finally, the revenues associated with ridership growth have been outpaced by costs, which has led to increasing federal, state, and local subsidies. Subsidy per passenger, for example, increased from about 2 cents to 27 cents between 1965 and 1982 in

inflation-adjusted dollars. However, to evaluate the industry solely on its success in covering costs is not entirely fair. For example, the success of implementing federal and local policies designed to maintain low fares in order to promote ridership in general and help the low-income rider in particular has contributed to increasing transit subsidization. It is not clear, however, when subsidies become "excessive." The answer to this question depends upon federal, state, and local transit officials' perceptions of the social benefits associated with transit.

While the transit aggregate data points out nationwide transit ridership trends, individual systems may have had differing experiences. Again, caution should be exercised when generalizing based on national trend data because experiences of local transit systems may vary from such trends.

CHAPTER 4

SOCIAL, ECONOMIC, AND ENVIRONMENTAL BENEFITS OF FEDERAL MASS TRANSIT ASSISTANCE VARY AND ARE DIFFICULT TO MEASURE

In providing mass transit assistance, the Congress envisioned that improved mass transit would help solve numerous social, economic, and environmental problems faced by the nation's urban areas. Major problems included serving the transportation needs of low-income, elderly, and handicapped persons; traffic congestion; environmental pollution; energy shortages; and urban sprawl. Assessing transit's impact in these areas is difficult because (1) translating such broad social, economic, and environmental benefits into measurable criteria from which program success can be objectively evaluated is difficult and (2) isolating causal relationships between transit improvements and social, economic, and environmental changes is complicated by numerous other factors that can also influence changes in these areas.

Research literature that we reviewed[1] and local transportation planning officials at the five cities reviewed indicate that transit's social, economic, and environmental impacts vary:

--In general, the transportation disadvantaged--those who cannot afford or are physically unable to drive an automobile--have benefited from transit service expansion, low fares, and special services for the elderly and the handicapped. However, such actions may not be the most effective or efficient means of addressing the problems of the transportation disadvantaged.

--Transit has helped to reduce energy use, air pollution levels, and traffic congestion along certain heavily traveled corridors. However, its overall role in these areas has been limited since it has not diverted a significant number of people from their automobiles, a primary source of energy use, pollution, and congestion problems. While transit may not have had a significant impact on reducing these types of urban problems, they would be heightened without transit--particularly in densely populated cities.

--Transit improvements have influenced urban land use, for example, by increasing the density of commercial development near rail stations. However, the degree of transit's influence is dependent upon other factors, such as the strength of an area's economy and the existence of land-use policies conducive to development.

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[1]See pp. 7 and 8 for methodology on literature selection.

MANY BROAD BENEFITS EXPECTED FROM MASS TRANSIT: ACHIEVEMENTS DIFFICULT TO MEASURE

Congressional support for mass transit came at a time of declining transit service and use which was caused in part by the public's preference for the automobile. While recognizing that the automobile would continue to be the nation's dominant transportation mode, the Congress believed that mass transit was also important to the nation's transportation system and part of the solution to a number of broad social, economic, and environmental problems. For example, the Congress noted that mass transit offered mobility for those who could not afford or were physically unable to drive an automobile. Additionally, mass transit was envisioned to have favorable impacts on traffic congestion, air pollution, and energy use by diverting automobile users to transit. Also, because the availability of efficient transportation can influence developers' location or relocation decisions, mass transit was viewed as a tool to revitalize the nation's cities and limit urban sprawl by promoting higher land-use densities.

However, the extent to which the broad benefits associated with mass transit have been realized is difficult to gauge, partly because of problems in translating such benefits into measurable criteria on which program success can be evaluated. For example, one measure of transit's ability to provide mobility to low-income persons might be the number of transit stops located within certain distances of low-income populations. However, such criteria do not consider other factors which can also affect the mobility of low-income persons, such as service frequency, service cost, and the destinations that can be reached by transit service.

APTA and several transit systems commented that some of the established goals for transit are inconsistent and conflicting. Using resources to accomplish one goal can impede attaining other goals. For example, APTA noted that the goal of stabilizing fares has promoted transit deficits. CTA said that with so many inconsistent goals requiring different actions (such as providing services for the handicapped versus diverting motorists to transit), it is difficult for transit to successfully and efficiently address them all with limited resources. Because of these inconsistencies, CTA believed that transit may never be able to live up to the expectations established for it.

Evaluating transit's benefits is further hindered because it is difficult to isolate the effects of transit from other factors. For example, it is difficult to draw a relationship between the expansion of transit services and changes in land development because land-use impacts occur gradually and can be influenced by many variables besides transit, including local land development plans, zoning ordinances, taxation policies, and shifts in population and employment centers.

TRANSIT BENEFITS FOR ELDERLY, HANDICAPPED, AND LOW-INCOME PERSONS

The Congress has expressed specific concern for the mobility needs of elderly, handicapped, and low-income persons[2] who are unable to afford or drive an automobile. Research we examined and local MPO[3] officials in the five cities we reviewed generally indicate that the transportation disadvantaged, along with the general public, have benefited from various transit improvements, including increased service levels, improved equipment, and stabilized fares. Also, through special half-fare programs and services such as wheelchair lift-equipped buses and special paratransit services,[4] the federal transit program has helped address special mobility problems of the elderly and handicapped. Research, however, has raised questions concerning whether such approaches have effectively and efficiently addressed the needs of those requiring mobility assistance. For example, some research suggests that targeting subsidies for low-income riders, rather than subsidizing all riders, would more equitably benefit those who need transit assistance.

Benefits to the low-income population

Cervaro[5] concluded that of all the benefits associated with mass transit, the largest is probably providing essential mobility for those with low incomes and without automobiles. He noted that while most people can take advantage of the mobility provided by the automobile, many people do not own or cannot operate one. He indicated that such people are more dependent on transit, noting that low-income families use transit more frequently than do more

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[2]Definition of low-income persons may vary. However, the 1984 federal poverty line was approximately $10,600 for a family of four.

[3]UMTA requires that local governments through their MPOs develop plans to coordinate all modes of transportation--mass transit autos, etc.--into an efficient, effective urban transportation system. All mass transit projects submitted for federal assistance must be part of this planning process.

[4]Paratransit services generally include specialized transportation services, such as door-to-door van service initiated on a request basis as opposed to traditional transit service operating on a fixed schedule and route. Demand response vehicles are generally equipped to transport the physically handicapped.

[5]Robert Cervaro, Intergovernmental Responsibilities for Financing Public Transit Services, August 1983, p. 64.

affluent families.[6] Meyer and Gomez-Ibanez[7] also indicated that transit service can benefit those with low incomes as well as other transportation-disadvantaged groups. They stated that subsidies that help reduce fares and extend service offer significant help to the poor by increasing the number of places that can be reached at reasonable prices.

Although federal transit expenditures that support low fares and service expansion have benefited low-income riders, some research indicated that persons with higher incomes may have benefited disproportionately from transit subsidies. Such research notes that the poor constitute a disproportionately large share of bus passengers but are underrepresented on rapid transit and commuter rail lines--two services generally receiving the highest level of capital assistance. Additionally, expanding transit services into suburban jurisdictions may have mostly benefited those riders with higher incomes. For example, Altshuler[8] noted it appears that more affluent suburban riders benefit from transit systems' fare policies more than innercity riders because the fares charged do not cover the additional cost of longer trips into less densely populated suburbs. Thus, service costs may be more heavily subsidized for the affluent residing in the suburbs than for low-income innercity persons. Several researchers[9] noted that targeting subsidies to specific groups (e.g., low-income riders) through such means as transportation vouchers or transit fare discounts may be a more efficient and equitable mechanism than the current approach of subsidizing all transit users.

In four of the five urban areas reviewed, MPO officials stated that transit service has significantly benefited the low-income population. In agreement with researchers discussed above, all but one MPO official stated that such persons have notably benefited from the general availability and in some areas the expansion of transit service. Officials at three MPOs specifically commented that efforts by transit systems to maintain reasonable fares have further benefited those individuals considered to have low incomes.

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[6]APTA pointed out in its comments that similar conclusions have been reached in several recent studies. For example, an 1984 UMTA report entitled The State of the Nation's Local Public Transportation Conditions and Performance noted that an analysis of the income profile of transit riders shows that low-income persons are still most heavily reliant on transit to serve their mobility requirements.

[7]John Meyer and Jose Gomez-Ibenez, Autos, Transport and Cities, 1981, p. 249.

[8]Alan Altshuler, The Urban Transportation System: Politics and Policy Innovation, 1979, p. 279.

[9]M. Kemp and C. Everett, Towards Greater Competition in Urban Public Transportation, May 1982, pp. 16, 19, and 20.

MARTA commented that its experience in serving Atlanta's low-income riders runs contrary in some respects to research suggesting that higher income riders may benefit more from transit subsidies. MARTA noted that low-income persons constitute the largest portion of its rail ridership. Also, a 1982 MARTA study showed (1) extensive reverse-commuting by low-income riders to jobs in suburban Atlanta and (2) low-income riders' extensive use of the system's unlimited ride pass program. MARTA believes the program has effectively targeted high amounts of transit subsidies to these patrons.

Benefits to the elderly and handicapped

The federal government has enacted a series of statutes and regulations designed to help meet the mobility needs of the elderly and handicapped. For example, recipients of federal mass transit grants are required to charge the elderly and the handicapped half or less of the base fare during non-peak service hours. Additionally, Section 16 of the Urban Mass Transportation Act of 1964 (49 U.S.C. app. 1612) and Section 105 of the Federal-Aid Highway Amendments of 1974 (23 U.S.C. 142 note) require that special efforts be made in planning and designing mass transportation facilities to assure that the elderly and the handicapped can utilize the services. DOT originally required that all federally assisted mass transit systems make their facilities fully accessible to the handicapped. However, it rescinded this rule in 1981 after a federal court decided that the Rehabilitation Act of 1973 gave insufficient support for DOT's policy requiring expensive bus and rail modifications. Current interim regulations require grant recipients to make special efforts to provide transportation services for the elderly and handicapped and allow local communities to determine how such transportation should be provided.

