

A
STUDY of URBAN
MASS TRANSPORTATION
NEEDS and FINANCING

Report of the Secretary of Transportation to the
United States Congress pursuant to Section 138(a),
Public Law 93-87,
The FEDERAL-AID HIGHWAY ACT of 1973



U.S. DEPARTMENT of TRANSPORTATION
WASHINGTON, D.C.

JULY 1974





THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

July 29, 1974

Honorable Gerald R. Ford
President of the Senate
United States Senate
Washington, D.C. 20510

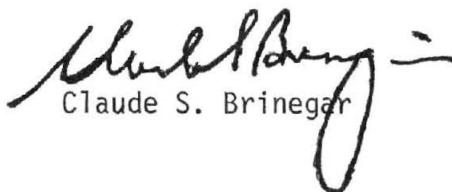
Dear Mr. President:

I am pleased to submit the Department's Study of Urban Mass Transportation Needs and Financing required by Section 138(a) of the Federal-Aid Highway Act of 1973. As required by the Act, this Study was carried out in cooperation with the Governor of each State and appropriate local officials.

The urban mass transportation needs described in this Study represent the plans and proposed programs of the States and urban areas, but have not been endorsed by the Department. It was not possible in a broad national study of this type to evaluate individual plans and programs. However, as States and localities request capital assistance for implementing their plans, the Department will examine them very closely, particularly the expensive fixed guideway projects, to determine whether they are the most cost-effective solutions to the particular areas's transportation problems.

Our analysis of the financial implications of the State and urban area plans and programs has led us to conclude that if our proposed Unified Transportation Assistance Program were enacted, the States and localities would be able to carry the financial burden, even if the proposed programs were implemented in their entirety. However, there would have to be a substantial financial commitment from the States and localities and some hard decisions made by them about public expenditure priorities, fare policies and taxation levels. This further underscores the need for careful review by States and local governments themselves of their overall plans before asking for commitments by the Federal Government.

Sincerely,


Claude S. Brinegar

Enclosure

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THE SECRETARY OF TRANSPORTATION
WASHINGTON, D.C. 20590

July 29, 1974

Honorable Carl Albert
Speaker of the House
of Representatives
Washington, D.C. 20515

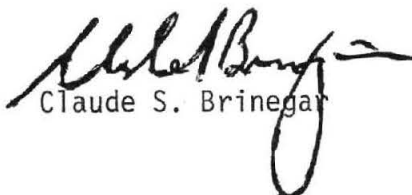
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Sincerely,


Claude S. Brinegar

Enclosure

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I. EXECUTIVE SUMMARY

This report responds to Section 138(a) of the Federal-Aid Highway Act of 1973 which directs the Secretary of Transportation, in cooperation with the Governor of each state and appropriate local officials, to evaluate the portions of the 1972 National Transportation Report pertaining to urban mass transportation, and specifically to address the following subjects:

- . Refinement of urban mass transportation needs and a determination of system operating and maintenance costs.
- . Development of a program to accomplish the needs of each urban area for public mass transportation.
- . Determination and comparison of fare structures of all urban mass transportation systems and their relationships to operating and maintenance costs.
- . Analysis of the financing capabilities of the Federal, state, and local governments for meeting urban mass transportation needs.

The limitations of this study should be emphasized at the outset. All data pertaining to urban mass transportation investments and operating and maintenance costs in this study are derived from the plans and programs reported by the states and local governments as part of the 1974 National Transportation Study (1974 NTS). These reported plans and programs are

not regarded by the Department of Transportation as an accurate statement of needs nor do they carry any implied justification or endorsement by the Department. Rather, they are viewed as an indicator of national trends and preferences which are subject to further refinement, examination in light of more cost-effective alternatives, and negotiation at the time of grant application. It has not been possible within the scope of this broad national study to undertake a detailed evaluation of reported needs and programs to accomplish them. This evaluation must occur through a cooperative planning process between Federal, state, and local governments leading up to the application for a capital grant for urban mass transportation development. Any rigorous evaluation against specific economic criteria, moreover, will undoubtedly result in a reduction in the scope of the programs presented, particularly where expensive fixed guideway investments are involved.

URBAN MASS TRANSPORTATION NEEDS

Urban mass transportation needs as reported in the state long-range plans are expressed in terms of (1) capital investments from 1972 to 1990, (2) level of service in 1990, (3) projected system ridership in 1990, and (4) annual operating and maintenance costs and operating deficits in 1990. Consideration of

long-range plans in this time frame is necessary because the scope of mass transportation development proposed by many areas contemplates major expenditures well beyond 1980.

- . Capital investments¹ proposed by the states for the period between 1972 and 1990 amount to \$58.2 billion for all urbanized areas, and \$36.4 billion for the nine largest urbanized areas.² The New York area alone plans \$16.2 billion in capital investments for this period. Rail transit and commuter railroad costs account for 75 percent of the national total of proposed investments and 90 percent of the total for the nine largest urbanized areas.
- . Level of service in 1990 would be greatly expanded if these plans were implemented. It would include a 60 percent increase in line miles (an increase of some 26,500 line miles of bus and 1,603 line miles of rail transit and commuter railroad). The total number of transit vehicles would increase from 59,800 to

¹/All estimates of capital and operating costs are in terms of 1971 dollars. See Chapter III for detailed assumptions regarding inflation.

²/New York, Chicago, Los Angeles, Boston, Philadelphia, Cleveland, Detroit, San Francisco, and Washington, D.C. These urbanized areas had a population of greater than 2 million people according to the 1970 Census.

100,000 and the average age of vehicles would decrease.

Annual public transportation vehicle miles of travel would more than double nationwide over 1972. However, the load factor, or equipment utilization rate in terms of passenger miles per seat mile, would decrease by 8 percent for bus systems and 26 percent for rail systems.

- . Passenger demand, in terms of total transit riders, is forecast by the states to more than double if the plans were implemented (from 6.4 billion trips in 1972 to 13.8 billion trips in 1990). Bus systems would account for 68 percent of this nationwide increase in transit riders, but only 14 percent of the capital cost. Ridership in the nine largest urbanized areas would not increase as rapidly as in the rest of the nation. Overall, the transit share of total trips (including auto trips) reported by the states would remain nearly constant--5.5 percent to 6.0 percent on the national level and 11 percent for the nine largest urbanized areas. Thus, despite the large proposed investments in urban mass transportation, the states do not foresee a significant diversion from automobile travel.
- . Operating and maintenance costs would increase 276 percent--from \$2.6 billion in 1972 to about \$7.2 billion in 1990. Annual net operating deficits (revenues minus operating and maintenance costs) would increase from \$0.4 billion in 1972 to \$2.5

billion in 1990. The nine largest urbanized areas would account for \$1.9 billion of the 1990 deficit or about 75 percent; the deficit per rider projected for 1990 is about two and one-half times as high in these areas as compared to the rest of the country. About \$1.1 billion of the 1990 deficit would be for bus systems, and the remainder for rail and commuter rail. One of the reasons for this large increase in deficits is that states and local governments are largely pursuing a policy that amounts to no increases in fares in the face of increasing operating and maintenance costs (all in terms of 1971 constant dollars).

DEVELOPMENT OF A PROGRAM TO MEET THE NEEDS

In preparing its program for purposes of the 1974 NTS, each state was permitted to program Federal funds up to 15 percent¹ of the national total of funds projected to become available in the UMTA program under present law--that is, 15 percent of \$6.2 billion in 1971 constant dollars, or about \$930 million for any given state. Additional funds for transit could be programmed under the provisions of the Federal-Aid Highway Act of 1973.

¹/The UMTA Act allows a state to apply for up to 12.5 percent of the national total. For purposes of the 1974 NTS, an additional 2.5 percent per state was permitted in order to account for the ability of the Secretary of Transportation to allocate up to 15 percent of the funds on a discretionary basis to individual states.

The major findings of the analysis of the mid-range implementation programs (the 1980 Programs) of the states and urbanized areas are:

- . Capital investments proposed by the states in the period 1972-1980 are \$23.6 billion nationwide (including only projects completed and in operation by 1980). The New York area alone has proposed \$4.1 billion of the mid-range implementation program. The states have programmed about \$13 billion in UMTA funds for this period, or about twice the total projected to be available, and less than \$2 billion in funds under the Federal-Aid Highway Act of 1973, leaving about \$9 billion in state and local funds. It thus appears that the states and local governments are programming their own funds considerably in excess of the matching requirement. It remains to be seen whether in fact the states and localities will be able to meet the financial commitments implied in their programs or whether the proposed projects would satisfy the Federal evaluation criteria at the time of grant application. In addition, it is questionable whether such a large amount of funds, \$4 billion to \$5 billion annually, could be programmed over such a short period of time on urban mass transportation projects.

- Level of service in the nine largest urbanized areas would expand significantly if their programs were implemented, with an 18 percent increase in line miles, a 40 percent increase in seat miles, and 15 percent more vehicles. Overall vehicle miles of travel nationwide would increase 54 percent.
- Operating and maintenance costs nationwide would increase by 85 percent--from \$2.6 billion in 1972 to more than \$4.8 billion in 1980. Only about 80 percent of the operating and maintenance costs are planned to be covered by fare revenues according to the state reports, so that the average annual operating deficit during this period would exceed \$700 million. A different fare policy would alter this picture.

RELATIONSHIP BETWEEN PERFORMANCE AND COST

The planned capital outlay in rail per resident of urbanized areas served by rail is five times as large as the corresponding figure for bus over the period 1972 to 1990. The rail capital outlay per seat mile of service is five times as high as the corresponding figure for bus. The reported plans indicate a trend toward lower utilization of all transit equipment, or lower load factors. The use of rail transit equipment is projected by the states to decline faster than for bus in terms of passenger miles per seat mile. Operating costs for public transit systems are projected to increase dramatically between 1972 and 1990, even without accounting for general inflation. Operating costs for rail per passenger

mile (6 cents in 1972 versus 10 cents in 1990) are expected to increase at a faster rate (67 percent) between 1972 and 1990 than for bus (40 percent), but would still be lower than the corresponding bus cost (10 cents in 1972 versus 14 cents in 1990).

Transit operating costs per passenger mile for the nine largest urbanized areas are expected to increase 63 percent between 1972 and 1990, or more than 1.5 times the rate of increase expected for the entire nation. In consequence, the deficit burden per passenger for the nine largest urbanized areas would be 1.5 times that of the nation as a whole. Nationwide the operating deficit per passenger is projected to increase by 200 percent between 1972 and 1990. The overall deficit for rail and bus in this period is projected to increase by roughly \$1 billion for each mode, yet rail would accommodate only about one-half as many passengers as bus by 1990, the same proportion as reported in 1972. Moreover, although transit ridership as a whole is projected to double by 1990 on the basis of the planned investments, transit's share of the total urbanized area passenger market would remain unchanged from 1972.

Conclusions must not be drawn for any individual urbanized area plan on the basis of these broad national statistics. An individual city-by-city analysis, which is not within the compass of this study and therefore has not been performed, may produce results contrary to the findings of this broad study. Nevertheless, the pattern that emerges from the

limited data available raises the question of whether the scale of investment contemplated in many areas is commensurate with the benefits to be received, and, in particular, whether the rail solution is appropriate in many of the areas where it is now proposed.

FARE STRUCTURES

Historical trends in fare structures and levels have been analyzed for 36 typical urbanized areas in four population categories (over 2 million; 500,000 to 2 million; 250,000 to 500,000; and 50,000 to 250,000). Two basic types of transit fares are in use in the United States: flat fares and distance-based fares (stage and zone). Some urbanized areas with complex transit systems (bus, rail, and commuter railroad) use a combination of flat and distance-based fares. Of the 25 urbanized areas with population over 500,000, 17 had zone transit fares in 1972 and eight had flat fares. In many instances, students, children, and senior citizens are allowed to travel at reduced rates.

Between 1949 and 1970, on a nationwide basis, average fares for urban mass transportation increased at an annual rate 3 percent greater than the Consumer Price Index. In 1970 many transit organizations began to stabilize fares and a few began to reduce them. In 1972 only seven urbanized areas of the 36 examined had fare revenues that exceeded operating and maintenance costs. Nationwide, farebox revenues covered only 85 percent of the operating and maintenance costs in 1972; this revenue-to-cost ratio is projected by the states to fall to 65 percent by

1990 if their long-range plans were to be implemented and their proposed fare policies put into effect.

The average fare nationwide of 34 cents in 1972 is projected by the states to remain constant through 1990 in terms of 1971 constant dollars. This indicates that urbanized areas as a whole propose, in effect, to stabilize fares during a period of rapidly increasing operating and maintenance costs. Such a policy is projected to result in substantially higher deficits in 1990. If, however, fare policies were revised so as to hold revenues at the same percentage of operating and maintenance costs as in 1972 and if 1990 ridership did not change, then the forecast 1990 operating deficit would be reduced by more than 50 percent.

FINANCING CAPABILITIES

Current state and local mass transportation financing programs are largely a mixture of direct appropriations from general funds, often to provide support for transit system operating deficits; compensation for reduced fare programs; and a limited number of instances of special taxes. In 1972, for example, state and local government support of urban mass transportation amounted to \$722 million (\$231 million in capital assistance, \$432 million in operating subsidies, and \$59 million in senior citizen and school fare reimbursement).

The financing mechanisms available to state and local governments for supporting urban mass transportation in the future include a wide variety of taxes, such as property, sales, income, and excise taxes.

Certain of these may have the decided administrative advantage of already being in existence so that an increment for transit might simply be added. Transportation-related taxes--such as motor fuel, parking, and motor vehicle taxes--also offer possibilities. Finally, consideration should be given to joint public-private development, which has been successfully employed in a number of transit improvements.

The varying legal, economic, fiscal, and political conditions existing in different states and urbanized areas require that the financing of programs for urban mass transportation be tailored to the particular existing conditions. To aid in the evaluation of available financing options in terms of local suitability, a number of guidelines have been suggested in the present report.

The Federal financial assistance program for urban mass transportation currently consists of the capital grant program administered under the Urban Mass Transportation Act as amended in 1970, the Federal-Aid Highway Act of 1973, and Federal revenue-sharing funds which may be used for urban mass transportation. The UMTA capital grants are categorical grants for assistance in financing urban mass transportation. The Federal-Aid Highway Act of 1973 provides the possibility of using certain funds that are allocated to the Interstate Highway System and the Urban System for capital improvements in urban mass transportation.

However, the overall Federal urban transportation program requires additional flexibility to meet changing needs over time and among individual

urban areas. To help correct this deficiency, the Administration has proposed that the Congress enact the Unified Transportation Assistance Program (UTAP). UTAP consolidates two separate and relatively inflexible capital grant programs, the Federal-Aid Highway and the UMTA programs; increases urban transportation funding; and provides for increased flexibility to accommodate better the desires of specific urban areas.

In total, some \$16 billion in Federal assistance would be available to urbanized areas under UTAP for Fiscal Years 1975 through 1980. In the first year, \$700 million in capital grants would be disbursed at the discretion of the Secretary of Transportation. An additional \$700 million would be disbursed according to a formula based on population and population density, and would be available for either capital or operating subsidies, at local option. Finally, \$1.1 billion in Federal-Aid Highway funds would be apportioned by population and would be available for urban streets, highways, or mass transportation capital projects, at local option. The annual amount available under UTAP would increase by 1980 to \$2.7 billion.

UTAP would also add \$45 million to the \$30 million authorized by the Federal-Aid Highway Act of 1973 for public transportation demonstration grants for small urban and rural areas.

Two principal elements are proposed to meet the estimated financial mid-term (1980) program requirements of states and local governments: (1) on the Federal level, (UTAP), and (2) state and local urban transportation financing programs based on farebox revenues and general revenues or specially designated taxes.

Table I-1 illustrates how the financing of the 1980 Programs might work in practical terms. After adjusting for funds already spent and for differences in the time period under consideration, a capital outlay of \$23 billion would be required during the six-year period 1975 through 1980 if the programs proposed by the states were to be implemented. Recognizing that this estimate does not account for general inflation, an additional \$5 billion is shown, leading to an estimated total of \$28 billion of capital outlays. Similarly, to account for inflation, a projected \$6 billion operating deficit would be increased by an additional \$1 billion in this period. These figures add to a total of \$35 billion in public funds over this six-year period.

Two actions could reduce the financial burden. The first would be the careful evaluation of each project in the proposed programs in terms of its cost-effectiveness and the careful review of the scope of the proposed programs to determine the practicability of implementing, in a six-year time period, programs involving such large increases in annual outlays. A 25 percent reduction amounting to \$7 billion is a reasonable estimate of the potential program reduction. The second action would be the implementation of fares more consistent with these large financial commitments. Instead of allowing fares to decrease as a percentage of operating costs, the states would require a moderate increase. This could reduce the anticipated deficit from \$7 billion to \$3.5 billion over six years, assuming no significant decrease in ridership as a result.

TABLE I-1

POTENTIAL MASS TRANSPORTATION FINANCING PLAN
(\$ billions)

	<u>1975-1980</u>		<u>1972</u>
	<u>Total</u>	<u>Yearly Average</u>	<u>Actual</u>
Use:			
Capital outlay	23	3.8	0.7
Add for inflation	<u>5</u>	<u>.9</u>	<u>-</u>
Total capital outlay	28	4.7	0.7
Operating deficit	6	1.0	0.5
Add for inflation	<u>1</u>	<u>.2</u>	
Total operating deficit	7	1.2	
Public funds	<u>35</u>	<u>5.9</u>	<u>1.2</u>
Estimated reductions in fund requirements:			
Reduced capital outlay after careful studies	7	1.2	-
Higher fares	3.5	0.6	-
Source of remaining funds:			
State and local	12.25	2.05	0.7
Federal	<u>12.25</u>	<u>2.05</u>	<u>0.5</u>
	<u>35.0</u>	<u>5.9</u>	<u>1.2</u>

Finally, if the remaining \$24.5 billion in funding were provided on an equal basis by the state and local governments on the one hand and the Federal Government on the other hand, the 1980 Programs could be financed. This is a reasonable assumption based on the fact that in recent years the state and local share of capital outlays plus operating deficits has been greater than 50 percent (for example, about 58 percent in 1972). Moreover, in the 1974 National Transportation Study the states and local governments have indicated that they are programming capital funds for urban mass transportation considerably in excess of the 20 percent matching requirement.

The state and local share if financed on a pay-as-you-go basis would amount to approximately \$2.05 billion per year. If the capital outlays were financed with debt, then the total of operating deficits and the principal and the interest on the debt would amount to approximately \$1.42 billion in 1980. These amounts would represent 1 percent and 0.7 percent respectively of the projected state and local tax revenues in 1980. The 0.7 percent is the same percentage of total state and local tax revenues expended in 1972 for urban mass transportation.

The \$12.25 billion Federal share could be drawn from a combination of the Federal assistance available under UTAP and under Section 103e(4) of Title 23 which permits states, upon the approval of the Secretary of Transportation, to use funds from deleted Interstate Highway segments for urban mass transportation.

In conclusion, if the proposed Unified Transportation Assistance Program were enacted, the states and localities would be able to carry the financial burden. However, there would have to be a substantial financial commitment from the states and localities and some hard decisions made by them about public expenditure priorities, fare policies, and taxation levels. This further underscores the need for careful review by the states and local governments themselves of their overall plans before asking for commitments by the Federal Government.

II. INTRODUCTION

PURPOSE OF THE STUDY

This report responds to Section 138(a) of the Federal-Aid Highway Act of 1973 which states:

The Secretary shall, in cooperation with the Governor of each State and appropriate local officials, make an evaluation of that portion of the 1972 National Transportation Report pertaining to public mass transportation. Such evaluation shall include all urban areas. The evaluation shall include but not be limited to the following:

- (1) Refining the public mass transportation needs contained in such report.
- (2) Developing a program to accomplish the needs of each area for public mass transportation.
- (3) Analyzing the existing funding capabilities of Federal, State, and local governments for meeting such needs.
- (4) Analyzing other funding capabilities of Federal, State, and local governments for meeting such needs.
- (5) Determining the operating and maintenance costs relating to the public mass transportation system.
- (6) Determining and comparing fare structures of all public mass transportation systems.

The Act also stipulated that the Secretary shall, not later than 1 July 1974, report the results of this evaluation together with recommendations for necessary legislation.

A description of the National Transportation Report and a review of the Federal program environment and legislation under which public mass

transportation has been operating may be helpful in understanding the analyses and findings in this report.

BACKGROUND

National Transportation Report

In August 1972 the Secretary of Transportation submitted to Congress the 1972 National Transportation Report (1972 NTR), which included a status report on transportation and estimates of transportation capital investment needs and program priorities as seen by the states and localities at the time. The Governor of each state, in cooperation with urban officials, was requested to estimate the requirements for facilities and equipment ("needs") to carry the traffic forecast by 1990 on the various modes of transportation under adequate service conditions. Urban public transit was one component of those investment needs. The estimates provided by the states totaled approximately \$63 billion for the urban public transit component between 1972 and 1990, expressed in terms of 1969 constant dollars.

The 1974 National Transportation Report (1974 NTR) is now in preparation and will be sent to the Congress late this year. To support that report, another survey of the states was carried out in the 1974 National Transportation Study (NTS). The states were asked to describe their present transportation systems, their long-range plans for 1972-1990, and their intermediate-range programs for 1972-1980. This survey reveals that the states are contemplating public transit investments between 1972

and 1990 of slightly lower magnitude than projected in the 1972 NTR. Analysis of data from the 1974 NTS forms the basis of this report on Urban Mass Transportation Needs and Financing.

Legislation

Federal Government assistance has been available to public mass transportation since as early as 1961. In that year, largely as a result of growing railroad financial difficulties with commuter services, a loan program was inaugurated by a provision of the Housing and Urban Development Act, and a small test and demonstration program was also authorized.