In carrying out these responsibilities, local transit systems have adopted various approaches to meeting the mobility needs of a relatively small, yet highly diverse, handicapped community estimated to constitute approximately 5 percent of the U.S. urban population. According to the American Public Transit Association, over 30 percent of the nation's transit systems provide accessible fixed-route bus service; over 40 percent are providing some form of paratransit service; and another 30 percent are currently utilizing a combination of these approaches.

Research indicates that a relatively small number of handicapped people have utilized accessible transit service and specialized transportation services. For example, a 1981 study published by the Transportation Research Board (TRB)[10] indicated that the ridership response to most accessible services has been low. The ridership variations among transit systems were attributed to such factors as the percentage and location of routes

[10]Sandra Rosenbloom, Bus Transit Accessibility for the Handicapped in Urban Areas, 1981, pp. 35 and 41.

served by lift-equipped buses, quality of service, and service reliability. An examination of ridership experiences in 17 transit systems with accessible service revealed that the number of boardings per month ranged from none to 178, except in Seattle, Washington, where there were 1,900 boardings. (Seattle's use rate was attributed to various factors such as good route coverage and reliable service.) A 1983 study published by the TRB[11] of the cost-effectiveness of various transportation strategies for assisting the handicapped attributed low service utilization to limited demand for such services. The study indicated that demand was limited because some handicapped people had access to private automobiles, or preferred not to use paratransit or wheelchair lift-equipped buses, or were constrained by non-transportation-related barriers (e.g., architectural and physical barriers such as steps, hilly terrain, snow, and ice) that can restrict their mobility. In addition, reliability problems with such equipment as chairlifts are also believed responsible for low utilization rates.

Some research noted that conventional fixed-route bus service equipped to handle the handicapped and specialized paratransit services can be extremely costly forms of transportation. The costs are high because of the expense of purchasing and maintaining specially equipped vehicles and because of low service utilization. For example, APTA estimates that the non-inflation-adjusted capital costs involved in retrofitting buses with chairlifts ranges from $12,000 to $24,000 each, while the cost of lifts on newly purchased buses ranges from $8,000 to $17,000 each. Additionally, the operating cost per passenger trip for accessible fixed-route services can range from $10 to over $50. Comparatively, APTA notes that the cost of a regular fixed-route transit trip averages around $1 (not adjusted for inflation).

With respect to specialized paratransit service, the literature notes[12] that the cost of such services varies but that overall costs also tend to be high compared to the average cost of a transit trip on conventional transit. However, the flexibility of paratransit services appears to be better suited for meeting the special transportation needs of the elderly and handicapped than conventional fixed-route bus and rail service. For example, although conventional fixed-route transit may be equipped to handle handicapped riders, some individuals are unable to get to transit stops to use the service. The door-to-door service offered by paratransit services help to overcome this obstacle.

The types of special transit services for the elderly and handicapped varied among the five transit systems GAO reviewed.

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[11] K.W. Heathington, Cost Effectivness of Transportation Services for Handicapped Persons, 1983, pp. 25, 89, and 90.

[12] Meyer and Gomez-Ibanez, 1981, pp. 251, 253; Altshuler, 1979, pp. 305, 307, 308; Heathington, 1983, p. 89.

--WMATA provides accessible fixed-route bus service; 11 percent of its active fleet is wheelchair lift-equipped. Transit officials noted that some of these buses are integrated into regularly scheduled service and operate along designated routes, while additional lift-equipped buses are added to the daily schedule through WMATA's "on-call" program, which allows riders to request a lift-equipped bus 24 hours in advance on any route. Officials also noted that service costs are high due to the cost of purchasing and maintaining vehicles combined with relatively low service utilization. Limited use was attributed, for example, to uneven equipment reliability and limited demand throughout the region. All of WMATA's 60 rail stations are accessible to the elderly and handicapped due to the availability of elevators.

--MARTA provides accessible fixed-route service for the physically handicapped through the use of wheelchair lift-equipped buses on 3 percent of its active bus fleet. The transit authority also operates fixed-route service especially designed to link areas of high concentrations of elderly persons with facilities such as shopping centers. MARTA, in commenting on the report, said that its regular fixed-route lift-equipped bus service is costly and utilization is limited. However, the opposite generally is true of its specially designed services and half-fare program for the elderly and handicapped. It pointed out that in Atlanta other transportation modes, such as taxis, are not viable alternatives for some individuals because of their high cost. Further, all of MARTA's 25 rapid rail stations are accessible to the elderly and handicapped.

--SCRTD operates accessible bus service on all its routes; 66 percent of its active fleet is lift-equipped. In addition, SCRTD officials stated that 67 percent of the system's routes are accessible to elderly and handicapped patrons.

--MBTA provides fixed-route, lift-equipped bus service and paratransit services. Currently, 14 percent of its active bus fleet is lift-equipped and operates along 10 designated routes. Paratransit van and bus service is also provided within MBTA's service area. Additionally, 7 of 47 rapid rail stations are accessible to the elderly and the handicapped through the availability of elevators or ramps.

--CTA operates a demand-responsive "dial-a-ride" service that accommodates disabled persons. The special buses used for this service constitute 2 percent of the CTA's active bus fleet. MPO officials noted that it would be very expensive to retroactively make its transit system fully accessible to the handicapped.

TRANSIT IMPROVEMENTS HAVE LIMITED IMPACT ON REDUCING ENERGY CONSUMPTION, AIR POLLUTION, AND TRAFFIC CONGESTION

Literature we reviewed generally concluded that transit service improvements designed to divert automobile users to mass transit have limited energy-saving potential and are unable to appreciably reduce urban air pollution levels or reduce traffic congestion. While some benefits are achievable along congested commuting corridors if transit ridership is high enough, research indicates that transit's share of the urban transportation market is too low to accomplish significant improvements in these areas. These problems are believed more effectively addressed through the greater use of technologically improved automobiles and through the implementation of various traffic control strategies. MPO officials with whom we spoke generally described transit's impact in these areas as ranging from minimal to moderate. However, similar to the research we reviewed, officials at three of the five MPOs noted that energy use, pollution, and congestion problems would be heightened without transit service.

Transit has limited energy-savings potential

Literature we reviewed indicated that transit's energy conservation role is constrained by its small share of the urban transportation market, which nationally represents about 3 percent of total person trips in metropolitan areas. Given the overwhelming dominance of the automobile in urban society, Altshuler, for example, postulated that even if transit ridership could be doubled, the attendant energy savings would be modest. Meyer and Gomez-Ibanez pointed out that reductions in automobile energy consumption can be accomplished most notably through technological innovations that result in more fuel efficient automobiles.[13] In a related article entitled "Cost-Revenue Squeeze in Conventional Transit",[14] David W. Jones also noted the dominance of the automobile and stated that exaggerated claims of transit's impact in the energy area as well as other areas may misdirect scarce resources to areas of only marginal impact. Jones acknowledges that the demise of transit in its natural markets (i.e., densely populated urban areas) would compromise such goals as energy conservation. However, he cautions that transit's energy efficiency

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[13] A November 14, 1980, GAO study entitled Increasing Commuting by Transit and Ridesharing: Many Factors Should Be Considered (CED-81-13) also concluded that meeting federal fuel standards would have a much greater impact on energy consumption than increased transit commuting. It estimated that a 50-percent increase in transit ridership would save less than 1 percent of the amount of gasoline used by autos in 1978.

[14] David W. Jones, "Cost-Revenue Squeeze in Conventional Transit," Urban Transport Service Innovations, TRB, 1979, pp. 61 and 62.

in such areas should not be confused with the marginal energy savings, if any, of new or extended transit services operating in low-density areas.

A 1977 Congressional Budget Office study prepared for the Senate Committee on the Environment and Public Works examined the energy-saving potential of various transportation modes, including new rapid rail systems. It stated that

> "Of all the commonly held notions about energy efficiency, probably the most misguided are those concerning rapid rail transit. The findings of this study indicate that under typical conditions, new rapid rail systems actually waste energy rather than save it."[15]

The study recognized that in terms of the amount of energy used per passenger mile, rail ranks as one of the most efficient modes. However, when considering energy used in construction and for transportation to and from rail stations, among other things, energy per passenger mile on a door-to-door basis is higher for rail than for any other public mode (e.g., bus or trolley) except demand-responsive service.

Despite the fact that new rapid transit systems may not have great potential for significant energy conservation, some transit initiatives have yielded modest energy savings. According to Altshuler, the introduction of high-speed express bus service in some severely congested corridors has succeeded in attracting significant numbers of former motorists and attaining high load factors to accomplish some limited impact on energy use. Two notable examples cited are the San Bernadino busway in Los Angeles and the Shirley Highway busway in suburban Washington, D.C. (both expressways are limited to buses and carpools). In a 1976 study of the San Bernadino busway, it was estimated that busway services had produced a small net savings of 83 barrels of oil per day. Similarly, it was estimated that the use of the Shirley Highway busway produced a small energy savings of 74 barrels of oil per day.

The literature we reviewed was reinforced by MPO officials who indicated that transit has had a limited impact on conserving energy. For example, Washington, D.C.'s MPO officials stated that the area's automobile dependency (e.g., small percentage of trips taken by transit versus automobile) and the dispersal of residences and employment centers not conveniently served by conventional transit have limited transit's energy-saving role. Additionally, transit officials indicated that many transit riders use automobiles to get to transit stations, which also hinders transit's overall energy saving potential. Officials in Los Angeles also noted that transit's ability to reduce energy consumption is constrained by the high level of automobile use. Atlanta MPO

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[15]The CBO analysis of new rapid rail systems was based primarily on San Francisco's BART system and on Philadelphia's Lindenwold line.

officials believed that MARTA's new rail system probably has exerted a limited impact on regional energy use, although a recent study of the system's East-West rail line indicated that the line has succeeded in diverting some former automobile users to mass transit. Transit officials commented that the rail system's impact was significant in this corridor, since about 21,000 of the line's 70,000 riders formerly used automobiles. Additionally, an MPO official in Chicago noted that transit's impact on energy use has been minimal, at best, because the transit system has not significantly expanded since energy conservation became a national priority. Also, a relatively high percentage of riders were already using the system prior to the energy crises.

While there are some external variables inhibiting transit's energy-savings capacity, officials at three of the five MPOs we reviewed commented that without transit service, automobile-related problems of energy consumption, air pollution, and traffic congestion would increase because many people would revert to using the automobile. As APTA pointed out in its comments on the draft report, transit has some potential to address energy use and automobile emissions concerns. It noted that a bus operating at capacity (e.g., over 60 passengers) has a greater savings potential than a six-passenger car regardless of technological improvements to the automobile.

Urban air pollution not significantly decreased by mass transit improvements

Just as transit can achieve some energy savings, transit improvements can at times result in some air quality benefits. The dominance of the automobile in metropolitan areas, however, inhibits the effective use of conventional fixed-route transit to accomplish major reductions in urban air pollution. Studies indicate that transit investments are apparently not as cost-effective compared to what can potentially be accomplished by reducing automobile pollution through more stringent emission controls. MPO officials also believed that transit has played a limited role in reducing air pollution. Officials at two MPOs indicated that air pollution problems in their areas could be more effectively addressed through traffic controls designed to ease congestion, vehicle inspection and maintenance programs, and improved automobile technology.

Meyer and Gomez-Ibanez cite a study by Ingram, Fauth, and Kroch[16] that analyzed several policies aimed at improving air quality in Los Angeles and Boston using a simulation model. Their analysis indicated that stringent auto emission controls would apparently be more cost-effective than would improving transit performance through such strategies as expanding express bus

[16]Ingram, Fauth, and Kroch, Cost and Effectiveness of Emission Reduction and Transportation Control Policies, 1975, pp. 157, 158, and 159.

service. Meyer and Gomez-Ibanez conclude that while carpooling, transit enhancement, and traffic restriction schemes might help reduce air pollution in some instances, substantial improvements in air quality would require significant reductions in auto pollution emission levels per vehicle mile traveled.

Although none of the metropolitan planning organizations measure transit's actual effect on regional air quality, the MPO officials we spoke with believed that transit's effect on urban air quality has been relatively small or at best moderate. According to officials in Boston and Washington, however, recently added or extended rail service lines have diverted some former automobile users to mass transit and thus have contributed to some extent in reducing air pollution attributable to automobile emissions.

Officials in Atlanta and Washington indicated that the expected contributions of mass transit are generally less notable than those obtainable through the implementation of other transportation measures. Analyzing various strategies for reducing carbon monoxide, hydrocarbons, and nitrogen oxide, studies by the two cities' planning organizations concluded that the most cost-effective control measures include low-cost transportation system managment techniques, such as better light-timing mechanisms that would limit vehicular idling time along heavily used roadways and at congested intersections. Other transportation control mechanisms with notable pollution-reduction potential include implementation of vehicle inspection and maintenance programs and the federal motor vehicle emission control program, which requires catalytic converters on all automobiles to lower the level of harmful effluents. A 1978 analysis prepared by the Atlanta MPO projected that implementing such types of transportation control mechanisms would have reduced Atlanta's carbon monoxide levels by 31 percent, hydrocarbons by 46 percent, and nitrogen oxide levels by 13 percent between 1976 and 1982. Comparatively, the anticipated completion of a portion of the region's new rail system was projected to account for only an additional 2 percent reduction in each of the pollutants during the same period. Atlanta MPO and transit officials commented that as MARTA expands its rail system, more significant emission reductions are expected.

Transit improvements exert limited long-term impact on urban traffic congestion

Investments in transit have been promoted on the basis that the diversion of more people to transit during peak commuting periods can help ameliorate urban traffic congestion. While higher levels of transit utilization can help keep congestion from intensifying in severely congested corridors leading to densely populated metropolitan areas, the research we reviewed indicates that transit service expansion is generally unable to significantly reduce congestion over the long run. Transit's limited ability to discernably reduce traffic volumes is attributed to the limited number of motorists attracted by service improvements and the fact that the automobiles taken off the road through expanded

transit services are eventually replaced by additional automobile traffic. MPO officials we spoke with generally indicated that transit service had helped ameliorate vehicular congestion, primarily along specific commuting corridors.

Altshuler noted studies indicating that various rapid rail services and rail extensions draw most of their ridership from those persons who previously used other forms of transit, former automobile passengers, and new travellers--rather than motorists, who by being diverted to transit could help reduce traffic congestion. Studies of San Francisco's Bay Area Rapid Transit (BART) system and Philadelphia's Lindenwold high speed rail line extending into the New Jersey suburbs have shown that such transit service changes have not been able to attract enough motorists to notably affect highway traffic volume over an extended time period. For example, an impact study of the BART system showed that of the 25,000 passengers carried inbound soon after the service was opened in 1974, 13,000 previously commuted by bus, 2,000 had commuted as auto passengers, and another 2,000 had not previously made the trip. The remaining 8,000, or one-third of the rail passengers, previously commuted as motorists. Altshuler noted that the congestion relief afforded by BART gradually disipated as the expansion of highway carrying capacity eventually induced additional automobile travel in the transportation corridor. Additionally, Altshuler suggested that in the long-run transit improvements may promote increased traffic congestion by facilitating higher density development in well-served transportation corridors. Thus, while some motorists are lured from their automobiles, transit's long-term impact on congestion is believed to be marginal.

Although the research we reviewed indicated that new or expanded transit services implemented in recent years have been unable to significantly address urban congestion problems, the literature noted that transit plays an integral role in controlling traffic congestion in densely patterned cities. Cities with high development densities are more congested and reliant on mass transit than are cities with lower densities. Thus, some researchers[17] concur that if transit service were not available in such densely developed areas, congestion problems would be seriously heightened. As pointed out by Cervaro, cities such as New York, Boston, Chicago, and Philadelphia would experience "intolerable" peak period congestion if transit services were not available. Conversely, some research noted that in areas where density levels are lower, the geographic dispersal of residences and commercial centers from central cities into the suburbs may, in fact, help address urban traffic congestion problems.

In all five urban areas reviewed, transportation planning officials noted that mass transit had helped deal with congestion problems along some specific travel corridors. For example, a

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[17]Altshuler, 1979, p. 434; Jones, 1979, p. 61.

study prepared by MPO officials in Atlanta noted an 8-percent decrease in traffic volume after MARTA opened segments of its East-West rail line. Similarly, planning officials in Boston stated that an extension of one of MBTA's rapid rail lines attracted additional peak-period commuters, a large portion of those who formerly used automobiles. Commenting on Metrorail's impact on traffic congestion, an MPO official in Washington, D.C., stated that while congestion in some transportation corridors has been reduced since the expansion of the transit system, some corridors have experienced only temporary relief. Officials explained that eventually additional vehicles have replaced the automobiles whose drivers had been diverted to the rail system.

SCRTD provided another perspective on transit's ability to address urban traffic congestion problems. In commenting on the draft report, it stated that while mass transit may represent only a small portion of all vehicular trips, relatively small reductions in the number of trips can have a significant impact on the operation of an area's entire transportation system. SCRTD noted that during the 1984 Summer Olympics in Los Angeles, the transportation system operated well, as vehicle trips declined by 2 percent and there was greater use of transit.

MASS TRANSIT'S INFLUENCE ON URBAN LAND USE: MIXED RESULTS

Because good transportation can be a factor influencing location decisions for commercial and residential development, transit improvements have been considered a policy tool for controlling urban sprawl,[18] stimulating economic development, and revitalizing central cities. Research we examined indicated that it is extremely difficult to isolate transit's impact on land development. Although research suggests that transit improvements can influence urban development, the degree of influence seems to depend strongly on other factors such as the strength of an area's economy and the existence of land-use policies conducive to development activity (e.g., high density zoning ordinances). MPO officials in cities we reviewed that had instituted new or extended rail systems believed that such improvements had significantly affected land development.

Altshuler characterizes the impact of San Francisco's Bay Area Rapid Rail Transit (BART) system as relatively minor in terms of shaping overall land-use patterns, although he indicates that the system has helped encouraged clustered development around downtown station areas. He noted that the system had not discernably affected property values along its route, particularly in suburban areas. Altshuler also cites studies by Webber, Dyett,

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[18]Altshuler notes that there are varying opinions as to whether or not high density development is a desirable outcome of transportation policies.

and Escudero[19] that indicated that BART was only one of many factors that fueled downtown commercial development--the most significant factor being the existence of a strong regional economy. Regarding the clustering of development around rail stations in downtown San Francisco, Altshuler indicated that BART apparently encouraged such development in the downtown corridor. However, this development can be attributed primarily to strong preexisting market forces which made downtown commercial development desirable. Outside of the downtown area, however, limited clustered development activity has occurred around suburban rail stations. Opposition to high-density commercial development in the suburbs, however, has resulted in some local communities changing their zoning regulations. As a result, less concentrated development occurred along suburban transit routes.

Altshuler and Meyer and Gomez-Ibanez cited studies of Philadelphia's Lindenwold high speed rail line indicating that the line has had no significant impact on downtown Philadelphia, nor has it succeeded in attracting new development to the region. Several of these studies have concluded that development occurring along the line's route apparently was shifted from other parts of the region. In terms of property values, it is believed that the line exerted a limited, one-time positive impact in the range of $33 to $51 million.

According to MPO officials in our review, transit's impact on land development varied. In Atlanta, Washington, and Boston, MPO officials believed that the construction of new rapid rail systems and the extension of existing lines had significantly influenced land development in their respective environments. Conversely, officials in Los Angeles believed that the lack of a rail system limited transit's impact on area development. Chicago officials also believed transit's impact has been limited, since land in the Chicago area was largely developed prior to the introduction of federal mass transit assistance. In commenting on the draft report the Chicago Transit Authority noted, however, that since the recent extension of its Northwest rail line, some concentrated development has occurred near rail stations. The land-use impacts in Atlanta, Washington, and Boston are summarized below:

--Officials in Atlanta stated that the decision to build a rail system gave developers increased confidence in downtown Atlanta that resulted in new building construction and renovation. In a 1982 report, Atlanta's MPO noted that since 1975 Atlanta's central business district has captured

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[19] The BART Experience-What have We Learned? Webber and Institute of Urban and Regional Development and Institute of Transportation Studies. University of California Berkeley, 1976.