In 1964 the Urban Mass Transportation Act established a program of Federal matching grants for preservation, improvement, and expansion of public mass transportation systems. These grants have helped to reinvigorate public transportation and to provide improved and new service. The Act set forth three major program objectives: to preserve and improve existing transit services, to improve mobility, and to assure that transit services support orderly development and improve environmental conditions in urban areas. The law included strict local planning requirements and labor protective provisions.

The Urban Mass Transportation Administration (UMTA) was established as a component of the Department of Transportation (DOT) by the President's Reorganization Plan 2 of 1968, effective July 1, 1968.

This plan transferred most functions and programs under the Urban Mass Transportation Act of 1964 from the Department of Housing and Urban Development (HUD) to DOT.

The Urban Mass Transportation Assistance Act of 1970 amended the 1964 Act and offered long-term financing for expanded public mass transportation. It outlined a Federal commitment for the expenditure of at least \$10 billion over a twelve-year period. It specifically authorized \$3.1 billion for capital grants to states and local governments.

In the Federal-Aid Highway Acts of 1968 and 1970, special provisions were written into the law which permitted funds apportioned to the states from the Highway Trust Fund to be used for public transportation-related purposes, such as exclusive or preferential bus lanes, parking facilities, bus stops, loading and unloading facilities, bus shelters, and similar bus ancillary facilities. The Federal-Aid Highway Act of 1973 represented a major change in policy by permitting certain of the basic program authorizations to be used for the full range of public transportation capital costs, including rail rapid transit. The Act, for the first time, combined into one legislative action the enactment of policy and funding levels for both the Federal-Aid Highway Program and the Urban Mass Transportation Program. It provided an additional \$3 billion from general funds in increasing the contract authority to \$6.1 billion for the Urban Mass Transportation Capital

Grant Program, and it increased the Federal share of net project cost (that cannot be reasonably financed out of revenues) from two-thirds to 80 percent. Furthermore, it authorized \$780 million per year for the Federal-Aid Urban System, to be spent on either highway or public mass transportation projects for Fiscal Year 1974, and \$800 million for each of the next two fiscal years. During Fiscal Year 1975 up to \$200 million of what is spent for the purchase of buses may be paid for out of the Highway Trust Fund, and in Fiscal Year 1976 any authorized project (bus or rail) may be paid for out of the Highway Trust Fund up to the total of \$800 million for all projects. Finally, the Act permits state and local governments, with the concurrence of the Secretary of Transportation, to substitute in an urban area a rail transit project or other transit improvement for a non-essential Interstate Highway project.

Under the Urban Mass Transportation Act (amended) UMTA has committed cumulatively (to March 31, 1974) more than \$2.5 billion through 394 capital grants. These funds have helped to buy 15,200 new buses, and to build or modernize 77 bus garages and service facilities. UMTA has made grants to more than 170 cities for bus purchases; in 123 of these cities bus systems have been preserved or stabilized. UMTA grants have helped to buy 2,350 new rapid transit cars, more than 1,000 commuter rail cars, and 13 commuter diesel locomotives, and to build 196 miles of rail rapid transit track.

Portions of every one of the existing rail systems (New York, Chicago, Philadelphia, San Francisco, Boston, and Cleveland) have been upgraded and/or extended with UMTA grants. Grants are aiding Atlanta and Baltimore to construct new rail rapid transit systems. UMTA grants have also been made to help purchase 13 ferry boats.

Under the matching requirements for UMTA funds through Fiscal Year 1973, two dollars of Federal funds could be obtained for each dollar of local or state funds. Under the new matching provisions beginning in Fiscal Year 1974, four dollars of Federal funds may be obtained for each dollar of state or local funds. This has increased the demands for Federal assistance for urban public transportation. Local governments are increasingly expecting full Federal funding for any project for which the local matching share can be obtained. In addition, there have been demands from states and localities for the Federal Government to provide funds for operating, as well as for building, public transit systems. These pressures have led to the necessity of reexamining urban public transit needs and methods for financing these needs.

ORGANIZATION OF THE STUDY REPORT

For ease of presentation, the points required in Section 138(a) to be addressed are taken in a slightly different order in this report. The next chapter--Chapter III, Urban Mass Transportation Plans and Programs--considers points (1) and (2) of Section 138(a) by presenting a refinement of the needs contained in the 1972 National

Transportation Report and a program to accomplish the needs. This information is derived directly from the plans and programs of the states and urban areas as reported in the 1974 National Transportation Study. The 1974 National Transportation Report, to be published toward the end of 1974, will provide a more detailed analysis of these plans and programs. Point (5) is also addressed in Chapter III, since estimates of operating and maintenance costs are integral parts of this information.

Chapter IV, Perspective on Transit Finance, deals with point (3) of Section 138(a) by tracing the history of transit financing levels and sources.

Chapter V, Transit Fare Structure and Revenue, considers point (6), as the fare structures for typical urbanized areas are compared, and present and planned fare policies are discussed. This chapter also responds to point (5) by analyzing the relationship of fares to operating and maintenance costs.

Chapter VI, Analysis of State and Local Funding Mechanisms, addresses point (3), while Chapter VII, Financial Implications of the Implementation of the 1980 Programs, responds to point (4) and presents the Department's recommendations for financing for public mass transportation.

III. URBAN MASS TRANSPORTATION PLANS AND PROGRAMS

This chapter is directed to the refinement of the urban mass transportation needs presented in the 1972 National Transportation Report. Accomplishing this refinement required the analysis of information on the 1972 Inventory, the 1980 Program, and the 1990 Plan as reported in the 1974 National Transportation Study (1974 NTS). In this chapter, the 1974 NTS information is summarized and analyzed for the total of all urbanized areas (that is, the nation as a whole) and for the nine largest urbanized areas with populations over 2 million in 1970. Variability among the three largest urbanized areas (New York, Los Angeles, and Chicago) is also analyzed.

THE 1974 NATIONAL TRANSPORTATION STUDY

The purpose of the 1974 National Transportation Study (NTS) is threefold:

- . to assess the performance of today's national transportation system in terms of the service it offers the public and the costs and other effects of supplying that service;
- . to assess the adequacy of performance of the transportation systems that would exist in the future if present plans and programs are implemented; and
- . to evaluate alternative policies, plans, and programs aimed at improving future transportation systems at reasonable cost and within reasonable resource constraints.

Since much of the responsibility for providing transportation facilities and service rests on the states and local governments, a significant part of the 1974 NTS was based on work by the states and localities and by their planning agencies. The principal source of information in the 1974 NTS has been an extensive set of data reported to the Department by the Governor of each state, or his designated representative, as part of a nationwide survey of the current status of the transportation system and governmental plans and programs for improving this system. Participants in this survey have also included departments of transportation and other agencies at all levels of government; metropolitan or regional planning groups; and elected officials or their representatives at state and local levels of government and various representatives of private industry.

From the reports of the states, the following types of information were obtained:

1972 Transportation Inventory (base year)

The physical state, demand, level of service, and side impacts of the systems of the states and localities as of January 1, 1972; and the costs of maintaining and operating these systems in calendar year 1971.

1990 Transportation Plan

The physical state, demand, level of service, and side impacts of the systems planned by the states and localities for the year

1990; the costs of operating those future systems; and the capital costs over the 18-year period from 1972 to 1990 if all of the proposed plans were implemented.

1980 Transportation Program

The physical state, demand, level of service, and side impacts of the system programmed by the states and localities for the year 1980, considering the financial constraints involved in implementing the system; the cost of operating that future system; the capital cost of developing it from 1972 to 1980; and the sources of funds needed to operate and finance it--in other words, how much of the 1990 Plan is expected to be implemented by 1980.

The reported plans and programs are, in effect, summaries of the results of the comprehensive transportation planning process of the states and urbanized areas.

The 1990 Plans were constrained only by the Department's request that state projections of funds required for plan implementation should not be financially unrealistic and that performance or design standards should be based upon state and local goals and objectives. No detailed analysis of sources of funds by individual mode was requested of the states.

A test of the financial feasibility of each state's 1990 Plan for all modes combined will be made in the preparation of the 1974 National Transportation Report. When the availability of public support is considered, some of the state plans may not pass this test.

For the 1980 Programs the states were required to submit a more detailed account of future sources of funds. Estimates of available future Federal funds consistent with existing Federal aid programs, including the provisions of the Federal-Aid Highway Act of 1973, were provided to each state. One important point in this regard concerns the assumptions regarding funds from the UMTA Capital Grant Program. Each state was allowed to assume, for the purpose of the 1974 NTS, that it could have access to up to 15 percent of projected UMTA capital grant funds up to 1980. (The 15 percent figure for planning purposes was arrived at on the basis of the present statutory limit of 12-1/2 percent available to any one state plus each state was allowed to assume it could receive an additional 2-1/2 percent from the Secretary's discretionary fund). Therefore, the UMTA funds assumed by all states collectively for the 1980 Programs add to more than 100 percent of the projected funds available.

For the purpose of the present Study of Urban Mass Transportation Needs and Financing, that portion of the 1974 NTS information specifically related to urban public transportation has been summarized and is presented in this report.

Before considering this information, it is necessary to review some of the assumptions and methods used in the 1974 NTS specifically for public transit. The preparation of the major data elements at the state

and local level followed guidelines established by the Department to assure comparability among areas and over time periods. It should be noted, however, that the Department did not require the use of uniform national levels of service or performance criteria as the basis for developing plans and programs for the 1974 NTS. The evaluation of alternative transportation plans suited to the goals and particular characteristics of each state and local area was by and large a local responsibility.

The following assumptions and methods were used in the 1974 NTS:

Capital Costs

Capital costs are reported only for those facilities which are proposed to be in service and for improvements which would be completed during the reporting period (1972-1990 or 1972-1980). Generally, capital costs for urban public transportation are the costs of constructing and acquiring fixed assets, including those acquired by long-term lease, and the costs of purchasing rolling stock.

Annual Operating Costs

Reported annual operating costs for urban transit are based on the American Transit Association (ATA) definitions and include the annual costs for operating and maintaining the system as well as the "other" annual costs (which principally include property taxes, payments in lieu of taxes, and interest

paid by private firms). Annual operating costs exclude interest on and repayment of debt, depreciation of plant and equipment, and other non-cash accounting adjustments.

Treatment of Bus System Costs

In general, the prorated costs of the streets and highways on which buses operate are excluded from total bus system costs. However, in cases where exclusive busways are proposed for construction as part of a bus system, the capital, maintenance, and operating costs of the proposed busways would be included in the total system costs, although there would still be no allocation of common street or highway costs to the bus system.

Adjustment to Consumer Price Index

All costs and revenues are reported in terms of 1971 constant dollars which are defined with respect to the Consumer Price Index. An examination of various cost indices in the wholesale price series and the consumer price indices shows that there are long-term trends in wages and prices of various commodities, construction, equipment, and so forth, which differ from the Consumer Price Index. The difference between the trend in transportation prices for a particular commodity and the Consumer Price Index is reflected in the 1974 NTS in a price adjustment factor. The Department recommended for use by the states a procedure whereby cost data for the 1990 Plans and 1980 Programs are

adjusted by estimating the item cost based on prices prevailing in 1971 and multiplying by the relative price adjustment factor for that class of item as calculated by the Department using trend data.¹

The use of 1971 constant dollars for reporting cost and funding data for the 1974 NTS was made for two reasons. First, it is extremely difficult to accurately project the long-term trend in general inflation. Second, with certain exceptions, general inflation has little or no effect on the resource allocation decisions which are being studied in the 1974 NTS. If all prices, including wages, taxes, costs of materials, and so forth, increase by roughly the same proportional amount, then any expression of resource allocation in terms of either a constant dollar or a current dollar may be adjusted on the basis of a single constant.

It should be kept in mind, therefore, that the capital and operating costs reported by the states in terms of 1971 dollars are lower than the number of today's dollars which would be needed to purchase the same public transportation service because of the general inflation which has occurred between 1971 and 1974.

¹/Annual rate of relative price change for urban public transportation cost components ranges from 1.4 percent to 2.7 percent except cost of new buses (-1.2 percent) and cost of new rail cars (+4.0 percent). See 1974 National Transportation Study, Manual II, Volume I - Procedures, U.S. Department of Transportation, October 1972, Table II-1, p. II-19.

Passenger Demand

Passenger demand information has been developed according to the continuing, comprehensive and coordinated planning process (which is jointly funded through Section 134, Title 23, and the UMTA Technical Studies programs) in each urbanized area.

Projected future passenger volumes were reported prior to the 1974 motor fuel shortage and do not reflect any change in transportation mode choices which may result from future changes in motor fuel availability and/or prices.

METHODS OF ANALYSIS

In the 1974 NTS a wide range of information has been submitted for each urbanized area and each state including current and projected costs and revenues, certain operator performance measures, user-related service characteristics, and selected impacts on the community. In the present report, the collected data for the 1990 Plans and the 1980 Programs (as available) will be examined as summarized for the total of all the urbanized areas (referred to as the national total) and for a summation of the nine largest urbanized areas with populations over 2 million in 1970 (see Table III-1).

The 1972 resident population of the nine largest urbanized areas totals 56.5 million persons, 25 percent of the total United States population and 45 percent of all persons living in urbanized areas (that is,

TABLE III-1

URBANIZED AREAS OF THE UNITED STATES
WITH POPULATIONS OVER 1,000,000
(1970)

<u>Urbanized Area</u>	<u>Population (Millions)</u>	<u>Density</u> (1,000 people per sq. mile)		<u>Fixed Rail System?</u>
		<u>Total</u>	<u>Central City</u>	
New York-New Jersey*	16.2	6.6	26.3	Yes
Los Angeles-Long Beach*	8.4	5.3	7.0	No
Chicago-NW Indiana*	6.7	5.3	15.2	Yes
Philadelphia-New Jersey*	4.0	5.4	15.2	Yes
Detroit*	4.0	4.6	11.0	No
San Francisco-Oakland*	3.0	4.0	11.0	Yes
Boston*	2.7	4.0	13.9	Yes
Washington, D.C.-Md.-Va.*	2.5	5.0	12.3	Under const.
Cleveland*	2.0	3.0	9.9	Yes
<hr/>				
St. Louis	1.9	4.1	10.2	No
Pittsburgh	1.8	3.1	9.4	No
Minneapolis-St. Paul	1.7	2.4	7.1	No
Houston	1.7	3.1	3.8	No
Baltimore	1.6	5.1	11.6	Under const.
Dallas	1.3	2.1	3.3	No
Milwaukee	1.3	2.7	8.0	No
Seattle-Everett	1.2	3.0	6.4	No
Miami	1.2	4.7	9.8	No
San Diego	1.2	3.1	3.6	No
Atlanta	1.2	2.7	3.9	Under const.
Cincinnati-Kentucky	1.1	3.3	5.9	No
Kansas City	1.1	2.2	3.9	No
Buffalo	1.1	5.1	11.2	No
Denver	1.0	3.6	7.6	No
San Jose	1.0	3.3	3.7	No

*Nine largest urbanized areas--analyzed in this report.

areas with more than 50,000).¹ The population estimates used by the states and urbanized areas in the aggregate in 1990 match an estimate based on the Census "Series E" projection.

It is important to recognize that each urbanized area is, in varying ways, unique and must reach transit solutions suited to its own demographic, geographic, and political environment. To illustrate the variance which exists among the cities with respect to operating and service parameters, the three largest cities--New York, Los Angeles, and Chicago--have been investigated individually and the results compared with the findings for the nation as a whole and the nine largest urbanized areas.

ANALYSIS OF 1990 TRANSPORTATION PLANS

In this report, the data from the 1990 Transportation Plans have been selected and analyzed in terms of four categories: (1) the estimated capital investment required to provide the projected service for 1990; (2) the level of service to be offered in 1990; (3) the projected ridership; and (4) annual net operating income. It should be noted that these categories are not an exhaustive list of the possible costs and benefits of

¹/Population of urbanized areas included in the national total was 126 million in 1972 and is projected to be 166 million in 1990. The 1972 population of the nine largest urbanized areas was 56.5 million persons, with 1990 population expected to be 71.2 million. Throughout the report, comparisons are made between the same areas in 1972, 1980, and 1990. That is, no new areas were added between 1972 and 1990.

transportation investments. They are heavily oriented towards the concerns of the user and the operator and principally provide the basis for a financial analysis. It is important to recognize that this study is not a benefit-cost analysis or an analysis of the substance of the proposed plans. Decisions regarding investments must, of course, also evaluate and incorporate such measures as energy consumption, air quality, income redistribution effects, community development, and other effects on both the user and the larger community.

Capital Investment

The projected investment concentration by mode and by system component required to achieve the 1990 Transportation Plans is shown in Figure III-1. The requirements of the nine largest urbanized areas, according to the 1974 NTS, would be significantly greater than their share of the national population: their projected need of \$36.4 billion investment would represent 63 percent of the national total. While not shown on Figure III-1, it is noteworthy that New York City alone has plans for \$16.2 billion in capital investments. The concentration of investment needs in the very large urbanized areas results from the capital-intensive rail systems planned for these areas.

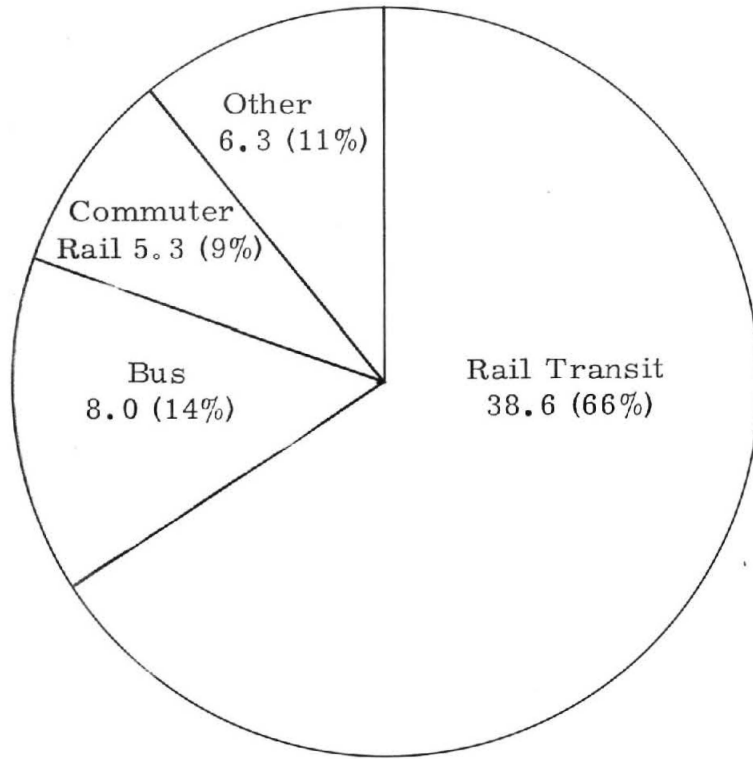
The combined rail transit and commuter railroad investments would account for \$43.9 billion or 75 percent of the national total in 1990, and an even larger proportion (90 percent) of the projected investments in

FIGURE III-1

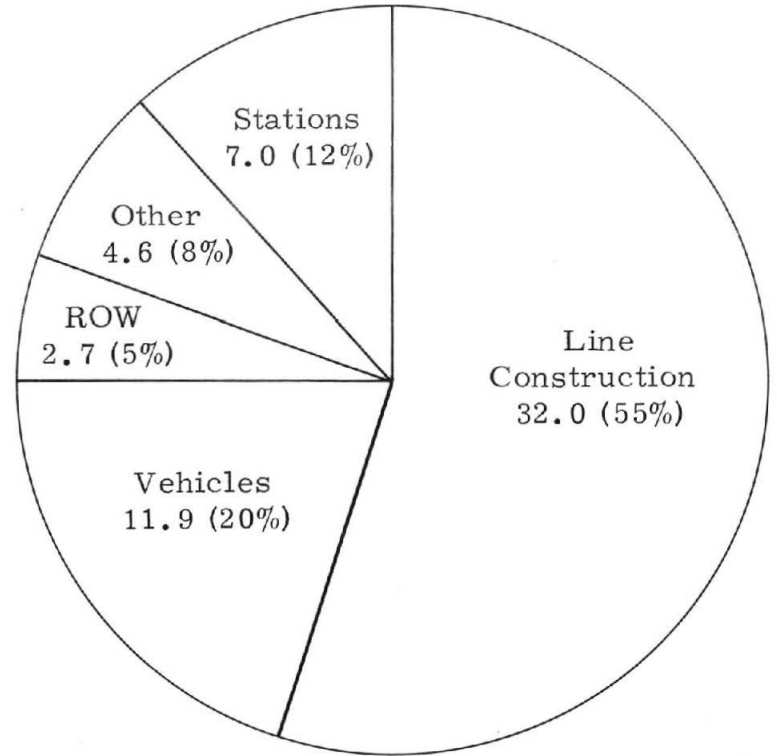
CAPITAL INVESTMENTS, 1990 PLANS
(in billions of 1971 constant dollars)