Effects of BART on Urban Development, Dyett and Escudero, 1977, pp. 398-402.

31 percent of the office space growth occurring in the region's eight major office submarkets. Officials attributed this occurrence partially to improved bus service and the initiation of rail service. The report also stated that most new office buildings constructed in the central business district since 1971 were located within two blocks of a rail station. Area planners further attribute the level of development activity to cooperation among levels of government, private developers, and the transit authority. Some accomplishments include the construction of commercial buildings directly above rail stations, clustered multi-use development around rail stations, and housing renovation near an existing rail station.

--MPO officials in Washington, D.C., also believed that the new rapid rail line had influenced land development. However, they cautioned that the gradual nature of land development impacts and the complexity of the decision-making process make it difficult to draw a precise cause and effect relationship between the expansion of the transit system and land development. Some benefits believed related to rail system expansion include higher land valuations and clustered development near some station areas. For example, nearly 50 percent of all regional commercial floor space constructed between 1979 and 1982 took place in locations within a 15-minute walk of existing or planned rail stations. An MPO official attributed such construction partly to WMATA's joint development program whereby WMATA helps local governments and private developers plan building activity around and above rail stations. Development projects have included the direct linking of stations with office buildings and stores in the District of Columbia and several surrounding jurisdictions. While clustered development has occurred in some station areas, land-use densities in some areas have not reached forecasted levels because of revised local land use plans that indicate a desire for lower density development. Aside from a strong preference in some areas for single-unit housing, some jurisdictions are concerned that if high density development is allowed in station areas, the surrounding roadways will become increasingly congested.

--As noted earlier, MPO officials in Boston believe that the MBTA's extension of several rapid rail lines has exerted considerable influence on land development activities in the Boston area. Although no specific data were available, Boston officials said that the rail projects have helped stimulate the revitalization of some deteriorating areas through the construction of new commercial buildings and the creation of new employment opportunities.

SUMMARY

The Congress expected transit investments to help provide service for elderly, handicapped, and low-income persons (transportation disadvantaged); reduce energy consumption, air pollution, and traffic congestion; and influence urban land development. The ability of mass transit to meet these objectives is difficult to determine.

Transit expenditures appeared to have assisted the transportation disadvantaged in a number ways. First, the general maintenance of low fares enabled by federal, state, and local subsidies and the federally mandated requirement for half-price fares for the elderly have helped keep transportation affordable for this group. Second, the transportation disadvantaged have benefited from the general expansion of transit service. Finally, lift-equipped buses and a variety of special demand-response services, have assisted in transporting handicapped persons. While the transportation disadvantaged have benefited from various transit programs, research indicates that it is difficult to address efficiently and effectively the diverse needs of the transportation disadvantaged. Some research suggests that targeting subsidies to low-income transit users would be more efficient than subsidizing all transit users.

Transit's impact in three related areas--traffic congestion, energy use, and environmental pollution--in part depends on its ability to attract motorists from their automobiles, thus reducing the number of automobiles on the road. This, however, has not occurred to any great extent since transit represents only about 3 percent of all urban transportation trips. Significant gains in these areas appear to depend more on improved auto technology and traffic controls than on additional transit service. While transit expansion may not have significantly reduced traffic congestion, energy consumption, and environmental pollution, the absence of transit service could exacerbate these problems, particularly in densely populated areas.

Transit's impact on land development is difficult to evaluate because numerous factors can influence how cities develop. Transit appears to have helped promote commercial development around newly established rail stations. However, it is unclear whether transit has initiated additional development or caused the relocation of development already planned. Transit's greatest impact on land use should occur when it is coordinated with other policies, such as local zoning practices.

The federal government's role and financial involvement in local mass transit are complex policy issues which have been, and continue to be, the subject of considerable debate as the Congress attempts to deal with the federal budget deficit. Decision makers are faced with the challenge of attempting to weigh program costs against various anticipated benefits, which, as we have discussed in the report, are often difficult to measure. For example, it is

difficult to precisely quantify the cost to society of urban traffic congestion or to quantify the benefits associated with enhancing the mobility of physically and/or economically disadvantaged persons. Given mass transit's complexities, the data and analyses contained in this report are intended to assist those persons focusing on the federal involvement in mass transit.

APPENDIX I

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SELECTED PERFORMANCE DATA, CTA[a]

	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Revenue vehicle miles (millions)													
Trolleys	16.06	8.99	.96	-	-	-	-	-	-	-	-	-	-
Bus	88.71	89.33	89.74	88.19	88.48	87.47	86.33	83.82	80.02	87.77	85.74	79.79	78.76
Rail	44.35	51.36	48.73	48.80	49.34	49.68	50.78	49.35	48.54	49.60	48.51	45.87	49.04
Total	149.12	149.67	139.43	136.99	137.83	137.15	137.11	133.16	128.56	137.37	134.41	126.24	128.80
Operating cost per rev. vehicle mile													
Bus	-	$.97	$1.11	$1.23	$1.22	$1.26	$1.35	$1.41	$1.62	$1.59	$1.56	$1.44	$1.47
Rail	-	$.99	$1.11	$1.19	$1.18	$1.19	$1.23	$1.28	$1.43	$1.51	$1.48	$1.35	$1.28
Miles between road calls													
Bus	-	-	-	-	-	-	-	4,780	5,400	5,400	3,470	4,010	4,850
Rail	-	-	-	-	-	-	-	474,490	198,940	191,500	201,270	173,760	165,120
Passengers trips (millions)	792.313	661.423	624.427	658.975	649.880	673.085	681.779	696.257	711.616	692.429	642.804	614.060	623.097
Passengers per rev. vehicle mile													
Bus	5.91	5.12	5.32	5.80	5.68	5.99	6.20	6.51	7.01	6.13	5.73	5.81	5.94
Rail	3.92	3.08	2.91	3.03	2.98	3.00	2.88	3.05	3.10	3.12	3.10	3.20	3.05
Operating cost per passenger	-	$.37	$.42	$.44	$.45	$.46	$.48	$.48	$.50	$.55	$.58	$.53	$.52
Subsidy per passenger	-	$.01	$.09	$.15	$.19	$.20	$.22	$.23	$.28	$.33	$.30	$.24	$.26

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership and roadcalls as well as other terms; total revenue vehicle miles may not sum due to rounding and exclusion of special services.

APPENDIX II

SELECTED PERFORMANCE DATA, MBTA[a]

	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Revenue vehicle miles (millions)													
Rail	-	-	-	10.3	10.1	11.0	10.3	9.7	10.1	10.7	10.2	12.4	12.6
Streetcar and trolley	-	-	-	7.2	6.7	6.7	6.0	6.0	6.0	5.4	4.5	4.9	5.6
Bus	-	-	-	23.2	23.7	25.0	22.6	22.4	22.2	23.5	21.0	19.7	20.5
Total	-	-	-	40.8	40.5	42.7	38.9	38.0	38.3	39.6	35.7	37.0	38.7
Operating cost per revenue vehicle mile													
Total	-	$1.98	$2.31	$2.46	$2.46	$2.52	$2.64	$2.62	$2.68	$2.71	$2.79	$2.55	$2.45
Percent trips missed	-	-	-	-	-	2.59	2.79	2.64	3.74	2.21	3.05	3.58	1.98
Estimated ridership (millions)													
Total	178.0	158.0	146.0	144.5	143.5	145.7	146.7	151.4	155.6	158.3	143.4	144.4	154.0
Passengers per vehicle mile													
Total	-	-	-	-	3.54	3.41	3.77	3.99	4.06	4.00	4.01	3.91	3.98
Operating cost per passenger	-	$.56	$.65	$.70	$.70	$.68	$.70	$.66	$.66	$.68	$.70	$.65	$.61
Subsidy per passenger	-	$.273	$.398	$.470	$.489	$.475	$.506	$.479	$.494	$.511	$.488	$.418	$.398

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership and roadcalls as well as other terms; total revenue vehicle miles may not sum due to rounding; excludes commuter rail.

APPENDIX III

SELECTED PERFORMANCE DATA, MARTA[a]

	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Vehicle Miles (millions)													
Bus	-	-	22.4	24.6	27.0	27.2	27.5	28.4	30.2	31.8	31.4	30.3	28.9
Rail	-	-	-	-	-	-	-	-	-	2.8	4.1	3.9	4.9
Total	-	-	22.4	24.6	27.0	27.2	27.5	28.4	30.2	34.7	35.4	34.2	33.9
Operating cost per vehicle mile													
Bus	-	-	$.64	$.69	$.73	$.76	$.79	$.80	$.80	$.89	$.89	$ .92	$.91
Rail	-	-	-	-	-	-	-	-	-	$1.60	$1.35	$ 1.60	$1.41
Total	-	-	$.64	$.69	$.73	$.76	$.79	$.80	$.80	$.95	$.94	$ 1.00	$.99
Miles between service calls													
Bus	-	-	1,953	1,500	1,759	2,662	3,586	3,702	3,226	2,408	2,924	3,009	2,350
On time performance (percent)													
Rail	-	-	-	-	-	-	-	-	-	.977	.989	.990	.989
Total revenue passengers[b] (millions)	-	-	51.7	56.4	58.0	59.5	59.8	61.6	63.0	73.7	62.7	57.6	60.2
Passengers per vehicle mile													
Bus	-	-	2.95	2.93	2.75	2.84	2.87	2.81	2.75	2.73	2.69	2.78	3.03
Rail	-	-	-	-	-	-	-	-	-	4.30	5.20	5.40	7.79
Operating cost per revenue passenger	-	-	$.27	$.30	$.34	$.35	$.36	$.37	$.39	$.45	$.53	$.60	$.56
Subsidy per passenger			$.17	$.21	$.26	$.27	$.28	$.29	$.30	$.34	$.37	$.40	$.37

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership and roadcalls as well as other terms; total vehicle miles may not sum due to rounding.

[b]The Atlanta Regional Commission stated that FY 1983 ridership was 59.2 million; appendix not revised since data provided by MARTA and they indicate ridership was 60.2 million.