National Total of Urbanized Areas: \$58.2 billion

III-12



Modal Component



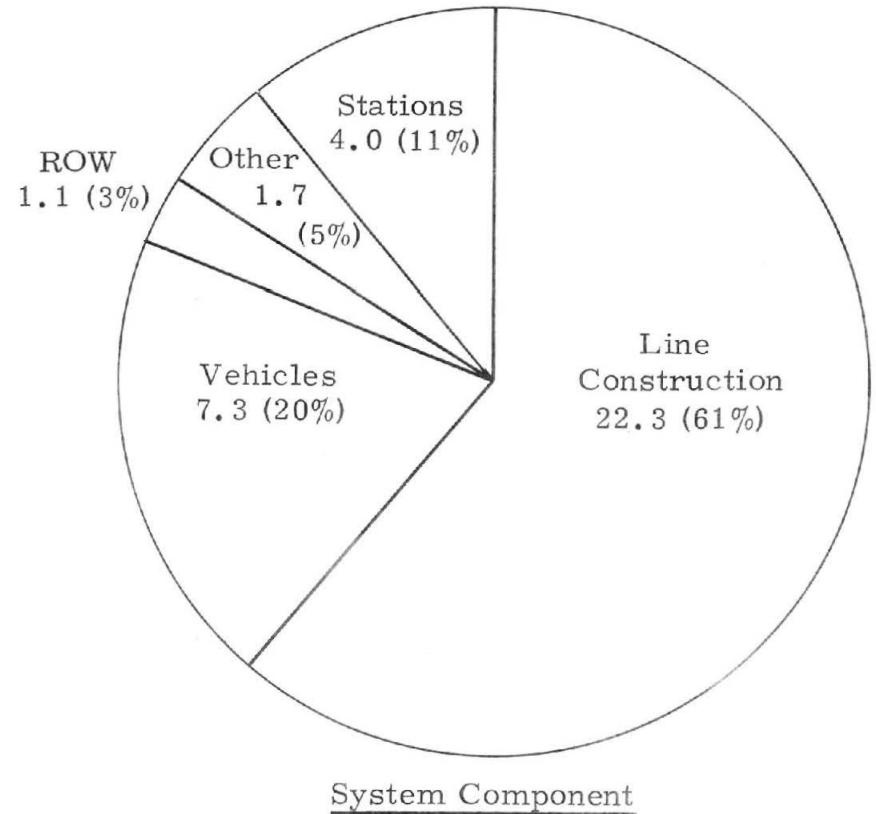
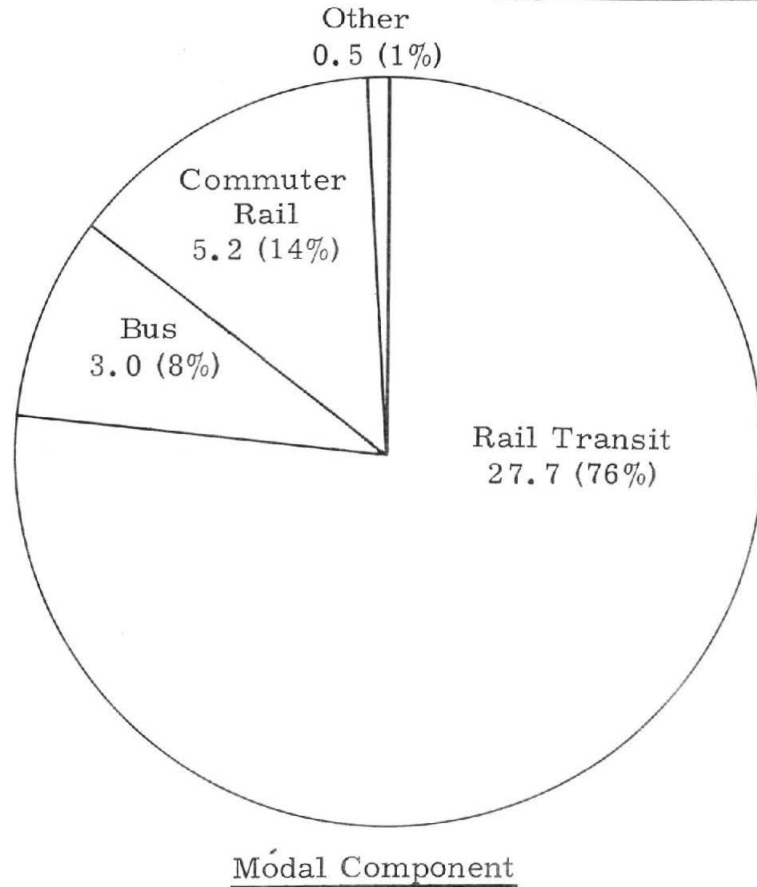
System Component

Source: 1974 National Transportation Study

FIGURE III-1 (Continued)

CAPITAL INVESTMENTS, 1990 PLANS
(in billions of 1971 constant dollars)

Nine Largest Urbanized Areas: \$36.4 billion



III-13

Source: 1974 National Transportation Study

the largest urbanized areas. An indication of relative expenditures in the very large urbanized areas, by mode, is given in Table III-2.

TABLE III-2
CAPITAL INVESTMENT BY MODE, 1972-1990
(billions of 1971 constant dollars)

<u>Urbanized Area</u>	<u>Bus</u>	<u>Rail Transit</u>	<u>Commuter Rail</u>	<u>Other*</u>	<u>Total</u>
New York	0.8	12.6	2.8	--	16.2
Los Angeles	0.7	3.8	0.1	0.2	4.8
Chicago	0.3	1.6	1.3	--	3.2

*Other includes PRT, Skybus, and Dial-a-ride systems.

Source: 1974 National Transportation Study.

Examination of the distribution of investment among the various system components clearly reflects the high cost of providing facilities for operating vehicles on exclusive rights-of-way (ROW), either rail lines or busways. If the plans reported in the 1974 NTS are realized, the combined costs of line and station construction plus ROW purchase would amount to \$41.7 billion, or 72 percent of the total planned investment. Most of this investment would be for rail system construction; only \$3.1 billion would be used for busways.

The projected capital investment requirements reported in the 1974 NTS quite clearly indicate that present planning and programming activities

point toward (1) modest investment in public transportation facilities and equipment outside the larger urbanized areas, and (2) concentration of projected capital requirements in new rail systems, especially in the nine largest urbanized areas.

Both of these points may be illustrated by comparing the estimated capital cost per capita for the nine largest urbanized areas as a group with the corresponding figure for the aggregate of the remaining urbanized areas nationwide. While the level of capital investment required to implement the 1990 plans of the nine largest urbanized areas is estimated at \$511 per capita, 90 percent of which is planned for rail transit (rail and commuter rail) investment alone, the level of capital investment in transit for the remaining urbanized areas nationwide is estimated at less than half of that or \$230 per capita, with only 50 percent planned for rail transit investment. For the nation as a whole, the per capita investment in rail transit facilities is estimated at \$264 while the corresponding investment in bus transit facilities is estimated at \$48 per capita, or somewhat less than 20 percent of that planned for investment in rail transit.

System Characteristics

The direct result of more transportation investments should be improved service, increased capacity, and decreased unit operating costs, or a combination of several of these changes. At the same time, many aspects of transit service may be significantly improved with little or no

capital investment, and these improvements may greatly increase rider attraction. Such improvements (increased availability of information, coordinated scheduling, and integrated fare structures, for example) are difficult to evaluate quantitatively, but their omission in this report does not indicate lack of significance.

A few of the system characteristics which can be measured and which indicate the changes in service resulting from transportation investments include network size (miles of line), fleet size (number of vehicles), and measures of production or service offered such as vehicle miles of travel and annual seat miles. Figure III-2 shows the projected increases from 1972 to 1990 (as reported by the states in the 1974 NTS) in line miles,¹ number of vehicles, annual seat miles, and vehicle miles of travel for each mode.

If the plans reported in the 1974 NTS are realized, line miles for the nation as a whole would increase by 60 percent, from 52,400 to 83,900; most of the increase would be accounted for by a 54 percent increase in bus line mileage, from 49,200 miles in 1972 to 75,700 miles in 1990. Most of this increased bus line mileage (25,100) would occur

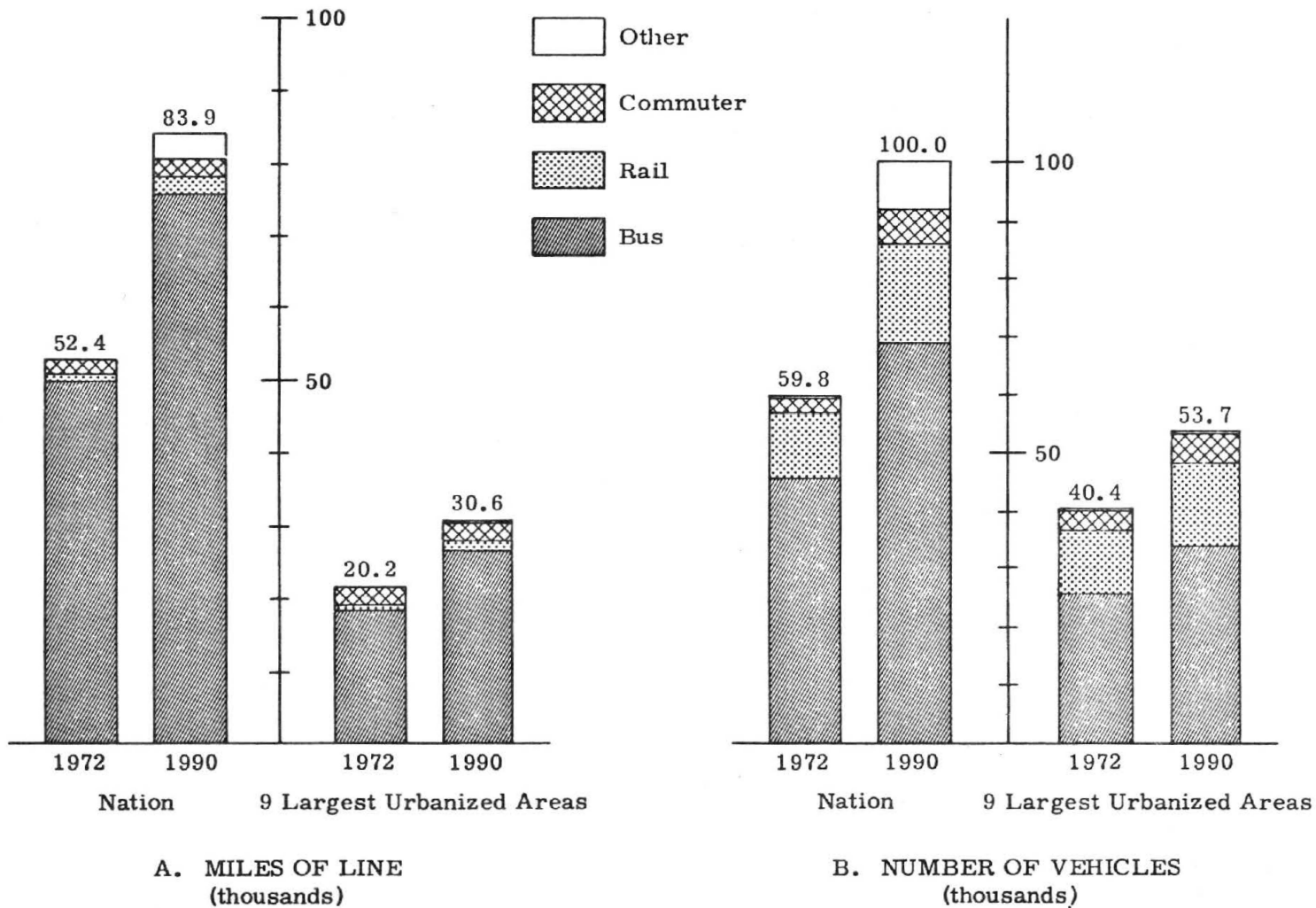
¹/Line Miles--Bus: The sum of the actual physical length (one way) of all streets or highways traversed by buses regardless of the number of routes or buses that pass over any of the sections.

Line Miles--Rail: The sum of the actual physical length (one way) of the right-of-way over which trackage is laid regardless of the number of routes or tracks that pass over certain portions.

FIGURE III-2

SYSTEM CHARACTERISTICS REPORTED IN 1972 INVENTORY AND 1990 PLAN
FOR NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL OF NINE LARGEST URBANIZED AREAS

III-17

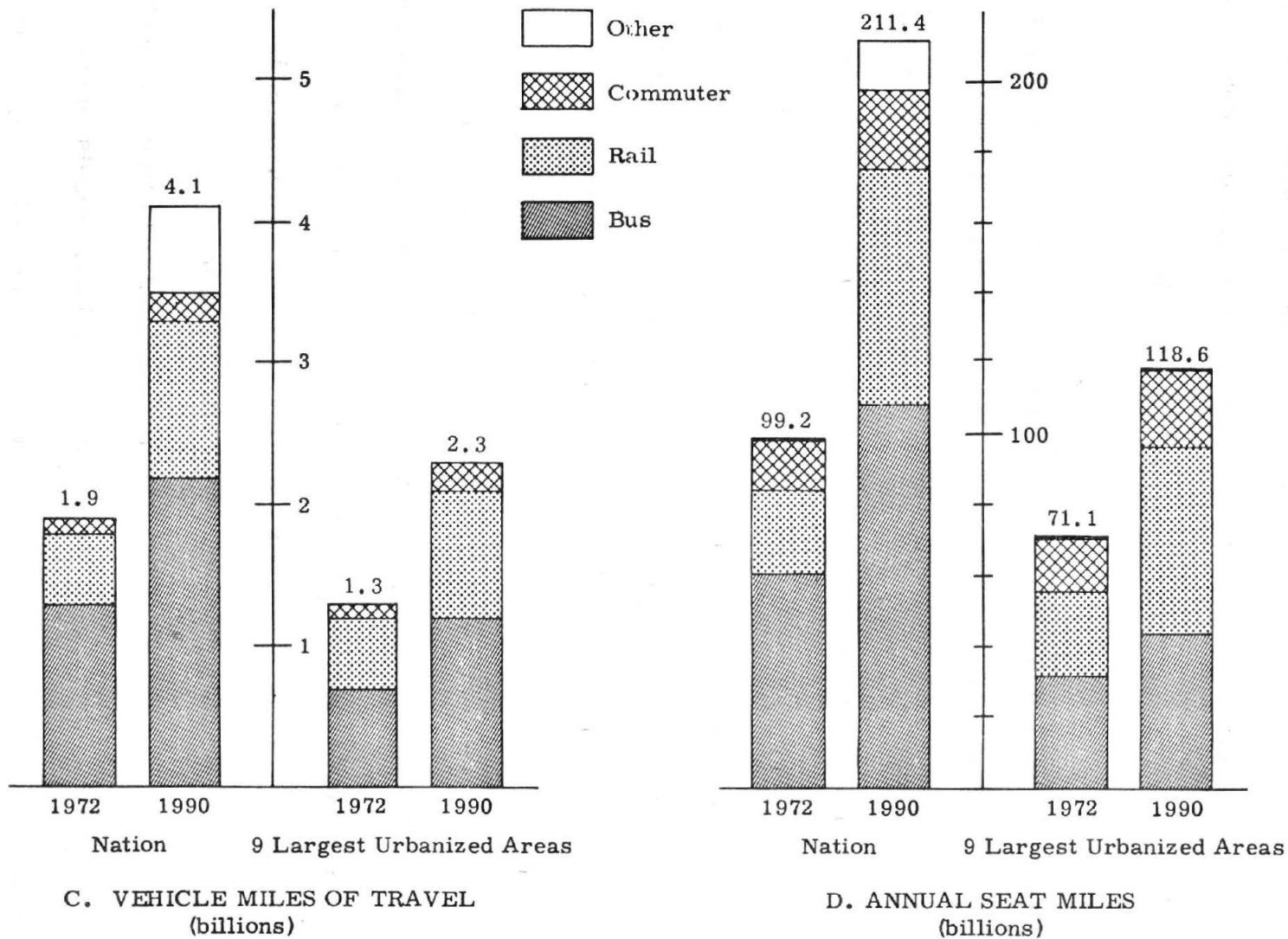


Source: 1974 National Transportation Study

FIGURE III-2 (Continued)

SYSTEM CHARACTERISTICS REPORTED IN 1972 INVENTORY AND 1990 PLAN
FOR NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL OF NINE LARGEST URBANIZED AREAS

III-18



Source: 1974 National Transportation Study

on existing streets and highways with operation in mixed traffic, but 1,400 miles of new busways or exclusive bus lanes are planned to provide improved service. These busways would be grade separated or reserved exclusively for buses throughout the day; their estimated capital cost is \$3.1 billion.

The projected 1,603 mile (50 percent) increase in rail transit and commuter railroad lines from the total of 3,222 miles in 1972, though of a slightly smaller percentage than the proposed bus line expansion, represents a huge investment of \$43.9 billion. Virtually all of the expansion would occur on rapid transit systems--the projected increase in commuter rail mileage is only 21 miles. Of the 1,582 mile increase in rail transit planned for completion by 1990, 1,200 miles are planned for construction in urbanized areas which currently have no operational rail networks. These 1,200 miles would include 586 miles of construction in five large urbanized areas (Washington, D.C., Atlanta, Baltimore, Detroit, and Los Angeles); the remaining mileage would be in smaller urbanized areas. Only 20 percent of the total new lines would be additions to the six existing rail networks (including 154 miles in New York and 27 miles in Chicago).

Fleet size (number of vehicles) is a significant indicator of peak-hour capacity, particularly on lines operating on exclusive rights-of-way. The overall projected increase in number of vehicles of all types (from 59,800 to 100,000) represents a 67 percent growth.

The largest contribution to the general increase in total transit fleet capacity would come from the addition of 24,000 buses. There would also be an additional 7,512 rail transit cars, 7,901 vehicles for other systems, and 732 commuter railroad cars.

Plans for the largest urbanized areas vary greatly--for example, while New York plans to reduce its bus fleet by 18 percent or 2,000 buses, Los Angeles and Chicago plan to almost double their 1972 bus fleet sizes (from 2,000 and 3,600 buses, respectively).

The total number of vehicles purchased during the 1972-1990 period would exceed the apparent increases in fleet size by 123 percent or 49,390 vehicles, as shown in Table III-3, which also shows the variability of the distribution of vehicles among the modes for the nation and the nine largest urbanized areas. The nine largest urbanized areas, for example, plan to purchase almost half (31,684) of the new buses but fewer than 2 percent of the "other" system vehicles. The difference between the number of vehicles purchased and the net change in fleet size represents those vehicles purchased as part of modernization programs to replace older equipment. Most areas plan to reduce the average age of their fleets; the average age of the national bus fleet is expected to drop from 9.6 to 7.1 years, requiring the purchase of 41,770 replacement buses.

A composite operating statistic related to the capital improvement variables of line miles and fleet size is annual vehicle miles traveled (VMT), shown in Figure III-2c. The 1990 national projected VMT would be

TABLE III-3

PROJECTED CHANGES TO VEHICLE FLEETS, 1972-1990

	<u>Net Change in Fleet</u>		<u>Total Vehicles Purchased*</u>	
	<u>National</u>	<u>Nine Largest Urbanized Areas</u>	<u>National</u>	<u>Nine Largest Urbanized Areas</u>
Bus	+24,013	+7,851	65,783	31,684
Rail Transit	+7,512	+4,693	11,571	8,684
Commuter	+732	+644	3,635	3,524
Other	<u>+7,901</u>	<u>+51</u>	<u>8,559</u>	<u>98</u>
Total	+40,158	+13,239	89,548	43,990

*All bus vehicles with age less than or equal to 15 years, and all rail vehicles with age less than or equal to 20 years.

Source: 1974 National Transportation Study.

4.1 billion vehicle miles, an increase of 116 percent from 1972. Comparing Figure III-2c with Figures III-2a and III-2b shows that the increase in VMT would be significantly greater than the increase in line miles or number of vehicles, indicating increased utilization of each vehicle (bus VMT would increase 10 percent, rail transit VMT would increase 27 percent).

Combining increased use of each transit vehicle with a larger fleet would result in a dramatic growth in transportation service, as measured in annual seat miles of service--a 113 percent increase (from 99.2 billion to 211.4 billion seat miles) is predicted for the period 1972 to 1990. The planned increase by mode and by geographic area is decidedly not uniform. Bus service increases measured in billion seat miles would occur largely in the urbanized areas with fewer than 2 million persons. In the largest urbanized areas, where most of the increased transit service would consist of increased rail rapid transit operation, bus service is expected to increase only 35 percent (from 32.9 billion to 44.4 billion seat miles) between 1972 and 1990. The 1990 Plan for New York indicates a 27 percent reduction in seat miles of bus service from 1972--from 13.8 billion to 10.1 billion. New York's projected decrease of 3.7 billion seat miles is almost as large as the combined increase (3.9 billion seat miles) projected for Los Angeles and Chicago.

To provide the level of transit service planned for 1990, the nine largest urbanized areas require a capital cost commitment of an estimated

31 cents per seat mile of service¹ offered as compared with the 23 cents per seat mile capital cost commitment required of the remaining urbanized areas nationwide. The difference between these two rates of capital investment expenditure is due primarily to the heavily capital intensive plans of the nine largest urbanized areas for rail transit networks.

More significant perhaps are estimates of the capital cost commitment required to provide the additional transit seat miles of service planned for 1990. For the nation as a whole, the capital cost commitment for new transit seat miles of service is estimated at 52 cents per new seat mile. For rail transit alone, the corresponding estimate indicates a required capital cost commitment nationwide of 86 cents per new rail seat mile as compared with the estimated 17 cents required for capital investment in each additional bus seat mile. New rail seat miles, therefore, are estimated to require five times as much capital investment funds as are new bus seat miles.

Passenger Demand

Important indicators of the attractiveness of new or improved transit service to both present and potential users are the projected total number of trips taken and the number of passenger miles traveled. The 1974 NTS data include an estimate of the 1989 annual unlinked passenger

1/Seat Miles of Service: The seating capacity of a vehicle times the vehicle miles traveled in revenue service during the period under consideration (for example, daily).