APPENDIX IV

SELECTED PERFORMANCE DATA, SCRTD[a]

	1969	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Vehicle miles (millions)													
Bus	-	-	64.0	67.0	69.0	100.0	101.8	104.2	101.8	99.0	103.3	103.5	103.3
Operating cost per revenue vehicle service hour	$9.79	$9.98	$10.80	$11.07	$12.26	$12.72	$13.03	$13.60	$14.78	$16.25	$17.28	$17.81	$18.59
Miles between road calls	-	-	-	-	-	-	-	-	-	1,299	1,295	2,794	2,730
Passenger boardings (millions)	142.0	141.9	198.9	204.8	217.7	309.8	282.1	315.9	344.7	352.6	397.0	352.7	415.9
Boardings per vehicle service mile	-	-	3.11	3.06	3.16	3.10	2.75	3.03	3.39	3.56	3.70	3.41	4.03
Operating cost per boarding	$.31	$.32	$.27	$.28	$.30	$.30	$.34	$.31	$.30	$.32	$.32	$.37	$.33
Subsidy per Boarding	$.01	$.04	$.10	$.13	$.21	$.20	$.23	$.18	$.17	$.20	$.19	$.20	$.24

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership, road calls, as well as other terms.

APPENDIX V

SELECTED PERFORMANCE DATA, WMATA[a]

	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Scheduled vehicle miles (millions)													
Bus	-	-	-	-	53.607	55.400	55.422	52.356	50.990	54.459	53.942	52.633	52.472
Rail	-	-	-	-	-	.300	1.147	6.374	12.279	16.741	17.969	17.440	17.397
Total	-	-	-	-	53.607	55.700	56.569	58.730	63.269	71.200	71.911	70.073	69.869
Operating cost per vehicle mile													
Bus	-	-	-	-	$1.11	$1.17	$1.18	$1.19	$1.20	$1.23	$1.23	$1.33	$1.37
Rail	-	-	-	-	-	-	$2.14	$2.70	$2.00	$1.85	$1.91	$2.23	$2.38
Total	-	-	-	-	$1.11	$1.17	$1.19	$1.35	$1.36	$1.37	$1.40	$1.56	$1.62
Miles between service calls													
Bus	-	-	-	-	-	-	-	3,167	2,753	2,171	1,795	1,892	1,961
Rail	-	-	-	-	-	-	-	-	8,659	9,545	9,348	9,331	17,149
Total passenger trips[b] (millions)	-	-	53.9	116.8	122.8	127.9	131.5	133.9	154.3	187.4	182.5	180.1	175.9
Passengers per vehicle mile													
Bus	-	-	-	-	2.29	2.29	2.29	2.15	2.35	2.74	2.62	2.58	2.48
Rail	-	-	-	-	-	5.00	5.77	5.85	4.82	4.52	4.21	4.50	4.64
Operating cost per passenger	-	-	-	-	$.49	$.58	$.51	$.59	$.56	$.52	$.55	$.61	$.64
Subsidy per passenger	-	-	-	-	$.21	$.32	$.26	$.32	$.30	$.28	$.29	$.34	$.37

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership and roadcalls as well as other terms.

[b]In commenting on the report, WMATA stated that ridership increased in FY 1984 to 181.1 million passengers.

APPENDIX VI

SELECTED PERFORMANCE DATA, NIRC[a]

	1965	1970	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
Vehicle miles (millions)	-	-	-	-	-	-	27.6	28.1	30.0	31.4	30.3	27.4	27.3
Operating cost per vehicle mile	-	-	-	-	-	-	$1.80	$1.99	$2.09	$2.14	$2.26	$2.53	$2.51
On time performance (percent)	-	-	-	-	-	87.4	86.7	86.1	80.3	91.5	92.4	91.1	91.4
Total passenger trips (millions)	-	68.6	66.6	68.9	68.7	68.7	70.1	73.7	80.8	83.5	72.0	61.8	60.6
Passengers per vehicle mile	-	-	-	-	-	-	2.5	2.6	2.7	2.7	2.4	2.3	2.2
Operating cost per passenger trip	-	-	-	-	-	-	$.71	$.76	$.78	$.80	$.95	$1.12	$1.13
Deficit per passenger trip	-	-	-	-	-	-	$.19	$.27	$.32	$.35	$.28	$.36	$.40

[a]All costs adjusted for inflation; data cannot be compared between systems due to differences in defining ridership and roadcalls as well as other terms.

APPENDIX VII

APPENDIX VIII

U.S. Department of Transportation
Office of the Secretary of Transportation

400 Seventh St., S.W.
Washington, D.C. 20590

MAY 17 1985

Mr. Dexter Peach, Director
Resources, Community, and Economic
Development Division
U. S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

Enclosed are two copies of the Department of Transportation's comments concerning the U.S. General Accounting Office draft report entitled, "20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed?"

Thank you for the opportunity to review this report. If you have any questions concerning our reply, please do not hesitate to call me.

Sincerely,

Bruce T. Barkley
Director, Office of
Management Planning

Enclosure

APPENDIX VIII

U.S. Department of Transportation
Urban Mass Transportation Administration

Memorandum

Subject: INFORMATION: Response to GAO Draft Report, "20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed?"

Date: MAY 17 1985

From: Raymond J. Sander
Executive Director

Reply to Attn of: UBP-10-04/8100-17
Hedges, 426-4060

To: Jon H. Seymour
Deputy Assistant Secretary for
Administration

This memorandum summarizes the draft report on transit recently completed by GAO. The report contains no conclusions or recommendations.

PURPOSE

The stated purpose of the report is to provide Congress an overview of how mass transit has changed since Federal assistance began in 1965, particularly with respect to: (1) service provided (amount, quality and cost); (2) ridership; and (3) benefits (reduction in congestion, air pollution and energy consumed, and assistance to the transportation disadvantaged). Thus, the report is asking what has been accomplished as a result of over $30 billion of Federal capital assistance for vehicles and facilities and Federal operating assistance for operating expenses over a twenty (20) year period.

APPROACH

To answer these three (3) questions, GAO analyzed national data obtained from APTA and UMTA, read analyses of such students as Pucher, Pickrell, Gomez and Meyer and Altschuler, and reviewed the experience of transit in Washington, Atlanta, Los Angeles, Boston and Chicago. Throughout the report, the emphasis is on the extent to which riders were diverted from autos to transit.

The report does not go beyond the wording of the Act to determine the congressional intent of the program. It does not question the data or the opinions and conclusions of the writers quoted or consider the cost-effectiveness of alternatives.

PRINCIPAL FINDINGS

1. Transit Service. Transit vehicle miles declined from a high of 3.25 billion in 1945 to a low of 1.76 billion in 1972. During the period 1965 to 1982, transit service increased from 2.00 billion to 2.13 billion vehicle miles, an increase of 6 percent. These figures include added rail services in eight (8) cities.

The cost of transit service increased from 72 cents per vehicle mile in 1965 to $1.28 in 1982, or an increase of 78 percent in 1965 prices. The higher cost per vehicle mile is attributed to higher fuel cost (20 percent of the total), more complex and more expensive vehicles, lower labor productivity as a consequence of greater peaking and extending services to suburban areas with lower population densities.

The quality of transit in terms of "on-time" performance has declined because of reduced vehicle reliability, reflecting a higher average age of vehicles, poorer maintenance and more frequent breakdowns for new buses. The increased emphasis on maintenance in the STAA of 1982 reflects congressional concern about this problem.

2. Transit Ridership. The peak in transit ridership was 1945, when APTA reported a total of 18.98 billion unlinked passenger trips. The number fell to 6.80 billion in 1965 and hit a low of 5.25 billion in 1972. Ridership increased to 6.00 billion by 1982, or an increase of about 13 percent during the period 1972-1982. Transit's share of the commuting market fell from 9 percent to 6.4 percent during the period 1970-1980, however.

   The report explains the ridership trend since 1972 in terms of the following "uncontrollable" factors: (1) the shift in population to the suburbs and reduced average density; (2) changes in travel patterns (particularly a smaller share of trips following traditional radial patterns and an increased share of suburb-to-suburb trips); and (3) the sharp increases in fuel prices in 1973 and 1979. "Controllable" factors which also explain the trend include the increases in fares, expansion of service to outlying areas and poorer service reliability.

   The increased ridership has come at a high price, however. The combined subsidy from all levels of government was 2 cents per rider in 1965, 5 cents in 1970, 8 cents in 1972 and 27 cents in 1982 (all figures in constant 1965 dollars).

3. Benefits. Significant improvements in congestion, air quality and energy consumption would require massive shifts from the private automobile to urban public transportation. While transit improvements have contributed to reduced congestion, air pollution and energy consumption in particular corridors, much larger gains have resulted from TSM strategies such as ridesharing, priority to high-occupancy vehicles and measures to improve traffic flow, and from congressionally mandated emission controls and fuel-economy standards. The figures cited in (1) and (2) above indicate that transit's share of the urban passenger travel market is too small--and the difficulties of increasing the market share are too great--to expect transit improvements to significantly affect congestion, pollution and energy consumption.

Similarly, transit tends to respond to rather than create changes in land use. Thus, while improved or new transit service (particularly rail) can contribute to the achievement of community land-use goals, transit must be accompanied by other policies (particularly zoning) if it is to shape urban development. For example, higher densities are typically encouraged in the urban core, but discouraged in the suburbs.

Finally, there is no doubt that the Federal transit program has assisted disadvantaged citizens. Fares have been lower as a result of the program, services have been maintained and even extended, and special programs have assisted the elderly and handicapped. However, a larger number of middle and upper income riders were benefitted because they have constituted the majority of the riders. Other approaches (e.g., user-side subsidies) would have been better suited to assist low-income riders. By the same token, the number of handicapped individuals using transit is small, especially when compared to the costs of making transit vehicles and stations accessible. Special paratransit services are more responsive to the needs of handicapped individuals and frequently are more cost-effective than conventional transit.

UMTA Response

UMTA finds nothing objectionable in the GAO draft report. The data appear to be accurate and the findings reasonable. GAO appears to have done a reasonable job in the study.

[GAO Comment: The Department's response has been incorporated in the final report.]