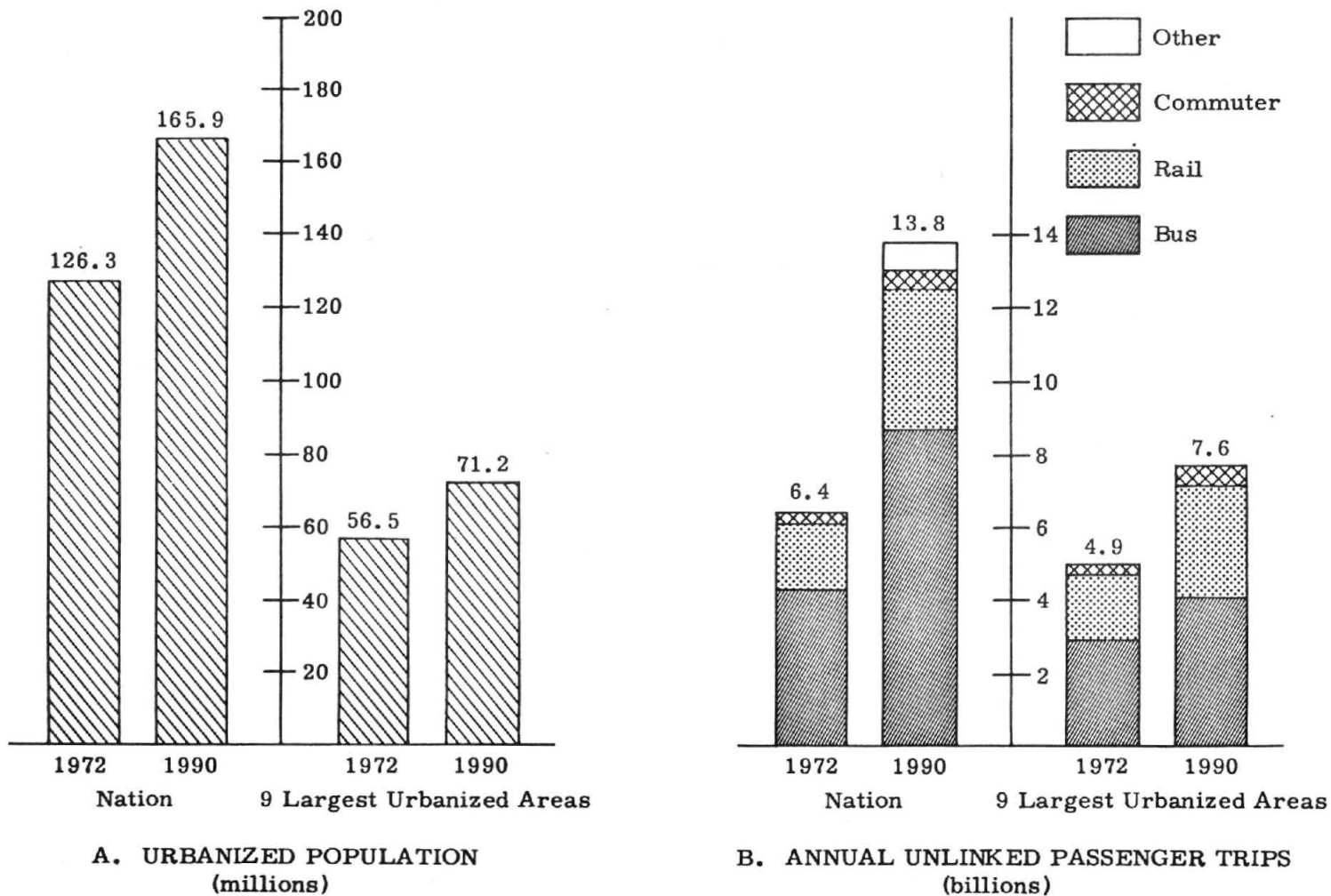
trips¹ for each transit mode and the number of passenger miles of travel anticipated. Figure III-3 shows this information and the expected population growth for the nation (from 126.3 million persons living in urbanized areas in 1972 to an expected 165.9 million persons in the same areas in 1990) and the nine largest urbanized areas discussed in this report, as well as the expected change in annual passenger miles per seat mile. This last item is an approximate load factor--decreases in its value indicate a lower utilization of equipment, whereas increases imply a more intense utilization of the equipment.

If the projections in the 1974 NTS are realized, the total number of annual transit trips would more than double from 1972 to 1990 (from 6.4 billion trips to an estimated 13.8 billion trips); 68 percent of this change would be the result of increased bus use. Ridership in the large urbanized areas would not increase as rapidly as the national total--in fact, the proportion of all the national transit users living in the nine largest urbanized areas would fall from 77 percent to 55 percent. The national distribution of trips and miles of travel by mode in 1990 as displayed in Figure III-3c is projected in the 1974 NTS to be similar to the 1972 distribution--the number of bus passengers (8.7 billion in 1990) would continue to be more than twice the number of rail passengers (3.8 billion); rail trip lengths (estimated to average 6.5

¹/Unlinked Passenger Trips: The number of transit vehicle boardings including those resulting from transfers between transit vehicles

FIGURE III-3

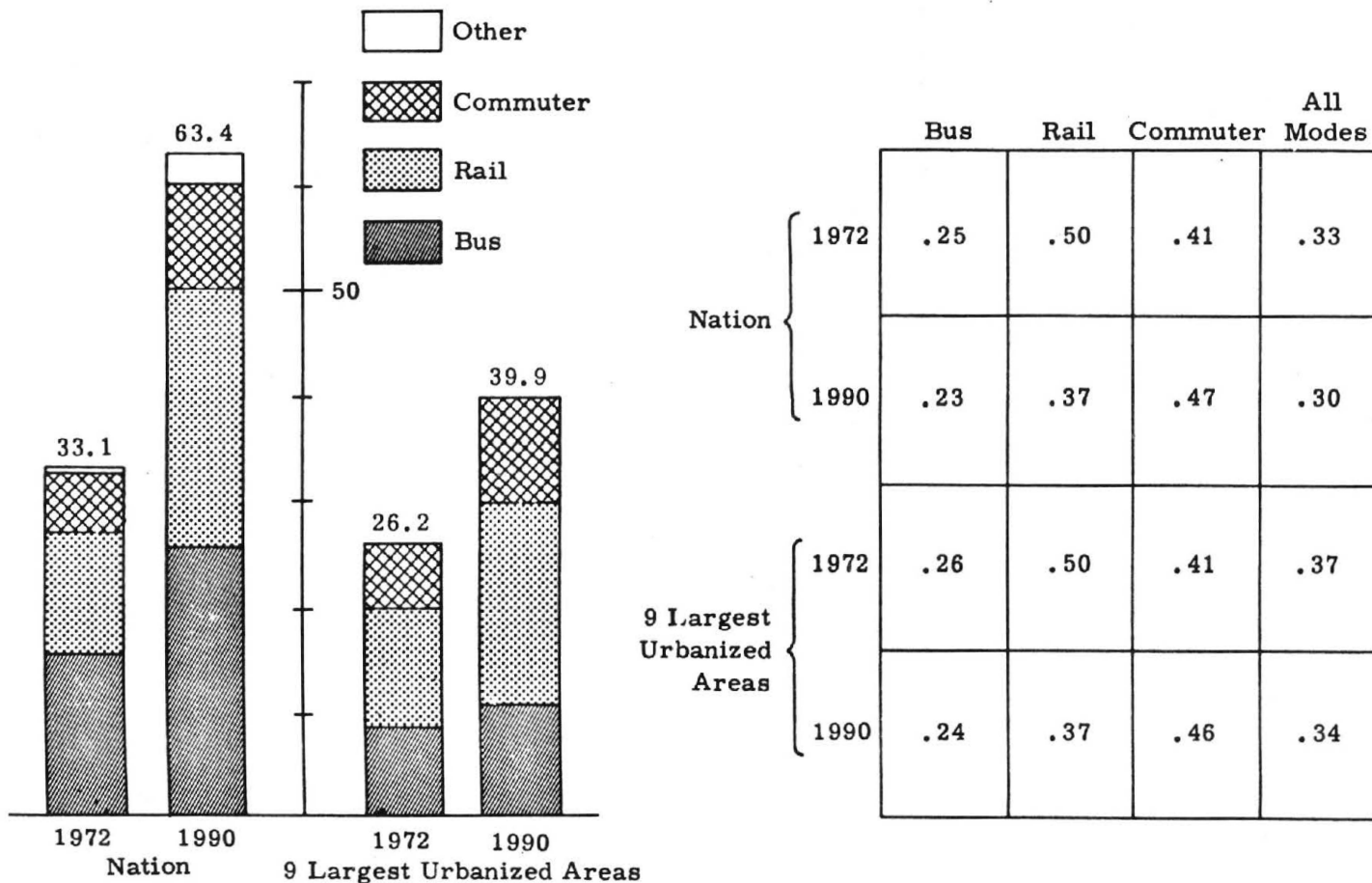
POPULATION AND ANNUAL PASSENGER TRIPS REPORTED IN 1972 INVENTORY AND 1990 PLAN FOR NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL OF NINE LARGEST URBANIZED AREAS



Source: 1974 National Transportation Study

FIGURE III-3 (Continued)

POPULATION AND ANNUAL PASSENGER TRIPS REPORTED IN 1972 INVENTORY AND 1990 PLAN FOR NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL OF NINE LARGEST URBANIZED AREAS



III-26

C. ANNUAL PASSENGER MILES OF TRAVEL (billions)

D. ANNUAL PASSENGER MILES PER SEAT MILE

Source: 1974 National Transportation Study

miles in 1990) would be about twice as long (in miles) as bus trips (averaging 2.9 miles); and the average length of commuter rail trips would continue to be 21 to 22 miles.

A singular exception to current patterns is the projected distribution of modal use--in the nine largest urbanized areas, rail travel would become a larger proportion of all transit travel than at present, accounting for 73 percent of all urbanized passenger miles of travel in 1990 compared with 67 percent in 1972. Table III-4 shows one consequence of this trend: while the national average trip length would decrease by 12 percent, average trip length in the nine largest urbanized areas as a whole would remain the same or--in some of the individual areas, like New York--increase in length.

TABLE III-4
AVERAGE TRIP LENGTHS BY ALL MODES
(miles per unlinked trip)

<u>Geographic Area</u>	<u>1972</u>	<u>1990</u>
National	5.2	4.6
Nine Largest Urbanized Areas	5.3	5.3
New York	6.1	7.5

Source: 1974 National Transportation Study

The long-term implications of these data are that current trends in dispersion of residences and activities can be expected to continue in the larger urbanized areas.

The forecasts for 1990 indicate a trend toward lower utilization of transit equipment when measured in terms of passenger miles per seat mile (PMT/seat mile)--changing from 0.33 PMT/seat mile in 1972 to 0.30 PMT/seat mile in 1990. The utilization of rail transit equipment is expected to decline more drastically than that of bus transit equipment, with rail transit PMT/seat mile decreasing 26 percent (from 0.50 in 1972 to 0.37 in 1990) while bus transit PMT/seat mile is expected to fall only an estimated 8 percent (from 0.25 in 1972 to 0.23 in 1990).

While the transit equipment operating in the nine largest urbanized areas is expected to remain more heavily utilized than that operating in the remainder of the urbanized areas nationwide, transit PMT/seat mile estimates indicate a decline of 8 percent in the nine area-aggregate between 1972 and 1990 as compared with a relatively constant rate of utilization in the remaining urbanized areas. This appears to be caused by the predominance of rail transit facilities planned for the nine largest urbanized areas by 1990, and rail's reduced rate of utilization.

The capital cost commitment required to provide the planned level of passenger miles of service in 1990 is estimated at 92 cents per passenger mile on a nationwide basis. For rail transit alone, the corresponding estimate indicates a required capital cost commitment nationwide of \$1.27 per rail transit passenger mile. In comparison,

the capital cost of providing the planned level of bus transit passenger miles estimated for 1990 is \$0.33 per bus passenger mile or a little more than 25 percent of the capital expenditure required for rail transit.

Even given the expected tendency for lower utilization of transit equipment, continued peak-hour crowding appears to be implicit in the forecasts for 1990. The percentage of total daily patronage carried during the peak hour would remain at the 15 percent level in 1990. While the total number of trips would double, the total fleet size would increase by only 68 percent--implying even greater crowding during the peak hour in 1990 than in 1972.¹

The percentage that transit person-trips are of all person-trips, including automobile, would remain relatively constant at 5.5 percent to 6.0 percent on a national level and at about 11 percent for the nine largest urbanized areas; these figures are averages for the summarized data. Table III-5 provides a more accurate indication of the relative roles projected for transit and automobile travel in the large urbanized areas. It is quite clear that the apparently stable transit usage pattern projected for the nine largest urbanized areas is in reality the result of balancing trends, with gains in Chicago and Los Angeles, for example, offsetting losses in New York.

¹/Peak Hour: The single hour of a typical or average day in which there is the heaviest patronage for service in both directions.

TABLE III-5

CHANGE IN PERCENT DAILY TRIPS USING PUBLIC TRANSIT

<u>Urbanized Area</u>	<u>1972</u>	<u>1990</u>
New York	24.6	17.4
Los Angeles	2.5	3.7
Chicago	11.7	14.6

Source: 1974 National Transportation Study.

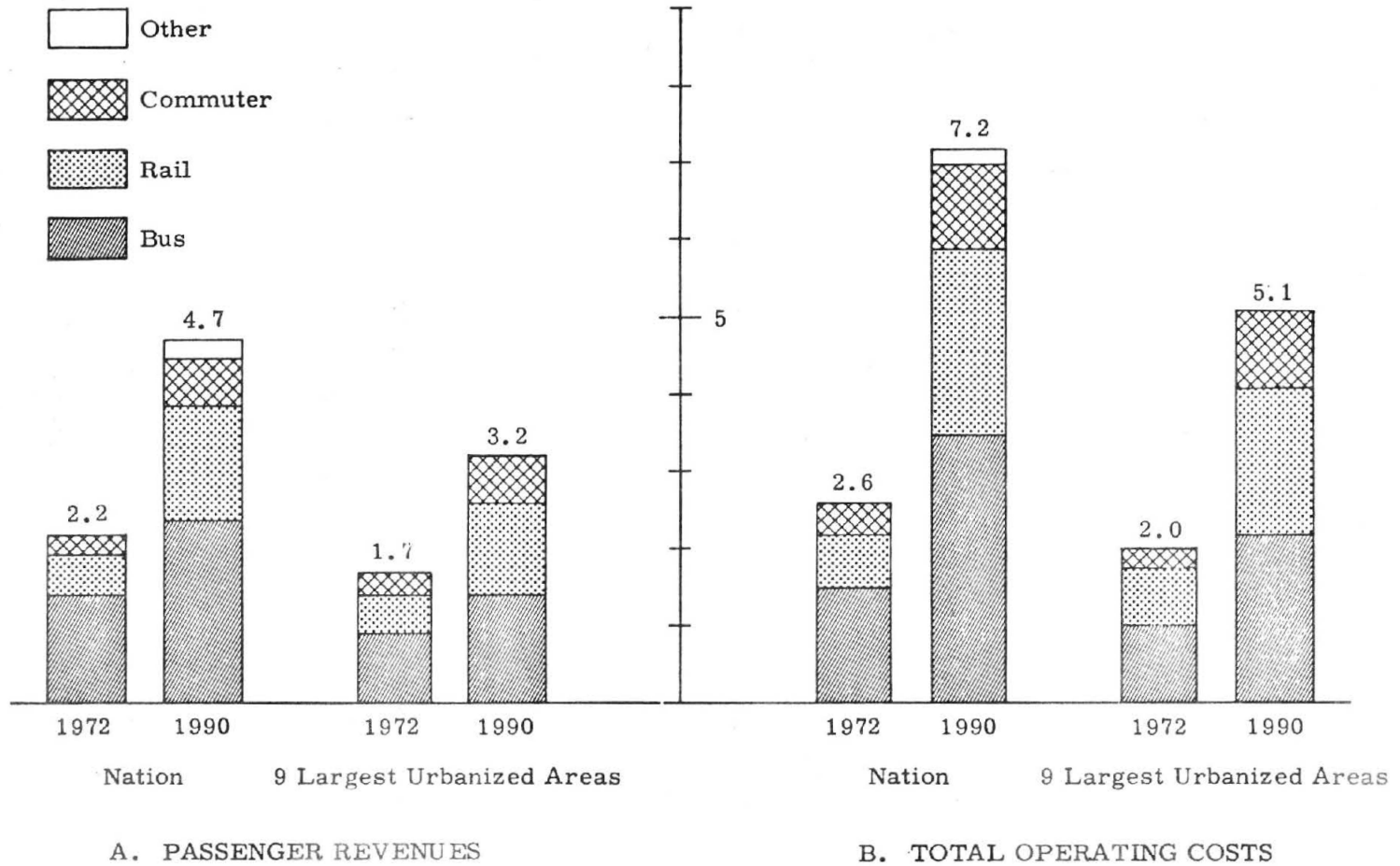
Net Operating Income

Estimates of revenues and costs for future operations were reported in the 1974 NTS. As shown in Figure III-4, both revenues and costs are expected to increase, although revenues are forecasted to increase at a substantially lower rate than costs, because of an apparent fare stabilization policy of transit operators (see Chapter V). If the 1990 Plans reported by the states in the 1974 NTS are realized, the total operating deficit for the nation would increase from \$0.4 billion in 1972 to \$2.5 billion in 1990. The operating deficit for the nine largest urbanized areas would increase from \$0.3 billion in 1972 to \$1.9 billion in 1990 (which would be 76 percent of the total operating deficit in 1990).

Several aspects of proposed operations which would tend to contribute to the increased deficits require analysis--in particular, the trend in fares per passenger and the unit costs of operating the system per passenger carried and per passenger mile. The historical trend in fares

FIGURE III-4

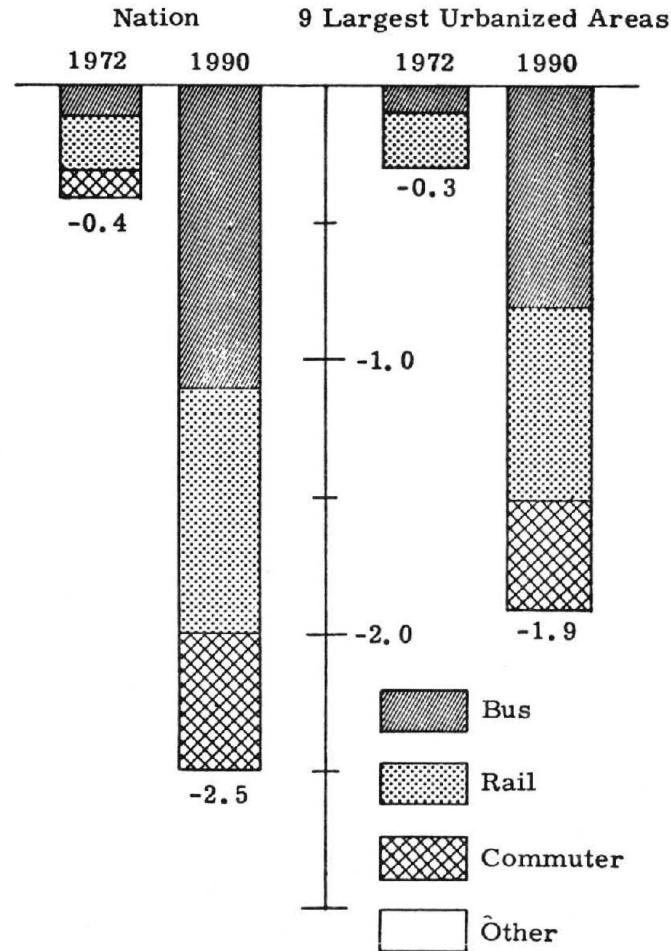
OPERATING INCOME AND OPERATING COSTS:
 NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL FOR NINE LARGEST URBANIZED AREAS
 AS REPORTED IN 1972 INVENTORY, 1990 PLAN
 (in billions of 1971 constant dollars)



Source: 1974 National Transportation Study

FIGURE III-4 (Continued)

OPERATING INCOME AND OPERATING COSTS:
 NATIONAL TOTAL OF URBANIZED AREAS AND TOTAL FOR NINE LARGEST URBANIZED AREAS
 AS REPORTED IN 1972 INVENTORY, 1990 PLAN
 (in billions of 1971 constant dollars)



C. REVENUES MINUS COSTS

Source: 1974 National Transportation Study

has been an average 3 percent annual increase greater than the Consumer Price Index; 1990 fares could be expected to be 70 percent higher than 1972 fares if this long-term trend were to continue until 1990. However, the projected revenue per passenger, as shown in Table III-6, indicates a major shift away from the historical fare policy trend (see Chapter V of this report for a full discussion), as transit operators as a whole appear to be adopting a fare stabilization policy.

Bus revenues per passenger are projected to decrease by 15 percent nationally, even though there is a projected 6 percent increase among the nine largest urbanized areas. Even the rail transit and commuter rail revenues imply a break from the past trend, as the projected increases of 23 percent to 38 percent are far less than the 70 percent increase that could be expected to result if the historical trend in fares were to continue until 1990.

Future fare policies in the largest urbanized areas vary greatly. For example, Chicago fares would drop in terms of 1971 constant dollars--39 percent on the bus and 10 percent on the rail transit lines--while New York plans a 3 percent increase in bus fares and a 25 percent increase in rail transit fares.

While transit fares per passenger in general tend to be stabilizing, the unit costs of operating the system per passenger carried and per passenger mile traveled are projected in the 1974 NTS to increase dramatically between 1972 and 1990. For the nation as a whole, operating costs per passenger would increase 27 percent (from 41 cents

TABLE III-6

REVENUE PER PASSENGER, 1972-1990
 (1971 constant dollars per unlinked trip)

Geographic Area	Bus			Rail Transit			Commuter Rail		
	1972	1990	Percent Change	1972	1990	Percent Change	1972	1990	Percent Change
National	.33	.28	-15	.28	.39	+38	.97	1.22	+26
Nine Largest Urbanized Areas	.31	.34	+9	.28	.41	+46	.98	1.23	+26
New York	.33	.34	+3	.29	.36	+25	1.11	1.37	+23
Los Angeles	.27	.25	-8	--	.50	--	--	--	--
Chicago	.39	.28	-39	.30	.27	-10	.89	1.20	+35

Source: 1974 National Transportation Study.

per passenger in 1972 to 52 cents per passenger in 1990). Rail transit operating costs alone would increase 56 percent (from 52 cents per passenger in 1972 to 81 cents per passenger in 1990). In comparison, bus transit operating costs per passenger would rise only 14 percent during the same period.

For the nine largest urbanized areas, the corresponding estimates indicate a significantly greater change than that which is anticipated for the nation as a whole. Data for the nine area-aggregate project an increase in transit operating costs per passenger of 63 percent (from 41 cents in 1972 to 67 cents in 1990), resulting largely from a increase of 71 percent in rail transit operating costs per passenger between 1972 and 1990. Projections of operating costs per passenger mile for the nine largest urbanized areas tend to reflect a similar pattern.

For the nation as a whole, operating costs per passenger mile would increase 38 percent (from 8 cents per passenger mile in 1972 to 11 cents per passenger mile in 1990). Operating costs per passenger mile for the rail transit mode alone would increase 67 percent (from 6 cents in 1972 to 10 cents in 1990), while bus transit projections from the 1974 NTS indicate an increase of only 40 percent (from 10 cents in 1972 to 14 cents in 1990). For the nine largest urbanized areas, the corresponding estimates indicate, again, a significantly greater change than that which is anticipated for the nation as a whole. Transit operating costs per passenger mile for the nine largest urbanized areas are

expected to increase 63 percent or more than 1.5 times the rate of increase expected for the entire nation. Together, fare stabilization and the accelerating increase in the unit costs of operating transit systems have combined to generate estimates of increasingly large deficits over the period 1972 to 1990.

When expressed in terms of the anticipated deficit burden per passenger, national estimates indicate an increase of 200 percent (from 6 cents per passenger in 1972 to 18 cents per passenger in 1990), while the nine largest urbanized areas expect a 316 percent increase in their deficit burden per passenger (from 6 cents in 1972 to 25 cents in 1990).

ANALYSIS OF 1980 TRANSPORTATION PROGRAMS

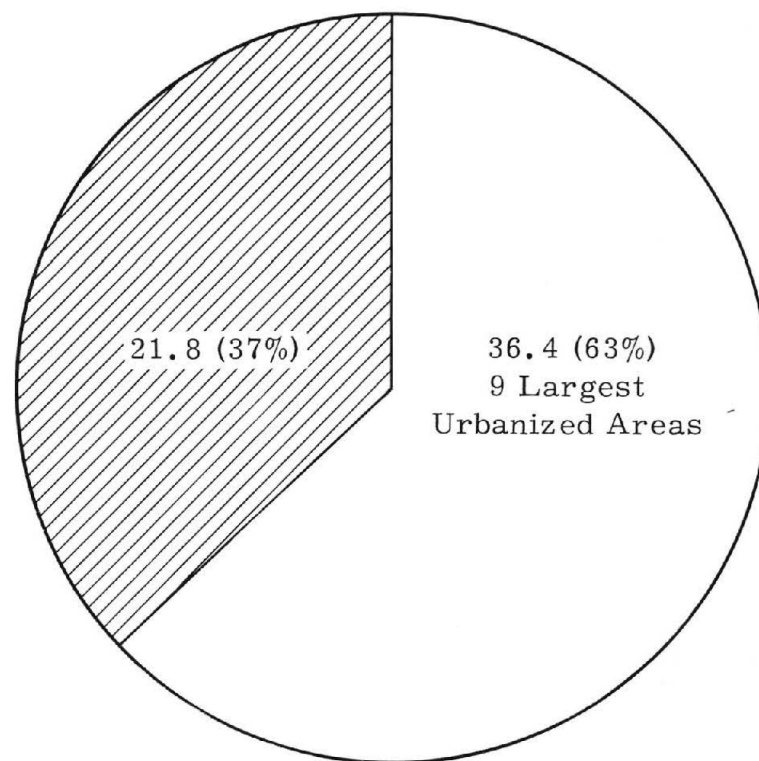
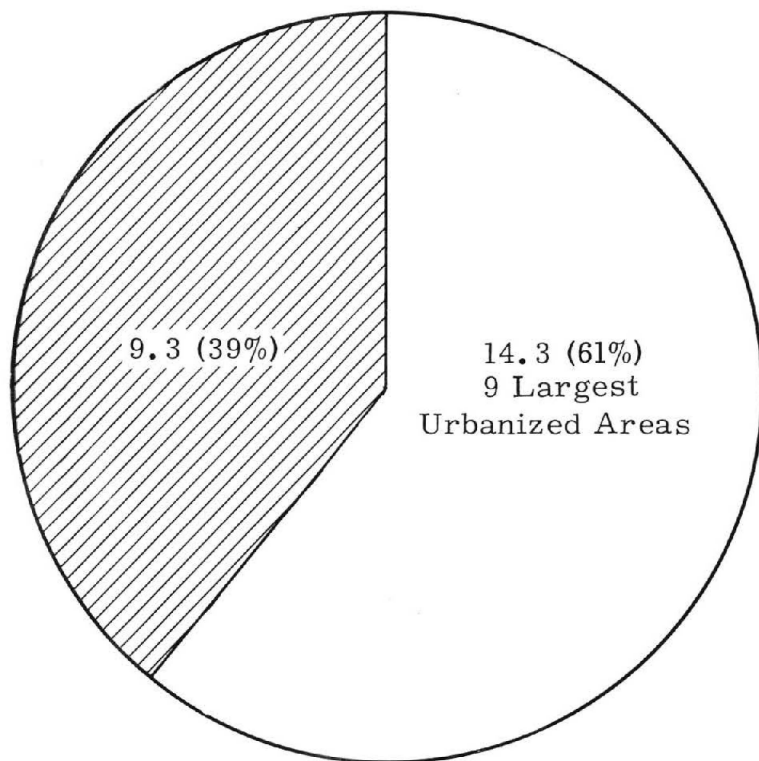
Review of the 1980 Transportation Programs indicates that 41 percent of the planned 1990 investment of \$58.2 billion in transit facilities has been programmed to be accomplished by 1980. The nine largest urbanized areas would commit capital funds slightly faster than the remaining urbanized areas. Figure III-5 shows that the nine largest areas account for 61 percent of the 1980 programmed investments of \$23.6 billion nationwide and 63 percent of the 1990 planned investments of \$58.2 billion. The nation's three largest urbanized areas have indicated a need for \$6.2 billion by 1980, one-fourth of the total national 1980 capital budget. As shown in Table III-7, New York plans to implement about 25 percent of its 1990 Plan by 1980 and Chicago plans to implement about 40 percent of its 1990 Plan by 1980, while Los Angeles expects to have only 15 percent of its 1990 Plan facilities in operation by 1980.

FIGURE III-5

RELATIONSHIP OF CAPITAL COSTS REPORTED FOR NINE LARGEST URBANIZED AREAS
TO NATIONAL TOTAL OF URBANIZED AREAS, 1980 PROGRAM, 1990 PLAN
(in billions of 1971 constant dollars)

1980 Program National Total of Urbanized Areas:
\$23.6 billion

1990 Plan National Total of Urbanized Areas:
\$58.2 billion



III-37

Source: 1974 National Transportation Study

TABLE III-7

1980 PROGRAM CAPITAL INVESTMENTS
(1971 constant dollars)

<u>Urbanized Area</u>	<u>1980 Program (\$ billions)</u>	<u>1990 Plan (\$ billions)</u>	<u>Percent 1980 Program is of 1990 Plan</u>
New York	4.1	16.3	25
Los Angeles	0.7	4.7	15
Chicago	<u>1.4</u>	<u>3.3</u>	<u>42</u>
Total	6.2	24.3	26

Source: 1974 National Transportation Study.

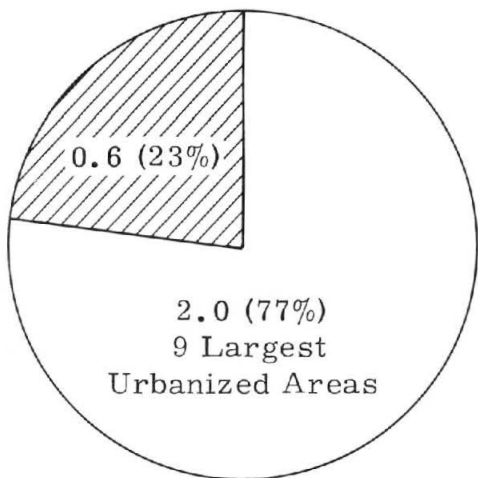
According to the 1974 NTS data, total operating costs nationwide (see Figure III-6) would increase by 85 percent by 1980 to \$4.8 billion, in part because of increased unit costs and in part because of increased service. The operating costs for the nine largest urbanized areas would increase at a somewhat slower rate (75 percent), resulting in a relative decrease in the proportion of national operating costs attributable to transit operations in the nine areas.

The system characteristics shown in Figure III-7 indicate the trends in transit service now projected by the nine largest urbanized areas. Annual seat miles of service would increase by 40 percent during the 1972-1980 period. To provide this planned increase in seat miles of service, corresponding increases in vehicle miles traveled (38 percent),

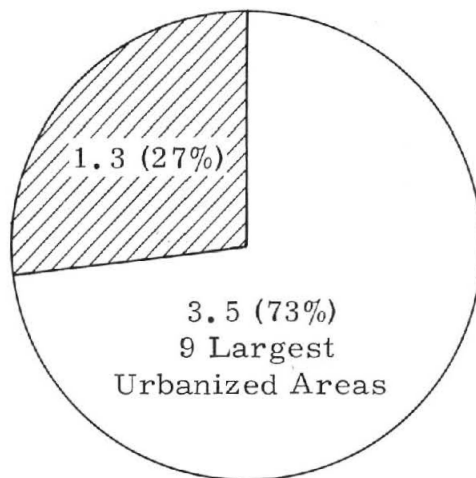
FIGURE III-6

RELATIONSHIP OF TOTAL OPERATING COSTS REPORTED FOR NINE LARGEST URBANIZED AREAS
TO NATIONAL TOTAL OF URBANIZED AREAS
(in billions of 1971 constant dollars)

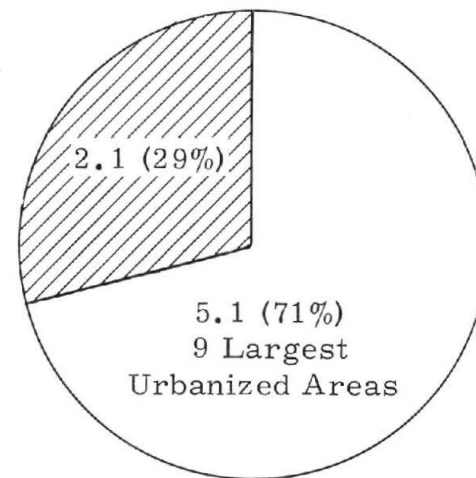
1972 Inventory National Total
of Urbanized Areas:
\$2.6 billion



1980 Program National Total
of Urbanized Areas:
\$4.8 billion



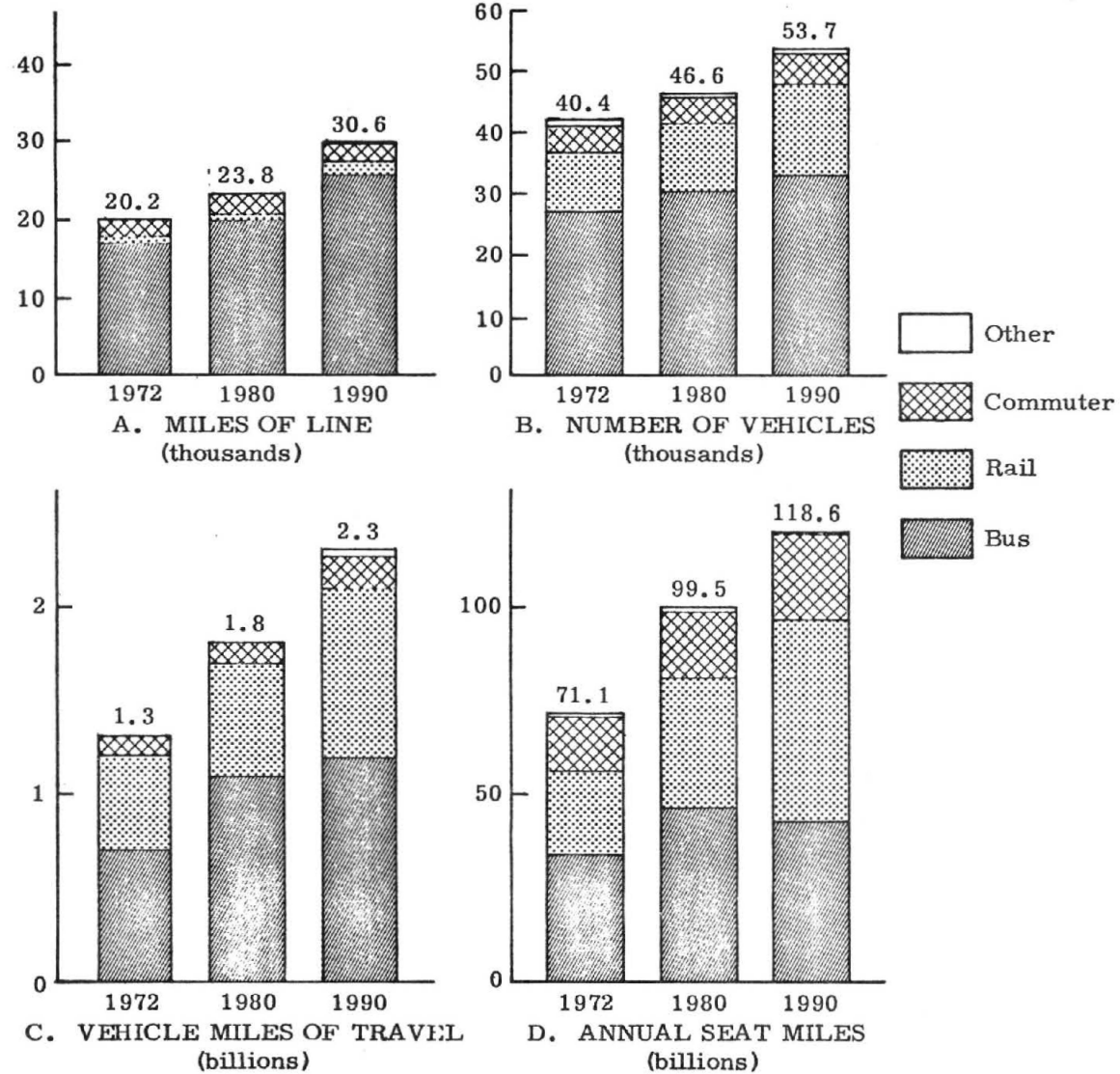
1990 Plan National Total
of Urbanized Areas:
\$7.2 billion



III-39

FIGURE III-7

SYSTEM CHARACTERISTICS REPORTED IN 1972 INVENTORY, 1980 PROGRAM,
AND 1990 PLAN FOR TOTAL OF NINE LARGEST URBANIZED AREAS



Source: 1974 National Transportation Study

miles of line in service (18 percent), and number of vehicles in service (15 percent) are expected to occur between 1972 and 1980.

In general, transit service expansion between 1972 and 1980 is expected to proceed at a faster rate than the transit service expansion planned for the period 1980 to 1990. This tendency may be illustrated with transit service expressed in units of vehicle miles of travel (VMT). According to this measure, transit service would increase 38 percent between 1972 and 1980 and only 28 percent between 1980 and 1990. More significant, perhaps, are the anticipated patterns of bus transit service expansion as compared with rail transit service expansion for these two periods. The corresponding transit service estimates for these two modes indicate an increase in bus transit service between 1972 and 1980 of 57 percent and an increase of only 9 percent between 1980 and 1990, while rail transit service is projected to increase only 17 percent in the earlier period and to expand at a much faster rate of 57 percent between 1980 and 1990.

CONCLUSIONS

The planned capital outlay in rail per resident of urbanized areas served by rail is five times as large as the corresponding figure for bus over the period 1972 to 1990. The rail capital outlay per seat mile of service is five times as high as the corresponding figure for bus. The reported plans indicate a trend toward lower utilization

of all transit equipment, or lower load factors. The use of rail transit equipment is projected by the states to decline faster than for bus in terms of passenger miles per seat mile. Operating costs for public transit systems are projected to increase dramatically between 1972 and 1990, even without accounting for general inflation. Operating costs for rail per passenger mile (6 cents in 1972 versus 10 cents in 1990) are expected to increase at a faster rate (67 percent) between 1972 and 1990 than for bus (40 percent), but would still be lower than the corresponding bus cost (10 cents in 1972 versus 14 cents in 1990).

Transit operating costs per passenger mile for the nine largest urbanized areas are expected to increase 63 percent between 1972 and 1990, or more than 1.5 times the rate of increase expected for the entire nation. In consequence, the deficit burden per passenger for the nine largest urbanized areas would be 1.5 times that of the nation as a whole. Nationwide the operating deficit per passenger is projected to increase by 200 percent between 1972 and 1990. The overall deficit for rail and bus in this period is projected to increase by roughly \$1 billion for each mode, yet rail would accommodate only about one-half as many passengers as bus by 1990, the same proportion as reported in 1972. Moreover, although transit ridership as a whole is projected to double by 1990 on the basis of the planned investments, transit's share of the total urbanized area passenger market would remain unchanged from 1972.

Conclusions must not be drawn for any individual urbanized area plan on the basis of these broad national statistics. An individual city-by-city analysis, which is not within the compass of this study and therefore has not been performed, may produce results contrary to the findings of this broad study. Nevertheless, the pattern that emerges from the limited data available raises the question of whether the scale of investment contemplated in many areas is commensurate with the benefits to be received, and, in particular, whether the rail solution is appropriate in many of the areas where it is now proposed.

IV. PERSPECTIVE ON TRANSIT FINANCE

This chapter presents an historical review of alternative approaches to financing urban mass transportation. The first part of the chapter presents an overview of transit history in terms of the development of modes and traffic, revenue, and cost patterns, particularly those that have evolved since World War II. The second part is an analysis of the trends in transit ownership caused by the interrelations of economic conditions, financing alternatives, and ownership constraints. The remainder of the chapter discusses existing transit financing programs and approaches at the Federal, state, and local levels of government.

TRANSIT HISTORY: MODES, TRAFFIC, REVENUE, COST

Early Transit History

The history of mass transit goes back at least to 1827, when a horse-drawn vehicle was first commercially operated in New York City.¹ After the introduction of the electric motor in 1888, numerous cities constructed electrified surface rail lines, and cities such as New York, Boston, and Chicago constructed elevated or subway lines. These transit systems were expected to provide not only a public

¹/For early transit history, see Lewis M. Schneider, Marketing Urban Mass Transit: A Comparative Study of Management Strategies (Boston: Graduate School of Business, Harvard University Press, 1965).

transportation service but also substantial financial returns for private investors who considered traction company stocks to be a sound investment.

By the early 1900's potential problems for the transit industry were appearing. A U.S. Bureau of the Census document, Special Reports - Street and Electric Railways 1902, warned of the high costs of construction, the generally long rides at low fixed fares, the concentration of destinations in the downtown area, the peaking of traffic, and the expectation that population shifts to outlying areas would not be consistent with existing transit routes. It concluded, however, that through either private or public enterprise additional construction would continue.

Further, transit's competitor, the automobile, was gaining popularity and, by the end of World War I, had become an established transportation mode.

The Great Depression severely damaged the transit industry. Patronage of electric street cars, which had increased from five billion riders in 1905 to almost 14 billion in 1926 and 1927, declined to about nine billion in 1933. Because there were few funds with which to modernize electric street car equipment and facilities, bus service began to develop as a more cost-effective alternative.

Many transit companies went into bankruptcy, and proceedings to reorganize bankrupt or failing lines became common. Large properties,

such as the New York City system and the Cleveland system, joined other systems (San Francisco, Seattle, and Detroit, for example) already under municipal ownership. Further ownership disruption occurred as the result of the National Holding Company Act of 1935, which generally prohibited public utilities from having incidental subsidiaries, including transit companies.¹ The bleak economic position of transit continued until World War II, which, because of the lack of alternatives, brought a temporary resurgence in transit patronage.