APPENDIX IX

American Public Transit Association
1225 Connecticut Avenue, N.W.
Washington, DC 20036
Phone (202)828-2800

Jack R. Gilstrap
Executive Vice President

May 8, 1985

Mr. J. Dexter Peach
Director
United States General Accounting
Office
Washington, DC 20548

Dear Mr. Peach:

The American Public Transit Association appreciates the opportunity to provide comments on the draft GAO report entitled, 20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed? We have reviewed the report thoroughly and have a number of comments, both general and specific, for your consideration.

In many respects the report provides a perspective that has long been missing from overviews of the federal transit program and the public transit industry. The framework which introduces the concept of "controllable" and "uncontrollable" factors affecting performance, cost and goal attainment is particularily noteworthy in this regard. Also, we commend you and your staff for providing APTA, with the opportunity to discuss and review with you the results of the study.

Overall, the report is comprehensive in scope. We feel, however, that it is incomplete and somewhat superficial in several major respects. In some cases, broad issues are addressed through the use of extremely limited and sometimes unreliable data; in other instances a single, over-simplified approach is taken on critical aspects that are deserving of more careful and detailed treatment.

As a result, we believe the report, in both its structure and tone, tends to systematically understate the significant progress and achievements of the last 20 years and often reflects on this progress in generally negative terms. To the degree that these shortcomings are carried through to the final report, its value as an overview resource is greatly reduced.

The following comments are intended to highlight the problems and issues we feel deserve closest attention in the preparation of the final report.

General Comments

1. The time periods used, or referred to, in the report are often inappropriate to the report's purpose, i.e. relating transit performance to the availability of federal aid. No attempt is made to describe specifically the stages through which the federal transit program has evolved and to link these stages to transit industry performance. Gross trends charted largely between 1965 and 1982, etc. totally disguise much more significant trends within this period. The importance of the federal program and the revitalization of public transit services can be described fully only if more detailed observations are made, e.g. initial capital funding in the 1960's was small; during the early years under the federal program the transit industry remained in a very definite period of transition; ridership reached a low point in 1972 and increased dramatically and consistantly in the following years; federal operating assistance did not begin until 1975, etc.

   The figure in Appendix 1 to this letter illustrates just one instance of how the failure to comprehensively note these and other significant factors within the 20-year time frame can result in a totally inaccurate picture of the trends in transit and the effect of the federal program. More importantly, no inference can legitimately be made about the impact of the operating assistance program unless the period(s) of analysis account explictly for the program's start in 1975. Appendix 2 to this letter contains just such an analysis recently completed by APTA.

   For the report to be both credible and useful, a much more careful approach needs to be taken to the time frames, events and trends of the 20-year period under review. (Reference pp. i, 10, 13, 14, 16, 22, 28, 31, etc.)

2. The use of gross aggregate data at the national level presents only a superficial picture. The service and operating characteristics of transit systems, as well as the use to which they have put federal funds varies significantly by system size, by region of the country, by mode (rail vs. bus vs. combined) etc.

   No effort to provide an overview of the type intended is complete or its conclusions meaningful without some discussion of these distinctions.

3. The goals established for transit in statute and by policy or regulation are often inconsistent or conflicting. The goal of stablizing fares has promoted increasing revenue shortfalls; the goal of expanding service often promotes less than maximum performance. Statutory and regulatory requirements directly and indirectly act to increase costs and, at the same time restrict revenue-raising potential.

The conflicting nature of the goals established for transit is often overlooked and should be a central theme in a review of this kind. Instead, the report deals with various aspects of goal attainment independently and often without recognition of the inherent conflicts that have emerged in 20 years of program development.

A related problem that is worthy of attention is the character and translation of statutory goals as they are clarified through the regulatory, policy and procedural process. The broad goals expressed in statutory language, logically and of necessity, often get translated into somewhat more specific objectives in their application. A good example is the goal of congestion relief. While 'urban congestion' is the way the statute characterizes this issue, the ultimate practical application of this goal is carried out at a corridor level in the development of new systems and services. A report of this type should: a) explicitly recognize how broadly-stated Congressional language gets translated into meaningful, applied goals and objectives; and b) the analysis of goal attainment should focus at least as strongly on the practical expression of these goals as on their broad characterization.

Specific Comments

1. Repeated references to national aggregate Census journey-to-work statistics provide a very incomplete picture and are often used to misrepresent or disguise significant trends in transit ridership. Appendix 3 provides a critique of the interpretation of and overreliance upon the national aggregate Census figures, indicating again that a more detailed look at data is critical to the credibility and objectivity of the report. Greater attention to the details of the Census data, only slightly beyond the national aggregate level, provides a very different picture than that contained in the draft report. For instance, if the effect of percentage declines in work-trip transit use in New York, Philadelphia and one other major, transit-dependent city are removed from the national aggregate figure, the result would be an increase for the nation as a whole. Certainly no one would argue

that declines in New York or Philadelphia have somehow diminished the fundamental importance of transit in those regions.

Also, the national aggregate totally disguises the fact that numerous regions in the south and west have experienced increases of 100% or more in the use of transit for work trips.

Finally, the Census figures deal only with work trips which represent 40-60% of total transit use. Total ridership increased significantly during the 1970's.

Some additional balance and depth is needed and the repetitive references should be reduced. (Reference pp. iv, 2, 6, 27, 28, 29, 30, 32, etc.)

2. Statements which suggest declining productivity in public transit can and should be countered and a much better balance of evidence on this issue should be provided. It is common practice for critics of public transit to produce demonstrations of declining productivity and to associate these declines with the availability of federal aid. The draft report relies almost exclusively on these or similar views and data. Appendix 2 contains an analysis which provides a very different picture than presented in the draft report. This data and resulting conclusions strongly support a passing reference to work by Michael Kemp (Reference pp. 15, 16). A much better balance in the discussion of productivity should be provided and can be supported based on material in Appendix 2.

3. Recently published data on the income levels of transit riders should be incorporated. Both the DOT Section 310 study, and data provided to Congress from a recent APTA survey provide an important added dimension to the discussion of low income transit use. This additional perspective should be incorporated. (Reference p. 37, etc.)

4. Inflation adjustments for transit costs may not be appropriate or accurate. Use of standard inflation adjustment mechanisms and indices in reviewing trends in transit costs may not accurately reflect actual experiences in the transit industry. There is considerable evidence that the cost increases of goods and services required by the transit industry have exceeded the increases of most broad-based indices. Some mention of this possibility along with examples (e.g. fuel costs, insurance etc.) should be made if no specific analysis is provided.

5. The approach to assessing the quality of transit service is far too limiting. Despite the references made to all the qualitative factors for which data are not available, the total and repeated reliance on road-call statistics simply does not represent a valid or complete discussion of the subject. Most importantly, road-call data at the national aggregate level, regardless of the source is highly questionable because of definitional and measurement problems over time and between systems.

   As a means to broaden the discussion, for instance, some connection could be drawn between ridership increases and reliability, since convenience and reliability of service are universally viewed as the most critical factors in attracting riders. (Reference pp. iv, 10, 17, and 18).

6. Two perspectives related to the discussion of air quality and energy savings should be added. First, the principle viewpoint used in the draft report is to gauge success in these areas largely as a function of new riders attracted. Equal attention should be placed on the value, in environmental terms, of retaining current ridership, i.e. what impact would result if current riders were abandoned to dependence on the auto.

   The second perspective that deserves some treatment is the potential value of transit vs. the actual value. Clearly, a transit bus with over 60 seated and standing passengers (i.e. at capacity) has a substantially greater potential for fuel and emissions savings than a six passenger car, regardless of technology improvements.

   If the air quality and energy issues are to be treated fully, some additional perspective on inherent "potentials" is of value, along with some discussion of why these potentials are not being realized, such as many of the issues noted as 'uncontrollable' in the report. (p. 41, etc.).

7. There is somewhat of an imbalance in how the views of "analysts" and "industry professionals" are portrayed. More often than not, outside analysts and their work is characterized as somehow more valid or credible than the views of transit operators. (e.g. research often "indicates" something while transit professionals merely "suggest"... etc.).

   The experience, insight and intuition gained from years in the industry should be considered at least as significant and informative as outside analysis, both on the national scale and at the individual property level.

Appendix 4 highlights a number of more detailed, editorial comments.

Again, we appreciate the opportunity to review and comment on the draft report and look forward to assisting GAO in any additional efforts related to public transit.

Sincerely,

Jack R. Gilstrap

Attachments

[GAO Comment: APTA's comments have been incorporated, where appropriate, in the body of the report. Page references have been changed to correspond to the final report. Its three general comments have been included on pages 7, 8, and 35, respectively. APTA's first six specific comments have been inserted, where appropriate in the final report. Regarding the last specific point, we state in our objectives, scope, and methodology section that we contacted UMTA, APTA, and transit research organizations to obtain a broad overview concerning changes in mass transit nationwide, while we relied upon local transit and transportation planning officials to obtain a local perspective on transit and its associated benefits. We treat equally the views of the organizations and individuals contacted in our review. (See pp. 5, 6, 14, 18, 21, 22, 26, 37, and 43.)]

Chicago Transit Authority
Merchandise Mart Plaza, P.O. Box 3555
Chicago, Illinois 60654
(312) 664-7200

Bernard J. Ford
Executive Director

Mr. J. Dexter Peach
Director; Resources, Community and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

April 30, 1985

Dear Mr. Peach:

My staff has reviewed the document 20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed. Their review raised a number of concerns about its use as a report to Congress for use during deliberations on the future of federal mass transit funding. The impact of federal funding on mass transit is a very complex issue, as is mentioned in the overview section of the document's digest. However, the performance of transit is analyzed in a fairly simplistic manner in this document. Analyzing an issue at a level of complexity less than the complexity of the issue itself may result in summaries or conclusions that are not representative. If one reads the entire document in an objective manner, it can appear objective. However, we feel the document could easily be interpreted as a negative statement about transit -- especially if the digest is read without the rest of the text.