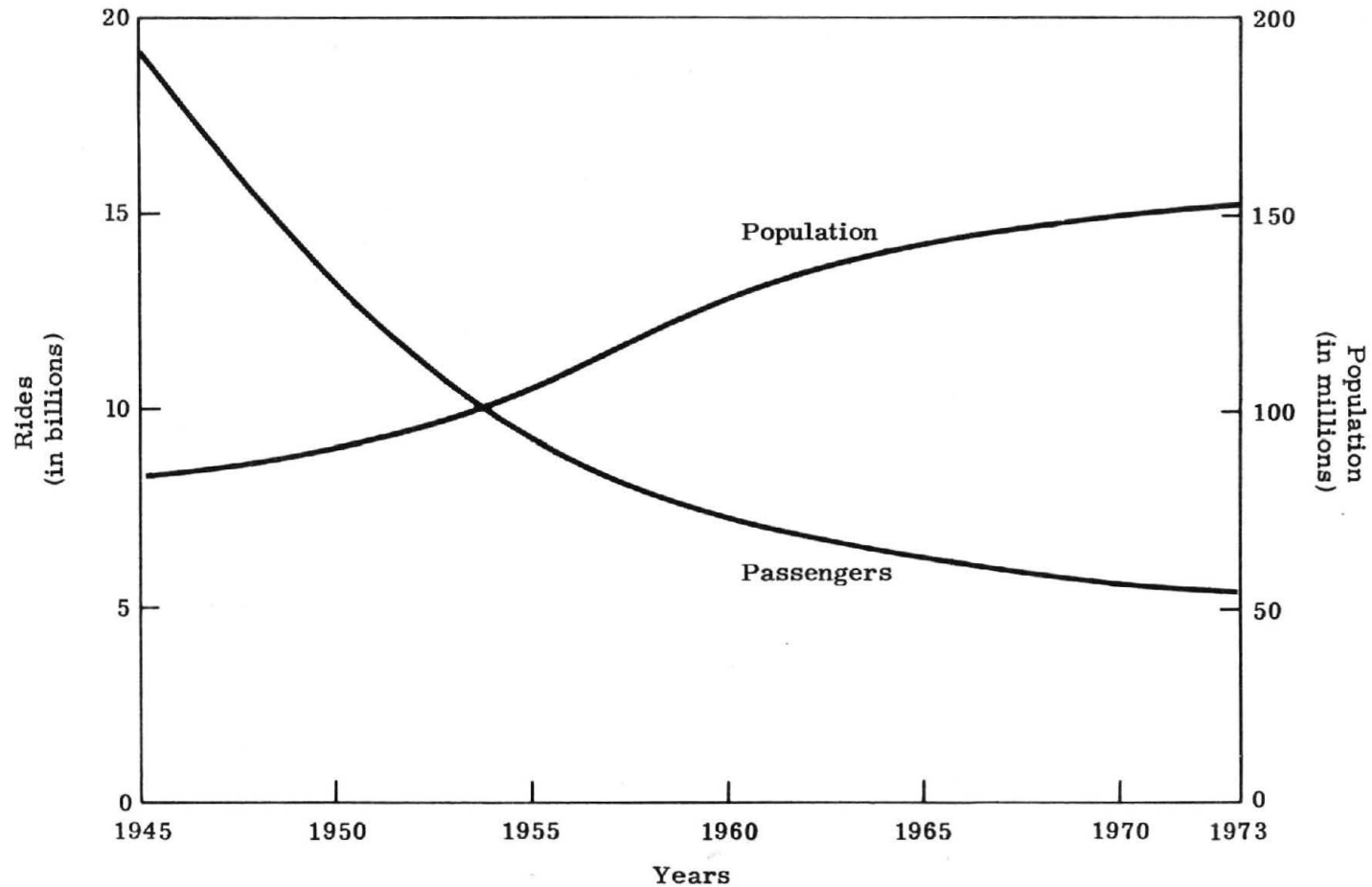
Recent Traffic, Revenue, and Cost Trends

Since the end of World War II, urban transit has continuously declined.² Figure IV-1 shows the decline in transit ridership, which has averaged about 4.5 percent per year, and the increase in urban population.

Concurrent with (and probably both a cause and a result of) declining patronage, transit operators have reduced service and increased fares. Figure IV-2 shows the reduction of service from 1945 to 1973, as measured by the annual revenue vehicle miles operated by rail and by bus. Figures IV-1 and IV-2 together indicate that rides per vehicle mile have dropped from approximately 5.8 in 1945 to about 2.9 in 1973.

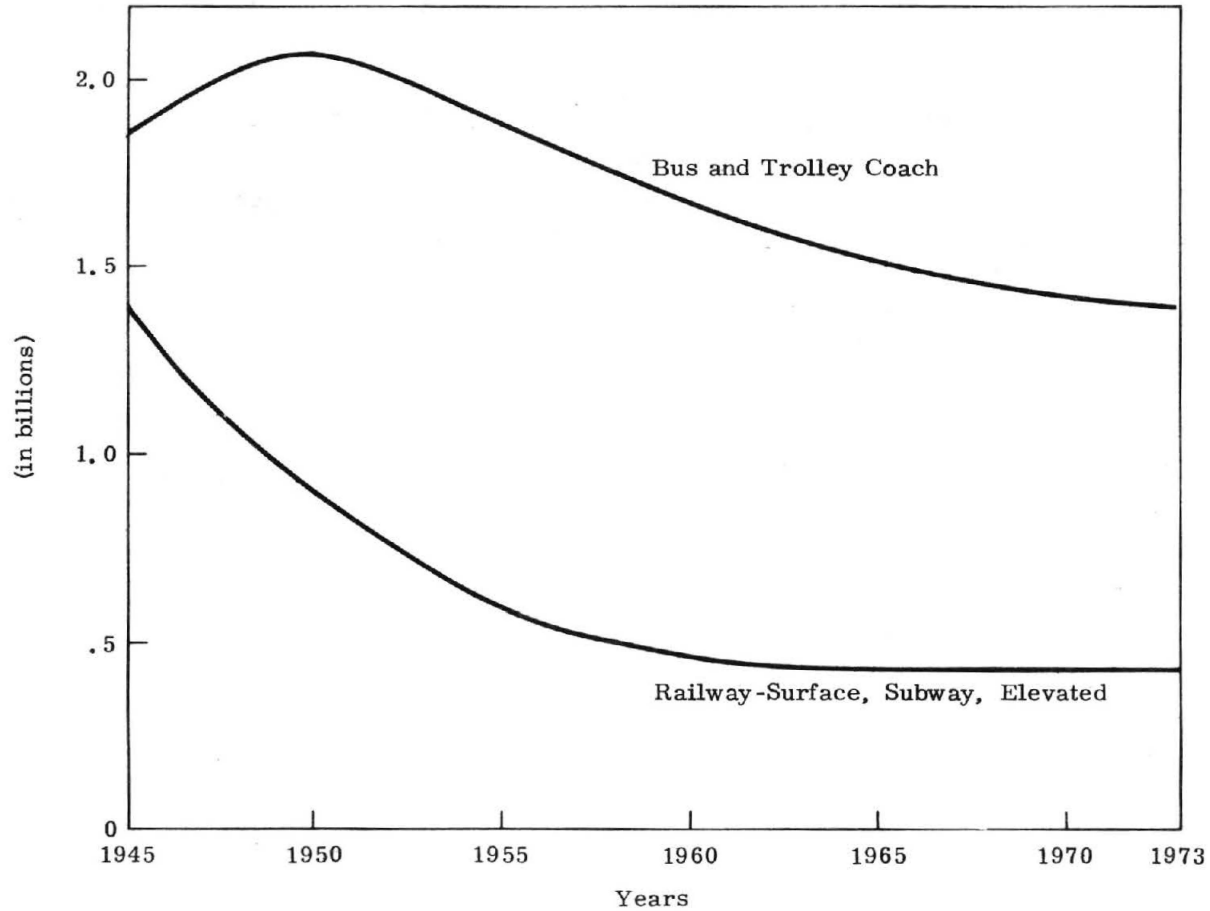
¹/Because of special circumstances, two public utilities--the New Orleans Public Service Company and the Duke Power and Light Company (North Carolina)--are still allowed to be affiliated with transit systems.

²/Although ridership in 1974 appears to be on the rise.



Source: American Transit Association, Transit Fact Book, 1973-1974 Edition.

FIGURE IV-1
URBAN POPULATION AND REVENUE PASSENGERS: 1945-1973



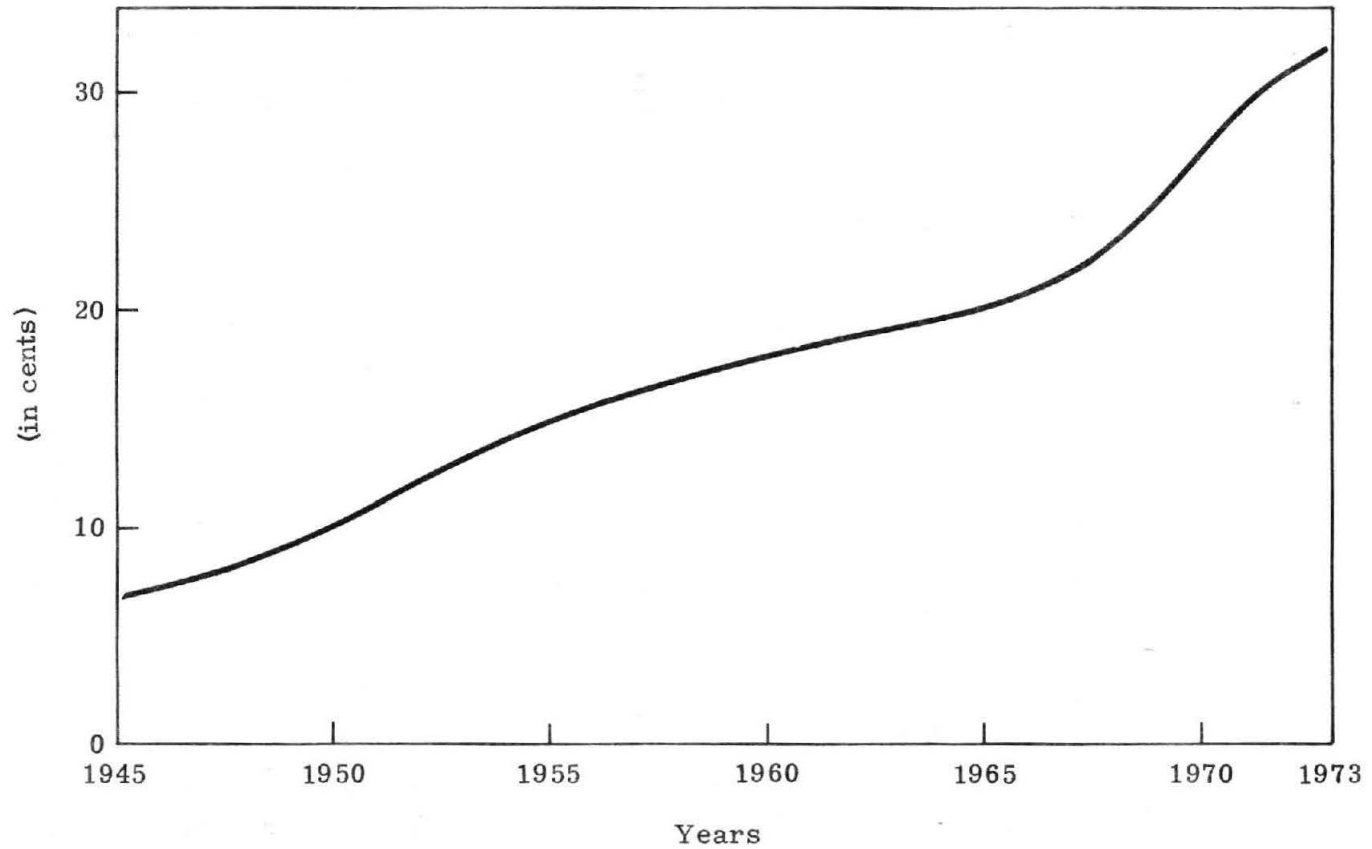
Source: American Transit Association, Transit Fact Book, 1973-1974 Edition.

FIGURE IV-2
REVENUE VEHICLE MILES OPERATED, 1945-1973

Figure IV-3 shows the increase in average transit fares from 1945 to 1973. Although the average annual rate of fare increase from 1945 to 1973 was about 5.5 percent, the average annual rate of increase from 1966 to 1972, the period of greatest increase, was slightly over 7 percent. However, recent indications are that this upward trend in fares may have been halted or reduced by the adoption of what amounts to a fare stabilization policy in many urbanized areas (see Chapter V).

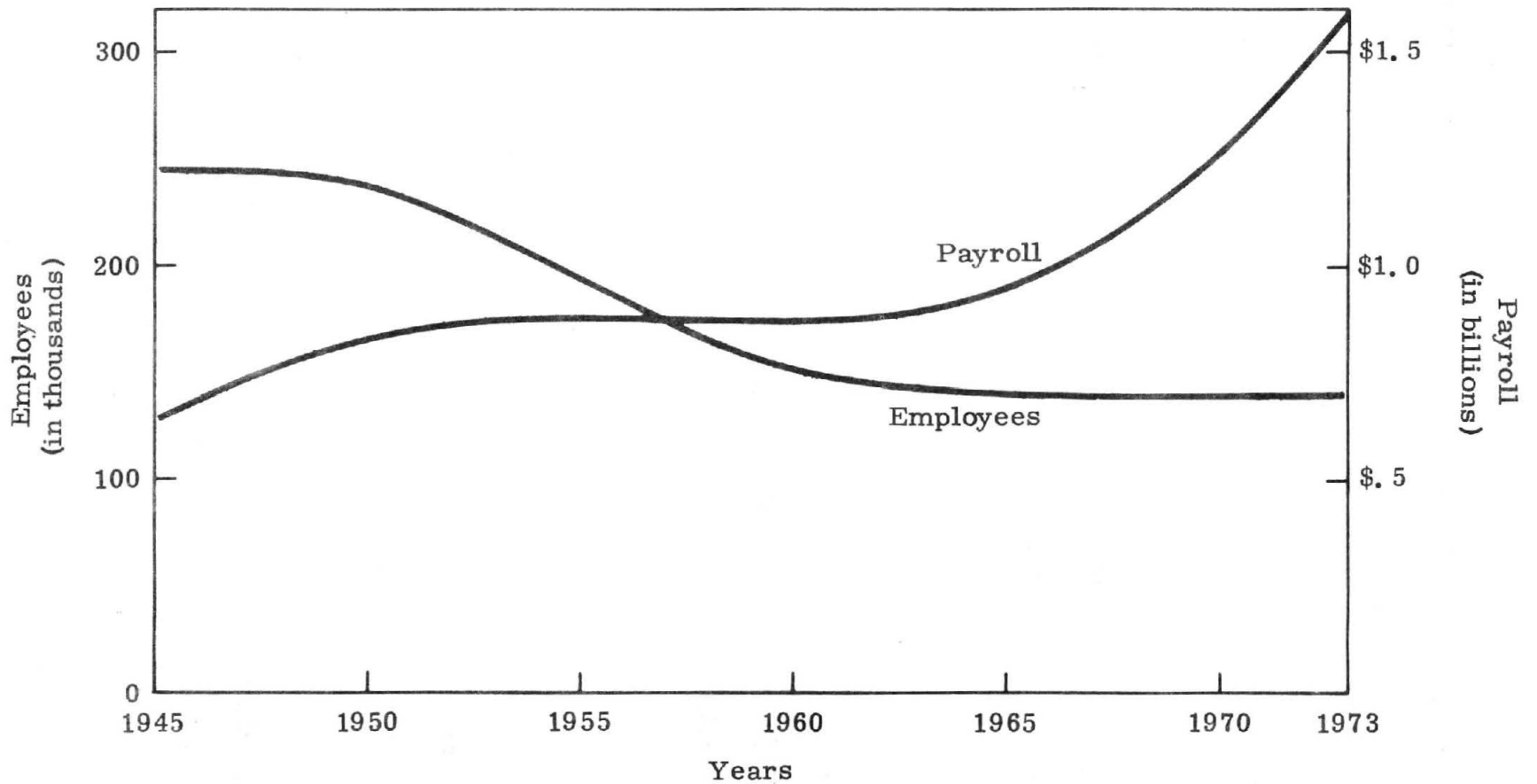
In the last several years, payrolls have accounted for from 68 percent to 70 percent of transit operating expenses. Figure IV-4 shows the relation between the number of employees and the transit payroll. The average salary per employee has increased from \$2,600 in 1945 to \$11,500 in 1973. This increase represents about 5.5 percent annual gain. From 1966 to 1973, however, the annual gain has been about 7.6 percent.

Figures IV-1 and IV-4 together show that revenue passengers per employee have dropped from 78,000 in 1945 to 38,000 in 1973; Figures IV-2 and IV-4 together show that revenue vehicle miles per employee have remained fairly constant. In other words, while labor productivity in terms of vehicle mile output has remained fairly constant, productivity in terms of passenger movement has dropped significantly.



Source: American Transit Association, Transit Fact Book, 1973-1974 Edition.

FIGURE IV-3
AVERAGE TRANSIT FARES, 1945-1973



Source: American Transit Association, Transit Fact Book, 1973-1974 Edition.

FIGURE IV-4
 TRANSIT EMPLOYEES AND TRANSIT PAYROLL, 1945-1973

Operating expenses are increasing more rapidly than operating revenues and have exceeded revenues in every year since 1962 (Figure IV-5 shows these trends since 1945). Further, if transit costs continue to rise while transit fares and labor productivity remain constant, deficits will continue to increase.

TRENDS IN TRANSIT OWNERSHIP AND FINANCING MECHANISMS

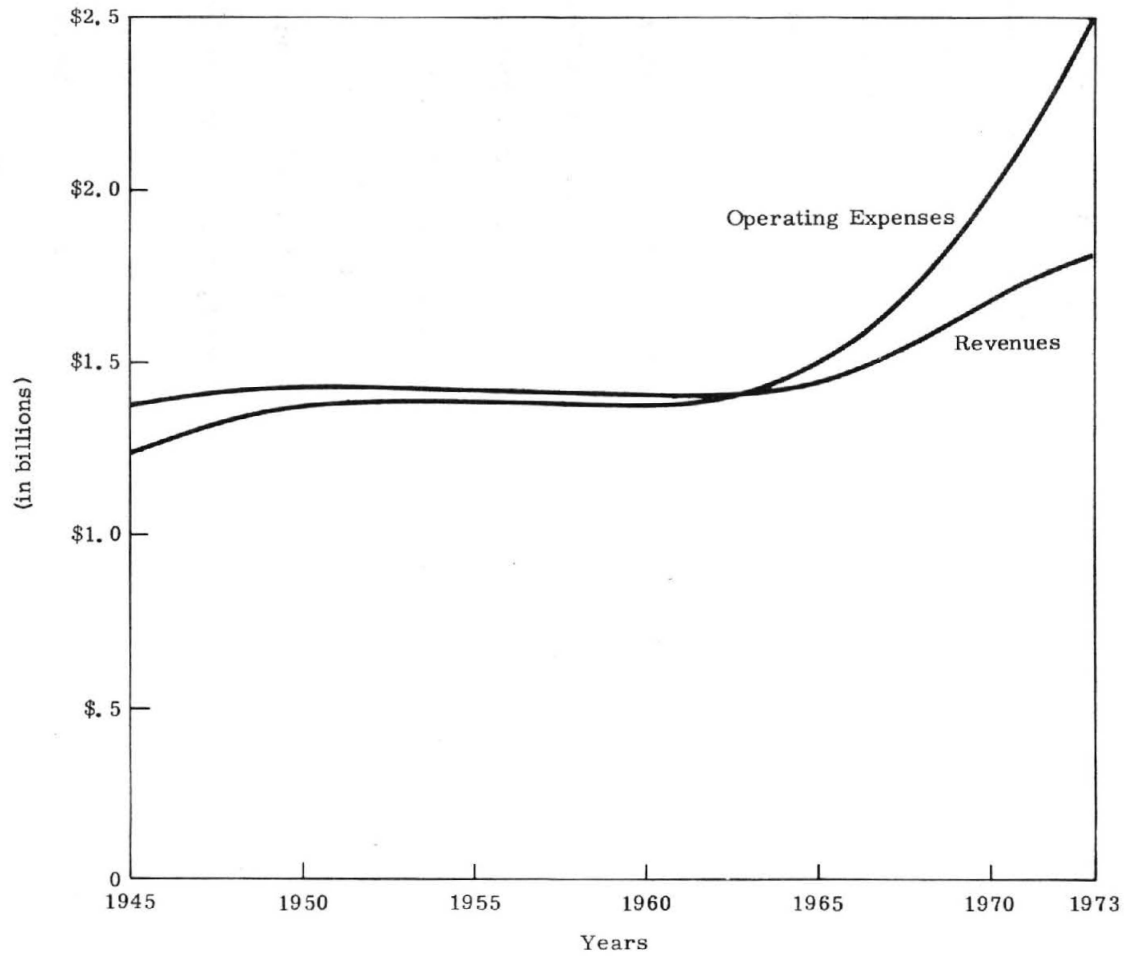
The financing mechanisms that are available to transit operators depend on the form of ownership of the transit properties. Historically, the following capital structures have been available to transit operations:

For privately owned operations (corporations)

- . Senior debt or securities
 - . mortgage bonds
 - . unsecured bonds or debentures
 - . equipment obligations or bank loans
- . Junior or equity securities
 - . preferred stock
 - . common stock

For publicly owned operations

- . Revenue bonds
- . Equipment obligations or bank loans
- . General obligation bonds or notes



Source: American Transit Association, Transit Fact Book, 1973-1974 Edition.

FIGURE IV-5
TRANSIT REVENUES AND OPERATING EXPENSES, 1945-1973

With a few significant exceptions, virtually all transit properties were privately owned until relatively recently. In 1973 there were 1,023 transit systems, of which 185 were publicly owned--102 of these have become publicly owned since 1969. However, since most of the major transit systems are publicly owned, these 185 publicly owned systems represent 88 percent of the operating revenue, 78 percent of the vehicle miles operated, 91 percent of the revenue passengers, and 90 percent of the employees. Exhibit IV-1 gives examples of large cities with publicly owned transit systems.

Private transit companies have had the most alternatives for capital financing available to them; however, their typically poor profit potential has made it increasingly difficult for them to finance capital requirements themselves or to attract the necessary financial support from outside sources. The financial problems of private transit companies are often compounded by the regulatory mechanisms, such as city franchises and public service commissions, that influence fare levels, routes, schedules, and frequency of service.

Private transit companies are either legally or effectively precluded from many public revenue or financing sources. They can neither issue public tax-exempt bonds nor levy taxes on the residents within their service area. They must find a sponsoring public body to apply for a Federal grant and to supply part of the local share of the project cost.

EXHIBIT IV-1

EXAMPLES OF LARGE CITIES
WITH PUBLICLY OWNED TRANSIT SYSTEMS

<u>City</u>	<u>Date of Acquisition</u>
Atlanta, Georgia	1972
Baltimore, Maryland	1970
Boston, Massachusetts	1947
Chicago, Illinois	1947
Cleveland, Ohio	1942
Dallas, Texas	1964
Detroit, Michigan	1922
Kansas City, Missouri	1969
Los Angeles, California	1958
Miami, Florida	1962
Minneapolis, Minnesota	1970
New York, New York	1932, 1940
Philadelphia, Pennsylvania	1968
Pittsburgh, Pennsylvania	1964
San Diego, California	1967
San Francisco, California	1912, 1944 (MUNI) 1962 (BART)
St. Louis, Missouri	1963
Washington, D.C.	1973

Some governmental efforts to aid private transit companies have been made. For eligible companies, the Federal Government reduces the Federal motor vehicle diesel fuel tax by two cents per gallon. Further, some states reduce their motor fuel tax for private transit companies, and some reduce or eliminate state licensing fees and the state sales tax. Also, local governments often offer some form of operating subsidy, as well as in-kind services.

Public ownership of a transit system usually permits access to capital and revenue financing mechanisms that offer large amounts of money. The type of public ownership--municipal, public transit authority, or transit district--tends to define which mechanisms will be used.

Municipal ownership is the oldest form of public participation in transit financing. Seattle, Detroit, Cleveland, St. Petersburg, and San Francisco were among the earliest cities to either acquire or develop their transit systems. As a branch of the city government, a municipal transit system receives an appropriation of city funds and the support of the city's credit to meet its operating and capital needs.

Public transit authority ownership and operation was a successor step to municipal ownership. It allows a transit system to extend service outside of municipal and county boundaries, and it gives the transit system access to certain types of financing, including revenue bond financing.

A transit authority can be financed directly from the state budget--the Massachusetts Bay Transportation Authority (MBTA) in Boston is a case in point. The MBTA operates as an authority with five directors, who are appointed by the Governor. In general, approximately 50 percent of the operating deficit (the excess of operating costs over operating revenues) is paid by the state, and the remainder is paid by the local governments who are members of the authority.

Another example of a transit authority with state involvement is the former Metropolitan Transit Authority (MTA) of the State of Maryland. The MTA was created in 1969 for metropolitan Baltimore by Maryland law, which requested that the authority cover operating expenses with operating revenues. The authority was empowered to purchase, construct, and operate transit systems in the metropolitan Baltimore area. In 1971 the MTA was dissolved by legislation creating the Maryland Department of Transportation, and it became a separate modal administration (the Mass Transit Administration) within the Department, with funding provided by a trust fund used to finance capital and operating programs for all the modal administrations. This fund has become a source of subsidy for the deficits being incurred by the Mass Transit Administration.

A transit district is an alternative to the transit authority and is also established through enabling legislation enacted by a state.

California has adopted this approach to public operation of mass transportation (for example, BART). Generally, the major advantage of a transit district, compared with a transit authority, is that the district is empowered to levy specific taxes for operating and capital expenditures, and may issue general obligation bonds. Usually a transit authority can issue only revenue bonds secured by farebox revenues.

In Illinois, cities may assess a property tax to provide income to operate, maintain, and improve any local transportation system owned and operated by the city. Transit districts, which are authorized to acquire, own, operate, and maintain mass transit facilities or subsidize their operation, may issue revenue bonds and levy a property tax within the district.

In 1969 Oregon authorized the creation of transit districts in the state's three Standard Metropolitan Statistical Areas and also authorized a broad range of financing sources for the districts to use. Subject to voter approval, a district may issue general obligation bonds and revenue bonds. Further, a district may designate within its jurisdiction a service area that is benefitted by mass transit beyond the general benefit to the district; within the service area, the district may impose an ad valorem tax, a business license fee, a net income tax, a sales tax, an employer's payroll tax, and service and user charges.

CURRENT FINANCING PROGRAMS

In recent years, a variety of programs for transit financing have evolved at the Federal, state, and local levels of government. Table IV-1 is a summary of the financial assistance given by the various levels of government to transit systems in 1972.

TABLE IV-1

SUMMARY OF TRANSIT FINANCIAL ASSISTANCE, 1972
(\$ millions)

	Capital Improvement Funds	Operating Subsidies	Senior Citizen and School Fare Reimbursement	Total
Federal	\$469.9	---	--	\$ 469.9
State	64.3	\$106.3	\$ 6.7	177.3
Local	<u>167.1</u>	<u>325.7</u>	<u>51.8</u>	<u>544.6</u>
Total	\$701.3	\$432.0	\$58.5	\$1,191.8

Source: American Transit Association, A Summary of Financial Assistance for Transit Systems in 1972, June 1973.

Federal Programs. The focus of Federal transit assistance has been capital expenditure programs. The Urban Mass Transportation Act of 1964, as amended in 1970, provides funds for capital improvement of transit systems, including the public acquisition of systems. The Federal-Aid Highway Act of 1973 further expands potential transit financing for rail and bus mass transportation capital improvements. The Unified Transportation

Assistance Program (UTAP) proposed by President Nixon (see Chapter VII) would provide even more extensive support for urban mass transportation.

State Programs. Almost all states now have laws to support public transit. The majority of state laws are of the enabling type that permits local governments to create transit authorities or districts, impose taxes, issue bonds, and acquire or enter into agreement with local systems. In addition, the legislation usually contains provisions granting tax relief to the local transit units and sometimes contains provisions offering fare subsidies and grants for capital and operating expenditures. Exhibit IV-2 lists the states that provide aid in the form of tax relief and other direct assistance.

Tax relief is most often granted to the property, income, and bonds of the local transit system. Also common is relief from taxes on motor fuel, either through exemption from payment or through rebates. Further, at least four states have laws covering exemptions on other motor vehicle taxes. For example, the annual rebate of fuel and motor vehicle excise taxes to transit systems in Massachusetts is about \$1 million.¹

Reimbursement for reduced senior citizen and/or school fares is given by some states. At least one state (Minnesota) supports the transportation of the elderly. Illinois' program for pupil transportation, which

¹/William D. Hart, Public Financial Support for Transit, Highway Users Federation, Technical Study Memorandum Number 7, Washington, D.C., September 1973.

EXHIBIT IV-2

STATE AID TO TRANSIT*

<u>Tax Relief</u>		<u>Direct Assistance</u>	
<u>Motor Fuel Exemptions or Refunds</u>	<u>Property, Income and/or Bond Exemptions</u>	<u>Senior Citizen and/or School Fare Reimbursement</u>	<u>Capital or Operating Grants</u>
Arkansas	Alabama	Illinois	California
Connecticut	California	Massachusetts	Florida
Florida	Delaware	Minnesota	Illinois
Iowa	Florida	New Jersey	Maryland
Kentucky	Georgia	New York	Massachusetts
Maine	Illinois	Pennsylvania	Michigan
Massachusetts	Indiana		New Jersey
Minnesota	Iowa		New York
New Hampshire	Kansas		Pennsylvania
New Jersey	Kentucky		Tennessee
Ohio	Louisiana		Virginia
Oklahoma	Maine		Wisconsin
Oregon	Maryland		
Virginia	Massachusetts		
Washington	Michigan		
West Virginia	Minnesota		
	Missouri		
	Nebraska		
	New York		
	Ohio		
	Oklahoma		
	Pennsylvania		
	Rhode Island		
	Utah		
	Virginia		
	West Virginia		
	Wisconsin		
<u>16 States</u>	<u>27 States</u>	<u>6 States</u>	<u>12 States</u>

*See William D. Hart, Public Financial Support for Transit, Highway Users Federation, Technical Study Memorandum Number 7, Washington, D. C., September 1973.

began in 1965, subsidizes only publicly owned systems and pays the difference between the reduced fare and the regular fare (to a maximum of 50 percent of the regular fare). In 1972, the subsidy from this source to the Chicago Transit Authority was more than \$6 million.¹

Several states have authorized more direct subsidy programs for capital improvements and operating costs. In 1972 California changed the basis of sales tax income by adding gasoline to the sales tax base. Counties were to impose a sales tax at the rate of 1-1/4 percent, rather than 1 percent, and to deposit all of the income over 1 percent in a newly established local transportation fund. In this way, about \$150 million annually is potentially available for transportation capital and operating expenditures. However, the amounts available for operating expenses are subject to limitations.

Also in 1972, Illinois authorized grants for acquisition, construction, extension, or improvement of mass transportation facilities. These grants are intended to match Federal UMTA funds; to facilitate movement of persons who, because of physical or economic circumstances, are unable to drive; and to contribute to an improved environment.

Massachusetts assists transit authorities by paying 90 percent of the annual debt service on bonds authorized to finance mass transportation equipment or facilities.

¹/American Transit Association, A Summary of Financial Assistance For Transit Systems in 1972, June 1973.

Michigan, under a 1969 Act, authorizes grants for planning, engineering, and design of urban mass transportation projects. In 1972 part of a motor fuel tax increase was made available for public transit as advances or loans for a period of two and one-half years, after which a referendum is to determine further use of the funds.

In Pennsylvania, New York, Massachusetts, Illinois, and Florida, the state will fund from one-half to two-thirds of the amount needed for the local contribution required under Federal matching provisions for capital projects.

Under Pennsylvania's Urban Mass Transportation Assistance Act of 1967, the state will underwrite two-thirds of an incurred operating deficit, provided the remaining one-third is contributed by local sources. Recently Rhode Island began to provide operating funds to the Rhode Island Public Transit Authority.

Local Programs. As the number of publicly owned transit systems has increased, so has the number of cities providing assistance to transit. Since the immediate problems of the cities are usually those of keeping transit running, operating subsidies are the largest part of local transit support.

The number of states that authorize cities and other local units of government to tax themselves for transit operating costs is growing. Exhibit IV-3 provides a partial listing of local tax sources specifically authorized for transit support.

EXHIBIT IV-3

LOCAL TAX SOURCES SPECIFICALLY AUTHORIZED
FOR TRANSIT SUPPORT*
(Partial List)

Authorizing State	Source
Arizona	Property tax
California	Motor vehicle tax, tax on gross receipts of parking lots, transaction and use tax, sales tax on gasoline
Colorado	Real property tax
Hawaii	Fuel taxes and county motor vehicle taxes
Illinois	Property tax, county allocation of motor fuel tax
Indiana	Property tax, motor vehicle highway fund allocations, state cigarette tax fund allocation
Iowa	Property tax
Kansas	Tangible property tax
Massachusetts	Property tax (MBTA - Boston area assessment)
Michigan	Property tax
Nebraska	Real and personal property taxes
North Dakota	Real and personal property taxes
Ohio	Property tax
Oregon	Ad valorem tax, business license tax, net income tax, retail sales and use of tangible personal property tax, employers payroll tax
Utah	Property tax
Washington	Property tax, excise tax on value of motor vehicles, business and occupation tax, sales and use tax, public utilities tax on persons served by city owned utility

*See Hart, op. cit.

Local financing sources include general funds, sales taxes, property taxes, payroll taxes, parking meter revenues, gasoline taxes, surpluses from toll facilities, local vehicle license taxes, and borrowing. Of these sources, property taxes contribute the largest portion of assistance, and transfers of surpluses from toll facilities the next largest.

In the State of Washington, municipalities can levy a tax of not more than \$1 per household per month for the support of public transit systems. They can also place a tax on business firms. Additionally, a maximum of 50 percent of the state's 2 percent motor vehicle excise tax collected in any city with a publicly owned transit system may be used for the system if matched by local funds.

In summary, there appears to be a strong trend toward public support of urban mass transportation throughout the United States. Capital subsidies have largely taken the form of capital grants from the Federal Government. Operating subsidies, from state and local governments, have generally taken the form of general revenue payments, with some additional subsidies such as school fare or senior citizen fare reimbursement.

V. TRANSIT FARE STRUCTURE AND REVENUE

In determining the financing requirements of public transit nationwide and in the major urbanized areas, it is necessary to first determine to what extent fare revenue is able to cover the annual costs of transit operations. Chapter V briefly discusses fare structure and collection in general, and then considers present revenue-to-cost ratios and their implications for the future in light of fare policy trends.

In the study of fare structure and trends, transit operations in 36 representative urbanized areas in four population categories were analyzed:

More than 2 million population (8 areas)

New York	Detroit
Chicago	Cleveland
Los Angeles	Boston
Philadelphia (SEPTA)	San Francisco (BART) (MUNI)

500,000 to 2 million population (17 areas)

Baltimore	San Diego
Houston	Seattle
Jacksonville	Buffalo
Columbus (Ohio)	Cincinnati
Portland (Oregon)	Denver
Rochester	Indianapolis
Miami	St. Louis
Dayton	New Orleans
	Pittsburgh

250,000 to 500,000 population (6 areas)

Flint	Honolulu
Grand Rapids	El Paso
Tacoma	Richmond

50,000 to 250,000 population (5 areas)

Fort Wayne	Raleigh
Peoria	Corpus Christi
	Madison

FARE STRUCTURE AND COLLECTION

There are two basic types of transit fares in use in the United States today: flat fares and distance-based fares. The type of transit fare charged by a given urbanized area seems to be based mainly on the particular history of transit operations in that area.

A flat fare is a single boarding fare and is charged without regard to distance traveled or the number of times a traveler transfers. Flat fares are simple for the transit operator to implement and administer.

For service essentially involving short trips--for example, service within the Central Business District (CBD)--a flat fare appears to be an equitable charge to the rider. However, for line-haul service (between suburban areas and the CBD), a flat fare does not account for the increasing operational costs for the additional service mileage, and there is inequity to the rider who travels a short distance as compared to the rider who travels a long distance.

In general, distance fare structure is based on the specific number of miles traveled. As a rule, a minimum travel distance is assumed and a basic boarding fare is charged; then fares incrementally increase per mile traveled.

There are two types of distance-based fares: stage and zone. Rapid transit facilities like BART in San Francisco and Lindenwold in Philadelphia have adopted the stage fare, which is applied on sections of a route--the rider pays according to the number of stops traveled. The stage fare is thus most easily applied on those transit routes with a few designated stop locations that simplify fare collection. Because of collection problems, this fare structure is rarely applied by bus operators in urbanized areas.

Zone fares constitute a simplification of the stage fare system. Zones or service areas about a common point, usually the CBD, are designated, and fares typically increase incrementally from the CBD or other common point each time a zone line is crossed.

Various combinations of flat and distance-based fares are employed in cities with a mixture of bus, rail, and/or commuter rail service. For example, for its bus operation, a city might have a flat fare, while the fares for its rail commuter service would generally be stage fares.

Under both flat and distance-based fares, a rider can be required to pay an additional fee or an entire new fare for a transfer, particularly when two different modes are involved--for example, a fare is charged

for the feeder bus to rapid transit and then the rider pays another fare for the rapid transit service. In all-bus systems, transfer fares occur as a rule in those urbanized areas where two or more transit operators each serve separate parts of the area, but transfer fares also occur in some systems managed by a single operator.

In addition to the basic fares at regular prices, a number of urbanized area transit operators offer special opportunities for reduced fares under certain circumstances or to certain categories of riders. Examples of discount fare plans include multiple-journey fares and some weekly or monthly passes. Some operators offer reduced or special promotional fares for sporting events; Sundays, holidays, midday during the week;¹ and/or shopping specials. In addition, a number of urbanized areas operate CBD loops or shuttles for low fares in heavily congested pedestrian corridors.

Students and children--and, more recently, senior citizens--have been allowed to travel at reduced rates, although student fares and senior citizen fares usually have restrictions relating to the period of the day during which the reduced rates apply. Several transit operators offer senior citizens free fare, and the concept of extending this free-fare or no-fare policy to all riders is now being considered by a few cities in the United States.

¹/Boston, for example, has reduced fares on the subway between 10:00 a. m. and 2:00 p. m. weekdays from 25 cents to 10 cents. The reduction of midday fares is based on the premises that excess capacity exists during the midday and that the cost to provide off-peak service is less than peak service and, hence, midday service should be priced lower than peak hour service.

Several European cities have experimented with no-fare policy. Rome's experiment lasted 43 days, but did not decrease auto traffic. German experience led to the conclusion that greatly reduced fares do not in themselves attract more motorists to public transportation--improvements in quality of transit service seem to be much more important than fare reductions in attracting increased transit ridership.¹

Efficient, safe, and low-cost methods of fare collection are of major concern to transit operators today. To forestall robbery of drivers, exact fares have been introduced in most of the 36 urbanized areas analyzed in this study. While the exact-fare policy has the disadvantage of requiring the rider to carry the correct fare on boarding the vehicle, it also has advantages of faster boarding and less time spent at stops--in other words, a faster trip and potential savings for the operator, since the same vehicle and driver might be able to make more trips.

Selling books of tickets or quantities of tokens is practiced in some cities--for example, books may contain 10, 20, or 40 tickets, with the tickets serving as exact payments of fare. This approach has particular convenience value if the tickets and tokens are widely available for purchase in the community, such as through special arrangements with banks or other commercial establishments.

¹/Herbert J. Baum, "Free Public Transport," Journal of Transport Economics and Policy, January 1973, p. 12.

Boston is experimenting with prepaid monthly employee passes which are sold to employers, who then sell them to their employees. The concept of prepaid monthly passes improves cash flow for the transit operator and simplifies the administration of fare collection.

The use of weekly and monthly passes for limited or unlimited riding, usually at reduced fare rates, was once popular in the United States, but it is no longer common and usually no longer involves fare discounts. However, a few cities offer a pass (at nearly twice the cost of a single fare) that provides unlimited bus use on a Sunday or holiday when service is lightly used and operating costs are not affected by the number of added riders who use the pass. As with other unlimited pass systems, of course, there could be lost revenue from those already using the system. Even so, the concept of an unlimited pass improves the flexibility and convenience of transit, thereby increasing its attractiveness to potential users and its efficiency for existing patrons.

Concerted research and development efforts, including federally sponsored ones, are currently being directed toward developing automated fare collection systems capable of handling transactions for various types of fare structures. The new rail systems (for example, BART) have automatic collection equipment, and within a few years reliable automatic bus fare collection systems may be available at reasonable cost. Once automatic collection equipment is perfected, the opportunity to apply a stage fare structure, and thereby increase transit revenue, will be broadened considerably.

Of the 36 urbanized areas analyzed, the 25 areas with population of more than 500,000 include six areas with existing bus and rail systems. Of these 25 urbanized areas, 17 had zone (or some combination of flat and zone) transit fares in 1972 and eight had flat fares.

All of the 11 urbanized areas with population from 50,000 to 500,000 have all-bus systems--7 of the 11 had flat fares in 1972, and the remaining four had zone fares.¹

A breakdown of fare structure, including transfers, by population category is presented in Exhibit V-1. Historically, transfer fares have accounted for from 2 percent to 11 percent of total base fare revenue.

The majority of the 36 urbanized areas analyzed priced their basic adult cash fare between 25 cents and 40 cents in 1972 (see Table V-1). Adult fares were 50 cents in two areas, and less than 25 cents in three areas.

The highest fare any child or student paid in the 36 areas in 1972 was 34 cents.

The senior citizen fare in the majority of the 36 areas was less than 30 cents in 1972. Six areas offered senior citizens free fare, while two areas charged senior citizens a fare between 45 cents and 50 cents.

¹/Information from transit operators who submitted fare statistics to the American Transit Association over a period from 1958 to 1973.

EXHIBIT V-1

BREAKDOWN OF FARE STRUCTURE BY POPULATION CATEGORY*
(36 Urbanized Areas)

More than 2 million population (8 urbanized areas)

- . 6 areas have existing bus/rail systems.
- . 2 areas have all-bus systems.
-
- . 3 areas have essentially flat fare# (one gives free transfer, one requires new fare for transfer, one gives free transfer for rapid rail but requires 10 cents for surface transfer).
- . 3 areas have zone fare (2 give free transfer, one requires 5 cents for transfer).
- . Detroit has combination of flat fare on some routes and zone fare on others--requires 5 cents for transfer.
- . San Francisco (MUNI) has flat fare and free transfer; BART has stage fare structure.

*/All information as of 1972. Information obtained from transit operator statistics submitted to the American Transit Association.

#/The analysis was conducted on the basis of transit operator properties; where other modes or systems (such as commuter rail in Chicago) are involved, other fare structures (including zone and stage fares) may be applied.

EXHIBIT V-1 (Cont'd)

BREAKDOWN OF FARE STRUCTURE BY POPULATION CATEGORY
(36 Urbanized Areas)

500,000 to 2 million population (17 urbanized areas)

- . All 17 areas have all-bus systems.

- . 5 areas have flat fare (2 give free transfer, one requires 5 cents for transfer, one requires new fare for transfer, and one requires 5 cents for the first transfer but gives the second transfer free).
- . 12 areas have zone fare (5 give free transfer, 2 require new fare for transfer, 3 require 5 cents for transfer, one requires 10 cents for transfer, and one requires 5 cents for the first transfer but gives the second transfer free).

250,000 to 500,000 population (6 urbanized areas)

- . All 6 areas have all-bus systems.

- . 4 areas have flat fare (2 give free transfer and 2 require 10 cents for transfer).
- . 2 areas have zone fare (one gives free transfer and one requires 5 cents for transfer).

50,000 to 250,000 population (5 urbanized areas)

- . All 5 areas have all-bus systems.

- . 3 areas have flat fare (one gives free transfer, one requires 5 cents for transfer, and one requires 10 cents for transfer).
- . 2 areas have zone fare (both give free transfer).