We have prepared the attached set of comments to the draft document. There are two major concerns with the analysis. First, looking at all transit properties without regard to size, age or modal mix can lead to invalid conclusions. You state in the text that the five case studies cannot be taken as representative of all transit. Neither then, should national averages be used to represent transit performance. Second, all dollar amounts are referred to as inflation-adjusted. Inflation-adjusted should mean that all effects of inflation are removed. We do not believe that the GNP implicit price deflator removes all effects of inflation from the costs that transit has experienced over the past 20 (and especially the last 10 years). Both of these issues are dealt with in more detail in the attached critique. In addition, we have provided specific comments to sections of the report.

I hope these comments are useful to you as you finalize your report.

Sincerely,

Bernard J. Ford
Executive Director

LRO/smw
Attachment
cc: E. Sawyer
J. Lawrie
H. Hirsch
M. Johnson
S. Schlickman
D. Stuart

[GAO Comment: We have included and responded to CTA's concerns, where appropriate, in the final report.]

APPENDIX XI

Department of
Transit Operations

marta

2200 Peachtree Summit
401 West Peachtree Street, N.E.
Atlanta, Georgia 30365-4301

April 30, 1985

Mr. J. Dexter Peach
Director
Resources, Community, and Economic
Development Division
United States General Accounting Office
Washington, D.C. 20548

Subject: 20 Years Of Federal Mass Transit Assistance: How Has Mass Transit Transit Changed?

Dear Mr. Peach:

We have reviewed the draft report. For the most part it is a fair representation of recent trends in transit. However, there are several specific statements which tend to understate the benefits of transit, or which overgeneralize some negative factors. Our specific comments follow.

p.ii: We don't know of eight new federally supported rail lines. The only new federally-funded systems operating in 1982 were WMATA and MARTA.

[GAO Comment: The final report has been revised to clarify the statement. (See p. 3.)]

p.v: The general statement that E&H services are costly and not highly utilized is misleading. The half-fare program is not very costly and is well utilized. Special services are also well utilized in most areas. Only the use of lift-equipped buses on regular routes has proven to be costly and poorly utilized. Also, alternatives such as taxis are not available to many patrons due to the high cost.

[GAO Comment: The section of the report pertaining to MARTA's services for the elderly and handicapped was revised to reflect the above comment. (See p. 40.)]

p.15: The statement about "substantially inferior" productivity growth should be substatiated if used in this report. One shouldn't compare transit, where each bus requires a driver, to manufacturing industries which can be automated. How does transit compare to other industries in the transportation sector?

April 30, 1985
Page Two

Subject: 20 Years Of Federal Mass Transit Assistance: How Has Mass Transit Changed?

[GAO Comment: We have not revised the statement on the lack of productivity growth since it is a quote from transit researchers. Regarding how transit compares with other sectors, we refer to research in the final report which indicate that the wages of transit workers have kept pace, from the mid-1970's on, with the wages of other public employees and industrial workers. (See pp. 14 and 15.)]

p.37: Contrary to Altshuler's conclusion, a MARTA study (Fare Structure Study, 1982) showed that the extensive use of unlimited-ride passes resulted in higher subsidies for low-income riders. Also, trip lengths were not very different among income groups, due to extensive reverse-commuting to suburban jobs by low-income riders. Thus, the unlimited-ride pass is an effective means of targeting subsidies, without the administrative burden of a certification program.

[GAO Comment: We have revised the final report to incorporate MARTA's comments pertaining to its services for low-income transit riders. (See p. 38.)]

p.42: The 1977 CBO energy report was shown to have numerous technical flaws in subsequent Senate hearing testimony, and should not be quoted in this report. Among other things, the report made extensive use of early experience at BART in analyzing new rapid rail systems. This is not representative of more efficient systems such as WMATA and MARTA. The report also overlooks the significant national benefit achieved by rail transit in shifting the source of energy from imported oil to domestic coal.

[GAO Comment: We recognize in the report that the CBO study focuses on San Francisco's BART system and that research does indicate that the new heavy rail systems operate more efficiently. However, as we point out on page 42, new rail systems are considered by researchers to be less energy efficient when considering such factors as the energy used in construction and the transportation mode used by people traveling to and from rail stations. Regarding the technical accuracy of the CBO study, we state in our methodology that we did not evaluate the analyses of the research cited in our report. (See p. 8.)]

p.44: The ARC air quality projection for 1982 was based on an incomplete 13-mile system. The benefits from the current 25-mile and planned 53-mile system will be much more significant.

[GAO Comment: We have revised the final report to reflect these comments on the rail system's air quality benefits. (See p. 44.)]

APPENDIX XI

pp. 34 and 37: The report defines two national objectives in such a limited way that it would be impossible to achieve both. The statement on p. 34 that transit "has not diverted a significant number of people from their automobiles" is not suported by experience in Atlanta, where 30%, or 20,000 of the 70,000 riders on the 12-mile East-West Line were former auto riders. These former auto riders have higher-than-average incomes. However, this fact is thrown back as a criticism on p. 37: "the poor are unrepresented on rapid transit lines". A rail system can't divert significant numbers of auto trips without an upward shift in the income profile. Nevertheless, low-income riders still constitute the largest proportion of rail riders, and they benefit from faster travel times, more frequent service, and accompanying expansion of feeder service to suburban job markets.

[GAO Comment: The final report has been revised to reflect MARTA's comment on the conflicting nature of some of the national objectives established for transit. (See p. 35.)] Also, MARTA's comments regarding the use of the rail system by low-income persons and the attraction of automobile users to the system have been included on pages 38 and 43, respectively.

Thank you for the opportunity to comment on this report.

Sincerely,

Bruce B. Emory

Bruce B. Emory
Deputy Assistant General Manager
Operations Planning & Marketing

BBE/t

cc: Kenneth M. Gregor, General Manager
William C. Nix, Assistant General Manager, Transit Operations
Theodore R. Williams, Director, Service Planning & Scheduling

APPENDIX XII

John A. Dyer
General Manager

MAY 7 1985

Mr. J. Dexter Peach
Director
Resources, Community, and Economic Development Division
United States General Accounting Office
441 "G" Street
Room 4915
Washington, D. C. 20548

Dear Mr. Peach:

We appreciate the opportunity to comment on your draft report, 20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed?

As noted in staff discussions with Alice London on May 1 and 2, 1985, we concur with the data presented in the draft report as it pertains to the SCRTD with the following exceptions:

Page 12 "SCRTD (Los Angeles) operates a fleet of 2,960 buses."

THE DISTRICT OPERATES AN ACTIVE FLEET OF 2,863 BUSES. THE TOTAL NUMBER OF BUSES, INCLUDING RESERVES, IS 2,960.

[GAO Comment: We have revised the report to reflect SCRTD's total bus fleet. (See p. 12.)]

Page 20 "Also, in 1981 the system introduced a new computerized information system to make preventive maintenance more visible and to improve methods for tracking problems."

"ALSO, IN 1981 THE SYSTEM INTRODUCED CERTAIN COMPONENTS OF A NEW COMPUTERIZED INFORMATION SYSTEM TO MAKE PREVENTIVE MAINTENANCE MORE VISIBLE AND TO IMPROVE METHODS FOR TRACKING PROBLEMS."

[GAO Comment: The report has been revised to reflect the above language. (See p. 20.)]

Page 27 "All transit systems but the SCRTD noted that fuel prices and/or availability had affected past ridership."

"ALL TRANSIT SYSTEMS NOTED THAT FUEL PRICES AND/OR AVAILABILITY HAD AFFECTED PAST RIDERSHIP."

[GAO Comment: The statement was revised to reflect SCRTD's position. (See p. 27.)]

Southern California Rapid Transit District 425 South Main Street, Los Angeles, California 90013 (213) 972-6000

Page 40 "SCRTD operates accessible bus service on all its routes with 54 percent of its active fleet being lift-equipped. SCRTD officials estimate that 49 percent of its daily service is accessible to the elderly and the handicapped."

THE DISTRICT OPERATES ACCESSIBLE BUS SERVICE ON ALL OF ITS ROUTES, WITH 66 PERCENT OF ITS ACTIVE FLEET BEING LIFT-EQUIPPED. IN ADDITION, 67 PERCENT OF ALL BUS LINES ARE ACCESSIBLE TO ELDERLY AND HANDICAPPED PATRONS.

[GAO Comment: The section of the report pertaining to SCRTD's services for the elderly and handicapped has been revised. (See p. 40.)]

In addition, we would also like to present our professional objections to the overall tenor and the conclusions that are contained or can be inferred from the report as currently written.

1. In general, the conclusions concerning the transit industry as a whole are inconsistent with, and not supported by, the results of the data and information relating to the five properties surveyed by the G.A.O. If we assume that the properties chosen for specific study are representative of the industry in that they are geographically dispersed, had a high percentage of capital grants and represent a mix of new and old systems then it follows that their performance should correlate to the performance of the industry. The conclusions you reached may be based on material not included in your report, but logically they do not seem to follow the experience of the surveyed properties.

[GAO Comment: Overall, many of the transit performance and ridership trends depicted for the five systems reviewed do correspond to national aggregate trends. Therefore, in our opinion, no inconsistencies exist in the presentation of national and system-specific trend data. We point out in the report that (1) transit case studies cannot be projected nationwide and that (2) the trends of specific systems cannot be compared against aggregate national trends. (See pp. 5 and 6.)]

2. In the first sentence of the Digest section of the report on page 1 you indicate that Congress enacted the Mass Transportation Assistance Act of 1964 because of concern over the transit industry's deteriorating financial condition, decreasing availability of transit service, and declining transit ridership. With the programs and funding that the Congress has provided transit systems have been highly successful in achieving these three major objectives. While not robust the financial condition of the transit industry is substantially improved from the period prior to the passage of the Act in 1964. In addition, your report cites that annual vehicle miles increased by 6 percent nationwide between 1965 and 1982 and on page iv of the report you state that after a 20 year decline ridership began to grow in the 1970's increasing from 5.3 billion passenger trips in 1972 to 6 billion trips in 1982 or an increase of 13 percent.

In contrast to what appears to be a negative conclusion about the value of the transit investment, these statistics show that the Federal government in concert with the transit industry has been highly successful in reversing the downward trend in transit service and in fact has seen the trend not only stablize but improve.

Certainly costs of service have increased beyond the rate of inflation as have most, if not all, industries that are labor intensive and are dependent on petroleum products as a source of energy. However, these costs have stablized (as has the cost of oil) since 1981 and four of the five properties surveyed noted a slowdown in cost increases. For the increases in costs since 1965 Congress and the public received not only increases in the hours and miles of service but also improvements in the quality of service provided. Quality of service items include a higher percentage of air-conditioned, wheelchair and elderly accessible buses with a heavier, safer design.

[GAO Comment: We recognize, as does SCRTD, that federal assistance has helped the transit industry reverse and, in fact, increase the level of transit service nationwide. However, we are unable to comment on how successful the reversal has been since there are no quantified, measurable objectives against which one can judge the significance of the changes discussed in the report. (See p. 22.)]

3. The report states on page vi that transit's share of the commuting market has decreased over the last 10 years and represents a small portion (about 3 percent) of all urban transportation trips when compared to the automobile. No comparison is provided in the report on the proportion of funds spent for transit in the last 20 years compared to funds spent on highways either at the federal level or in total. It may well be that transit spending over the years has been proportional to highway spending in comparison to the benefits derived, and therefore the 3 percent figure alone may present a distorted picture. In addition, as was proven during the 1984 Summer Olympics held in Los Angeles minimal reduction in overall vehicle trips can have a significant impact on an area's transportation system. For example, during the 1984 Olympic Games in Los Angeles which featured heavy emphasis on transit, there was a 2 percent reduction in vehicle trips. Moreover, the positive impact of reduced auto and increased transit trips on the transportation system was chronicled in local, national and international reports.

[GAO Comment: SCRTD raises the point that the amount spent on the federal mass transit program may be proportional to the benefits received compared to the federal investment in highways. Although such an analysis would have raised some interesting issues, it was not within the scope of our review which strictly focused on the impact of the transit program. (See p. 4.)] Regarding SCRTD's perspective on reductions in vehicle trips affecting an area's transportation system, we have revised the final report to reflect its comments. (See p. 46.)]

4. Finally, conclusions are drawn in the report on the effectiveness and efficiency of service for the elderly and handicapped based on a literature search and do not appear to be substantiated by analysis in the report. In an area as important and potentially controversial as service to the E & H community it would appear more appropriate for the GAO to review this matter objectively and in more depth than presented in the report.

[GAO Comment: We state in the report that we have not evaluated the research we used in preparing the report. However, we believe our study presents a good general overview of selected research on these and other topics. (See pp. 7 and 8.)]

I hope these comments are helpful to you in preparing the final draft of the report and I would be more than happy to discuss our comments or any other portion of the report with you at your convenience.

Sincerely,

John W. Dyer

GAO note: Page references in the appendixes have been changed to correspond to page numbers in this final report.

APPENDIX XIII

Washington Metropolitan Area Transit Authority

600 Fifth Street, N.W., Washington, D.C. 20001
(202) 637-1234

May 9, 1985

Mr. J. Dexter Peach
Director, Resource, Community
and Economic Development Division
U.S. General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

We have reviewed the GAO draft report "20 Years of Federal Mass Transit Assistance: How has Mass Transit Changed?"

GAO has obviously put considerable effort into this review. The specific references to the Washington Metropolitan Area Transit Authority appear accurate with a few minor exceptions which have been identified in the enclosures.

Because the report includes Metrobus and Metrorail ridership statistics only through fiscal year 1983, a declining ridership trend is depicted. The report shows decreases in millions from FY 1980 to FY 1983. However, since that time WMATA has experienced an increase of more than five million patrons in FY 1984 and projects a further increase of eight million for the current fiscal year.

The report, relying on data for fiscal years 1980 to 1982, discusses the benefits of mass transit in a negative fashion. However, during the ensuing years, WMATA has experienced expanded service, a significant increase in reliability, increased cost recovery and an increase in ridership as a percentage of the commuting market.

One of the difficulties that springs from separate properties commenting on separate elements of the report is that no single industry reviewer is given the benefit of evaluating the fairness of the report's conclusions against the overall weight of the evidence provided. GAO may wish to consider a final broad-based review utilizing the American Public Transit Association or a representative industry-wide review panel for such a purpose.

We appreciate the opportunity to review the draft report and hope our comments are helpful.

Carmen E. Turner
General Manager

Enclosures
as stated

[GAO Comment: We have revised the final report, where appropriate, to reflect WMATA's comments pertaining to performance improvements subsequent to our review.]

APPENDIX XIV

Atlanta Regional Commission
100 Edgewood Avenue, NE, Suite 1801
Atlanta, Georgia 30335 • 404 656-7704

Harry West
Executive Director

May 1, 1985

Mr. J. Dexter Peach, Director
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

The Atlanta Regional Commission (ARC) received your letter April 4, 1985, and the proposed report, 20 Years of Federal Mass Transit Assistance: How has Mass Transit Changed? Our staff has carefully reviewed the report and our comments are enclosed.

ARC is concerned about the future funding of mass transit and we are committed to the transportation needs of our Region. Mass transit is vital to our Region's growth and development. Our transportation policies have and will continue to encourage planned improvements to our integrated, multi-modal transportation system.

We concur in your findings that transit serves an important role in meeting a variety of social, economic and environmental goals and that federal assistance has contributed to this record. We feel the future ability of transit to continue and to improve its service to urban America is in fact dependent on ongoing federal participation. The MARTA experience in the Atlanta Region is a good example of public investments resulting in expanded service and increased ridership.

Thank you for the opportunities to participate in this study and to review the draft report. Should you desire to discuss our comments, do not hesitate to call me or Phil Boyd, ARC's Chief of Transportation Planning, at 656-7735.

Sincerely,

Harry West
Executive Director

HW:kl

Enclosures

[GAO Comment: We have included ARC's comments, where appropriate, in the final report.]

APPENDIX XV

CTPS

State Transportation Building
10 Park Plaza, Suite 2150
Boston, MA 02116-3968
(617) 973-7100

CENTRAL TRANSPORTATION PLANNING STAFF

May 21, 1985

Mr. J. Dexter Peach, Director
Division of Resources, Community
and Economic Development
U.S. General Accounting Office
Room 4915
441 G. Street NW
Washington, D.C. 20590

Dear Mr. Peach;

Thank you for the opportunity to review a copy of your draft of a proposed report entitled: "20 years of Federal Mass Transit Assistance: How has Mass Transit Changed?" I have two basic concerns with the draft.

First, the overall impression from the draft is that mass transit has fallen short of achieving the benefits envisioned by the Congress twenty years ago despite over $30 billion of federal assistance, and that it is therefore appropriate that such assistance be targeted for reduction. In my opinion it is not adequate to focus only on broad trends in the transit industry specifically and in affected areas generally. The essential issue that must be addressed is the extent to which the benefits envisioned by Congress twenty years ago would have been achieved had federal assistance not been available. I appreciate that this is a difficult issue to address, but ignoring it is a disservice to the present Congress as it deliberates the future of federal funding for mass transit.

Second, while acknowledging that transit ridership has grown in absolute numbers, the draft also notes that transit share of the commuters market has declined. While the report indicates that this is partly due to population and employment shifts from cities to suburbs not typically well served by transit,one is left with the impression that transit is less important to commuters than it used to be. On the contrary, recent experience in Boston shows that the biggest problem faced by the MBTA is not how to convince commuters to use the system, but how to carry all the commuters who want to use the system. Federal cuts in the mass transit budget can only have a debilitating effect on the systems capacity to carry commuters.

As the Director of a staff responsible for planning a transportation system in the Boston region that achieves a balance between highways and mass transit, I am disappointed in the depth of the draft and I am very concerned that it would lead the reader toward erroneous conclusions.

A Cooperative Transportation Planning Effort of the Executive Office of Transportation and Construction, Massachusetts Bay Transportation Authority, MBTA Advisory Board, Massachusetts Department of Public Works, Massachusetts Port Authority, Metropolitan Area Planning Council

Should you have any further questions, please do not hesitate to call.

Very truly yours,

Arnold J. Soolman
Director

AJS:klf

[GAO comments: We realize that the report, though informational in nature, could be used by opponents of the federal transit program to advocate that assistance should be reduced. However, we note in the report that federal assistance has helped, for example, reverse service level and ridership declines, modernize the nation's transit fleet, and enhance the mobility of the transportation disadvantaged. The report does not, however, make any value judgments concerning the significance of these achievements, nor does it attempt to recommend appropriate funding levels for the federal transit program. Finally, the CTPS's comment on the importance of transit in Boston has been incorporated on page 30 of the final report. (See pp. 3, 22, 32, and 49.)]

APPENDIX XVI

CHICAGO AREA TRANSPORTATION STUDY
300 W. Adams Street Chicago, Illinois 60606

May 15, 1985

Mr. J. Dexter Peach, Director
Resources, Community and
Economic Development Division
United States General Accounting Office
Room 4915 - 444 G Street N.W.
Washington, D.C. 20548

Dear Mr. Peach:

This letter is in reply to your request for comments on portions of the report 20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed?

We have reviewed the portions of the report you sent us and have found the information pertaining to our area accurate. We did note that all references to the MPO's of the case study areas are in general terms and never by a specific name. We know of no reason why the name of our organization or the other MPO's should not be mentioned.

Yours truly,

Aristide E. Biciunas
Executive Director

AEB/ls-70950

APPENDIX XVII

metropolitan washington
COUNCIL OF GOVERNMENTS
1875 Eye Street, N.W., Suite 200, Washington, D.C. 20006 223-6800

April 22, 1985

Mr. J. Dexter Peach
Director
Resources, Community, and
Economic Development Division
United States General Accounting Office
Washington, D.C. 20548

Dear Mr. Peach:

As requested, we have reviewed a copy of the draft of a proposed report entitled "20 Years of Federal Mass Transit Assistance: How Has Mass Transit Changed?" The report contains no significant inaccuracies based on our Staff review.

As requested, we are returning the draft report per your instructions by letter of April 1, 1985.

Sincerely yours,

Albert A. Grant, P.E.
Director
Department of Transportation Planning

Enclosure

cc: Mr. Robert E. Robertson

(345576)