TABLE V-1

FARE LEVEL BY FARE TYPE
(36 Urbanized Areas)

<u>Type of Fare Offered by Urbanized Area</u>				
<u>Basic Adult</u>	<u>Senior Citizen</u>	<u>Student</u>	<u>Child</u>	<u>Fare (cents)</u>
3	16*	26	24	0-24
10	11	7	7	25-29
5	3	3	5	30-34
8	1			35-39
5	3			40-44
3	1			45-49
2	1			50
<hr/>				
Total Num- ber of Areas Analyzed	36	36	36	36

Source: All information as of 1972. Information obtained from transit operator statistics submitted to the American Transit Association.

*Includes six operators who offer senior citizens free fare.

The 36 urbanized areas were also analyzed with regard to fare discounts. Nine of the smaller areas provided fare discounts in 1972 through multiple-journey tickets--the typical discount was on the order of 2 cents to 4 cents per ride. (Larger urbanized areas who offer a multiple-journey ticket plan normally do so at full cash fare.) In addition, nine of the areas sold passes and permits which can provide discounts if used a sufficient number of times during the period in which they are valid.

FARE POLICY TRENDS AND TRANSIT OPERATOR REVENUE-TO-COST RATIOS

Historical records on fares were analyzed for the 36 selected urbanized areas for the period from 1958-1961 (depending on availability of information) to 1973 (see Table V-2). During the period from 1958 to 1970, fares typically increased and, in many of these urbanized areas, doubled. By 1970 the majority of the 36 areas had stabilized fares. (Tacoma fares have not increased since 1958.) Four (San Diego, Cincinnati, Denver, and St. Louis) of the 36 areas reduced fares from 1970 to 1972-1973--the largest fare reduction was in Cincinnati (from 50 cents in 1970 to 25 cents in 1972-1973).

The policy of fare stabilization since 1970 implies that farebox revenues will cover a decreasing percentage of transit operating and maintenance costs as these costs rise. The ratio¹ of revenues to costs

¹/Source of information is the 1974 National Transportation Study (NTS) report of 1972 data by urbanized areas.

TABLE V-2

BASIC ADULT CASH FARES, 1958-1973,
AND REVENUE-TO-COST RATIO, 1972
(36 Urbanized Areas)

<u>Urbanized Area</u>	<u>Adult Fares (cents)*</u>			<u>1972 Revenue-to-cost Ratio</u>
	<u>1958</u>	<u>1970</u>	<u>1972-1973</u>	
<u>More than 2 million population (8 areas)</u>				
New York	15	30	35	0.77
Chicago	25	45	same 1970	0.98
Los Angeles	25 (1961)	30	same 1970	0.78
Philadelphia (SEPTA)	22 (1960)	30	35	0.78
Detroit	20	40	same 1970	0.83
Cleveland	20	45	50	0.63
San Francisco (MUNI) (BART)	15	25	same 1970 30 to \$1.25	0.60 0.60
Boston	20	25	same 1970	0.48
<u>500,000 to 2 million population (17 areas)</u>				
Baltimore	25	30	same 1970	0.87
Houston	22	45	same 1970	1.05
Jacksonville	20 (1959)	35	same 1970	0.91
Columbus (Ohio)	25 (1961)	35	40	1.10
Portland (Oregon)	25	35	same 1970	0.60
Rochester	20	25	40	0.96
Miami	20	30	same 1970	0.94
Dayton	15	35	40	0.95
San Diego	20	40	25	0.82
Seattle	20	25	25	0.55
Buffalo	25 (1960)	35	45	0.98
Cincinnati	25	50	25	1.02
Denver	15	40	35	0.87
Indianapolis	20 (1960)	40	50	1.10
St. Louis	25	45	25	0.93
New Orleans	10 (1960)	15	same 1970	0.70
Pittsburgh	25	35	40	0.70

*Zone and transfer fares not indicated.

TABLE V-2 (Cont'd)

BASIC ADULT CASH FARES, 1958-1973,
AND REVENUE-TO-COST RATIO, 1972
(36 Urbanized Areas)

<u>Urbanized Area</u>	<u>Adult Fares (cents)*</u>			<u>1972 Revenue-to-cost Ratio</u>
	<u>1958</u>	<u>1970</u>	<u>1972-1973</u>	
<u>250,000 to 500,000 population (6 areas)</u>				
Flint	25	35	same 1970	0.42
Grand Rapids	25	35	same 1970	0.58
Tacoma	25	same 1958	same 1958	0.50
Honolulu	20 (1960)	20	25	0.83
El Paso	10	same 1958	20	1.13
Richmond	15	25	30	1.07
<u>50,000 to 250,000 population (5 areas)</u>				
Fort Wayne	25	35	same 1970	0.54
Peoria	20	40	same 1970	0.48
Raleigh	15	30	same 1970	1.05
Corpus Christi	20	25	same 1970	0.51
Madison	15 (1960)	25	same 1970	0.58

Source: Fare data from transit operator statistics reported to the American Transit Association. Revenue-to-cost ratio data from the 1974 National Transportation Study (NTS) report of 1972 data by urbanized areas.

*Zone and transfer fares not indicated.

for the 36 areas for 1972 is also presented in Table V-2. Only seven areas (typically the smaller cities) had revenue-to-cost ratios that exceeded 1.0-- that is, only seven of the 36 urbanized areas had transit revenues that exceeded operating and maintenance costs. Houston was the only city with population over one million with a revenue-to-cost ratio greater than 1.0 in 1972.

As Table V-3 shows, the revenue-to-cost ratio for the total nation in 1972 was 0.85, and the same ratio for the nine largest urbanized areas in the nation was also 0.85. Thus it is evident that farebox revenues are falling short of covering operating and maintenance costs by a significant amount. Nationally, the 1974 National Transportation Study (NTS) reports total operating subsidy at the level of \$0.4 billion in 1972.

The 1974 NTS data reported by the states for the 1990 Plans were analyzed and compared with the 1972 average fares and revenue-to-cost ratios (see Table V-3). These data, in effect, constitute an aggregate of the individual plans and forecasts prepared by the states in cooperation with urban planning agencies and local officials. The average fare for the total nation is not expected to increase from 34 cents in 1972 if the fare policies reported by the states are in fact followed. The average fare for the nine largest urbanized areas would increase from 35 cents in 1972 to 42 cents in 1990.¹ It appears, therefore, that urbanized areas

¹/Average fares expressed in terms of 1971 constant dollars.

TABLE V-3

COMPARISON OF 1972 AND 1990 NTS AVERAGE FARE, REVENUE,
OPERATING COSTS, AND REVENUE-TO-COST RATIO*

	Average Fare# (cents)		Revenue Minus Operating Costs [Deficit (\$ billion)]		Revenue-to-cost Ratio@	
	1972	1990	1972	1990	1972	1990
Total Nation	34	34	-0.4	-2.5	0.85	0.65
Nine Largest Urbanized Areas	35	42	-0.3	-1.9	0.85	0.63
Rest of Nation	33	24	-0.1	-0.6	0.83	0.71

*All figures expressed in terms of 1971 constant dollars.

#Average fare is calculated as NTS reported revenue divided by annual unlinked trips.

@NTS revenue divided by NTS operating (annual) costs.

**New York, Boston, Philadelphia, Chicago, Cleveland, Detroit, Los Angeles, San Francisco, Washington, D.C.

Source: 1974 National Transportation Study.

as a whole plan to pursue a fare stabilization policy into the future. While the 1974 NTS indicates that some of the large urbanized areas may increase their average fare, a number of transit operators in the large urbanized areas have expressed their desire to stabilize fares.¹ The rest of the nation plans to reduce average fares from 33 cents to 24 cents, which would cancel out the proposed increase for the nine largest urbanized areas.

This is a reversal of a long-term trend--from 1949 to 1970, on a national aggregate basis, average fares for bus, rail, and commuter rail increased at a 3 percent annual rate greater than the Consumer Price Index (CPI).² In particular, according to the 1974 NTS reports from the states for the period from 1972 to 1990, average bus fares would decline relative to the CPI, while average fares for rail and commuter rail would increase but at an annual relative rate between 1.3 percent and 1.4 percent--less than the 1949-1970 annual rate of 3 percent (see Table V-4). In addition, according to the state reports, transit operating and maintenance costs per vehicle hour of operation would increase from 1972 to 1990 at an annual rate in excess of previous levels. Thus transit operators appear to be planning to stabilize fares while facing significant increases in operating costs.

The state forecasts of 1990 revenue-to cost ratios presented in Table V-3 show a decline to 0.65 (from 0.85 in 1972) for the total nation, and

¹/Based on discussions between Department of Transportation representatives and several transit operators, March-April 1974.

²/1974 National Transportation Study, Manual II, Volume I - Procedures, U.S. Department of Transportation, October 1972.

TABLE V-4

ANNUAL PERCENTAGE CHANGE IN AVERAGE FARES
AND OPERATING AND MAINTENANCE COSTS*(Historical Trend Compared With 1972-1990 Data
Reported in the 1974 National Transportation Study)

	Average Fare			Operating and Maintenance Costs Per Vehicle Hour		
	Bus	Rail	Commuter Rail	Bus	Rail	Commuter Rail
Historical Trend 1949-1970, National Aggregate#	3.0	3.0	3.0	2.4	2.7	2.7
National Urbanized Area Total, 1972-1990 (1972 NTS)	-.1	1.3	1.4	2.7	4.0	6.7

*All figures relative to the Consumer Price Index.

#From 1974 National Transportation Study, Manual II,
Volume I - Procedures, U.S. Department of Transportation
October 1972.

a decline to 0.63 (from 0.85 in 1972) for the nine largest urbanized areas. Transit operating deficits, according to the 1974 NTS reports, would total \$2.5 billion for the total nation in 1990--an increase of \$2.1 billion over 1972 (see Table V-3); this estimate could turn out to be low if even more areas adopt a fare stabilization policy.¹

The transit operators, and apparently the states, have indicated that they contemplate extensive service improvements as well as a fare stabilization policy. Between 1972 and 1990, for example--according to the 1980 Programs and 1990 Plans reported in the 1974 National Transportation Study--annual seat miles of service are projected to increase by 113 percent from a total of 99.2 billion to 211.4 billion, and transit line miles are projected to increase by 60 percent from a total of 52,400 miles in 1972 to 83,900 miles in 1990. Patronage forecasts project an increase of 116 percent between 1972 and 1990--from 6.4 billion to 13.8 billion. Both American and European experiences have demonstrated that service improvements are more effective in attracting transit ridership than are fare reductions.

In conclusion, transit operators are increasingly moving to a stabilized fare policy. This is occurring during a period when operating and maintenance costs are increasing at the fastest rate in 25 years. The result

¹/Chapter VII discusses how alternative fare policies could result in reduced operating deficits compared to the deficits projected by the states.

is sharply increasing operating deficits--as noted, the nationwide transit operating deficit is projected to be \$2.5 billion in 1990 compared to \$0.4 billion in 1972. Thus, unless the fare stabilization policy is changed so that increases in fares keep pace with increases in operating costs, the financial burden on taxpayers will increase sharply.

VI. ANALYSIS OF STATE AND LOCAL FUNDING MECHANISMS

The role of, and the mechanisms for, urban mass transportation financing differ significantly between the Federal Government, on the one hand, and state and local governments on the other. From an economic point of view, the role of the Federal Government must be conceived as one of determining the degree of national interest in urban mass transportation, as balanced against other alternatives, and then providing the financial support which reflects that interest.

The policy of this Administration is to recognize a continuing responsibility to help states and communities to improve their regional and local transportation systems, but at the same time to recognize that this help has its limits and that it must be delivered in a way which gives each area the opportunity to develop its own solution tailored to its own needs.

The basic responsibility for determining the appropriate level of public support for urban mass transportation lies with state governments and, through them, with local governments. The public interest resides largely at the local and regional level, where the powers to deal with the problem are derivative from the state, either through home rule or by direct enabling legislation.

Transit financing mechanisms available to state and local governments are subject to interstate and intrastate variations in revenue raising authority, division of functions, and financing arrangements. No

particular financing mechanism is likely to be useful in all situations in all states. It is helpful, however, to set forth some general conclusions regarding potentially applicable financing mechanisms.

The selection by a state or local government of a particular set of transit financing mechanisms will often depend on the traditional revenue sources which have been available in the past. However, state and local governments, especially those within metropolitan areas and, in particular, the older, central cities, in past years typically faced either serious financial problems or severe revenue restraints in carrying out their functions. Two generally recognized resource allocation problems in the past have plagued local and state governments. The first of these is the revenue-expenditure gap resulting from the slow growth of tax revenues compared with the rapid cost increase in public expenditures; and the second is the increasing decentralization of economic activity in older cities to locations outside the metropolitan central city, which tends to erode the tax base.¹

There is little uniformity among state constitutions in the rules and limitations affecting state and local taxation. In a few states no constitutional restrictions are imposed on the state and local taxing power, whereas other states have written much of their state and local tax systems into their constitutions. The most frequent of all state constitutional limitations is one which requires that taxes be equal, or uniform,

¹/Harold M. Groves and Robert L. Bish, Financing Government, (7th Ed. New York: Holt, Rinehart & Winston, 1973), Chapter 17.

or both. Usually, the clause applies to property taxes, but in some states, by stipulation (Texas) or court interpretation (Georgia), the uniformity provision applies to other taxes as well.

Differences among the states in the administration of fiscal resources also affect the choice of a transit financing mechanism. For example, a state which already has an established collection and accounting system for administering general excise taxes may select an additional excise tax for transit use or piggy-back an existing tax without significantly increasing administrative costs. On the other hand, a state or local government may have the legal authority to implement an excise tax, but may find that a new tax system presents uneconomical implementation and high administrative costs.

Thus, each transit financing mechanism will require an evaluation by the particular state or municipality within the context of local conditions and priorities in order to determine the most appropriate solution.

The specific transit funding mechanisms considered in detail in Chapter VI are set out in terms of five categories: (1) general appropriations, (2) traditional non-transportation taxes, (3) transportation-related financing mechanisms, (4) special non-transportation financing mechanisms, and (5) joint development financing. A number of criteria are presented to help indicate which financing mechanism(s) would be best for financing urban mass transit under particular conditions at the state and local levels of government.

ALTERNATIVE FUNDING MECHANISMS

This section considers, in detail, five categories of financing alternatives (see Exhibit VI-1). The major financing mechanisms within each of these categories are analyzed only in general terms, since this report cannot take account of the specific legal, economic, financial, or other characteristics of a particular state or locality. Nor has the study analyzed the alternatives in terms of public acceptance. Rather, the intent of the analysis is to indicate which financing mechanisms appear to have the greater potential for providing transit financing in the future.

General Appropriations

A number of states and municipalities have programs of direct assistance to existing transit services which are paid out of general revenue sources. These sources include income, property, sales, and other taxes that go into general revenue. The funding mechanism is the appropriation process itself whereby funds are allocated from general revenues. Generally, the mechanism involves the submission of an annual budget justification for all deficiencies in operating and capital costs and a request for aid, which is then considered and reviewed according to standards of allocation adopted by the jurisdiction. In this way, transit is placed in competition with other services for state and local funds.

EXHIBIT VI-1

ALTERNATIVE FINANCING MECHANISMS

General Appropriations

- . General subsidies (capital or operating)
- . Tax relief
- . Services supplied in kind, lease-back agreements, debt guarantees
- . Reduced fare compensation (reimbursement)

Traditional Non-Transportation Taxes

- . Income
- . Sales
- . Property
- . Excise, including utility

Special Non-Transportation Financing Mechanisms

- . Payroll tax
- . Tax on professions and businesses
- . Merchant subsidies
- . Lotteries
- . Commuter tax

Transportation-Related Financing Mechanisms¹

- . Parking tax
- . Charter revenue
- . Motor fuels
- . Tolls
- . Motor vehicle taxes

Joint Development Financing (Examples)

- . Greenwich Street Development, New York City--special transit district fund
- . Market Street Development, San Francisco--tax increment financing and impact zoning regulations
- . Toronto Transit Commission--land acquisition, lease and resale powers so as to develop air rights and dispose of excess property

¹/Other than fare increases.

Most of these programs are similar in approach at both the state and local levels. They are designed to "aid" private transit systems which are operating at a deficit and also to provide some capital assistance where feasible.¹

These state and local programs generally take the form of (1) direct operating grants, sometimes combined with grants for capital improvements, (2) tax relief or tax rebates to transit operators, (3) services supplied in kind, lease-back agreements, and debt guarantees, and (4) reimbursement for reduced school fares for school children. States and municipalities have adopted these programs through the legislative process. They have established standards that must be met before aid can be given. These standards usually involve detailed budget justifications and limitations in aid actually granted. There has been an increasing trend to establish these programs on a matching fund basis whereby a percentage of local funds will be matched by a percentage of state funds. Thus, the amount of general revenues which will be tapped is carefully controlled to ensure that mass transit grants will not infringe upon allocated grants for other services out of general revenues. This procedure allows for greater fiscal responsibility on the part of transit operators and state and local governments, which must consider mass transit funding after a careful review of needs and funding capabilities at all levels.

¹/Feasibility of Federal Assistance for Urban Mass Transportation Operating Costs, Urban Mass Transportation Administration, November 1971, p. 44.

Closely related to these state and local grant programs are state programs to pay for debt service on bonds to finance construction or acquisition of public transportation facilities. These programs require express legislative authorization of transportation bond issues. Generally, bond issues must also be approved by the voters in a statewide referendum. The credit needed to meet these obligations comes from general revenues.

Funding through general appropriations is easily implemented with a minimum of legal problems since it can be created through legislative enactments and made part of the yearly budgetary review and appropriation process. Allocations usually vary from year to year depending on the total revenue raised and relative needs of services funded from general revenue.

This mechanism can provide a stable long-term flow of funds if the annual amount of transit funding is tied to a specific method of establishing the funding levels. For example, a funding level determined by the number of reduced fares (for elderly, students, and so forth) carried by the transit company should result in a predictable flow of general revenues to transit. General appropriations which are not tied to any set amount, but are subject only to periodic decisions of city councils or state legislatures, are not likely to provide a stable flow of funds.

General appropriations also provide for maximum revenue allocation flexibility since only an amount actually needed will be appropriated for transit. It is hoped that under general revenue funding programs, appropriations for transit will be carefully justified and considered in light of other general appropriation needs. Unfortunately, this does not always occur and general appropriation becomes an annual "bail-out." This mechanism contrasts with taxes that earmark funds for transit and these earmarked taxes encourage a transit system to spend as much money as is generated, not as much as needed, thus promoting inefficiency of operation.

The following examples serve to illustrate the method of transit financing through general appropriations:

New Jersey¹ administers aid programs for commuter rail and bus services. Assistance for commuter rail carriers for any one year is not to exceed the losses for the preceding calendar year. Losses are computed on the basis of the financial result if the railroad did not have to provide commuter service. Payments cover station, track, maintenance, and plant and equipment costs related to commuter service, with the state closely monitoring railroad operations and approving substantive changes in fares or levels of service. New Jersey also provides 75 percent of the annual deficit of local bus service from state sources

1/Ibid., p. 37.

and 25 percent from local sources. Under this program the state explicitly defines allowable costs and must agree to any substantive changes in service and fares.

The New York State¹ legislature has approved several transportation bond issues which specifically earmark funds for mass transit capital grants. Other bond issues set up an emergency maintenance program providing funds to the Metropolitan Transit Authority (MTA) for maintenance and improvement of New York City's existing subway and commuter rail lines, funds to MTA for the bus systems in the New York City suburbs, and funds to upstate operators for maintenance and improvement of their bus systems. New York also reimburses local transit systems from educational funds for fare differentials for school children who live more than one and one-half miles from school and who must use public transportation.

Massachusetts² assists the Massachusetts Bay Transportation Authority by paying 90 percent of the annual debt service on bonds authorized to finance mass transportation equipment on facilities acquired by the authority. Massachusetts also has a system similar to New York's to reimburse local transit systems for educational fare reductions. Also, the state now pays 50 percent of the operating deficit.

1/Ibid., p. 40.

2/Ibid., p. 40.

California, Florida, Georgia, Illinois, Iowa, Maryland, Massachusetts, and Washington¹ give tax relief and rebates. These devices are applied to a wide range of taxes and in all states except Massachusetts and Washington are available only to public operators.

New York City² has a series of arrangements devised to assist the New York City Transit Authority to operate on a self-sustaining basis. New York City pays 100 percent of the cost of New York transit police, pays \$2 million annually as a reimbursement for free transit provided for New York City police and firemen, reimburses operators for reduced fares for school children, and pays reimbursement for reduced fares for the elderly. The city also pays part of the operating deficit.

Traditional Non-Transportation Taxes

Any existing tax may potentially have an increment added to it, with the yield of that increment earmarked for urban mass transportation use. These incremental or "piggy-back" taxes have the significant administrative advantage that they utilize existing administrative and collection facilities.

Piggy-back taxes for transit could be added to any existing tax, such as income, sales, property, excise, gas, and motor vehicle registration taxes. Local areas may have other taxes that could be piggy-backed for transit.

1/Ibid., p. 42.

2/Ibid., p. 49.

The following discussion describes the principal characteristics of the most common traditional taxes that could be piggy-backed for transit purposes. Generally, the benefits and detriments associated with each of these taxes extend to the piggy-back tax.

The state and local governments have traditionally relied upon property, income, and sales taxes to provide a majority of their operating revenue. Increasingly, states have utilized both general sales and personal income taxes to avoid continuing increases in local property taxes and a proliferation of local nonproperty taxes. Some 36 states now impose both levies, while all 50 states have some form of state or local property tax.

The advantages of utilizing one of these traditional tax sources for a transit piggy-back tax stem from the ease of implementation and administration, and collection efficiency. The state personal income tax stands out as the single most important revenue mechanism in the state tax system and is capable of producing close to 25 percent of total state-local tax revenue.

Personal income tax that is state administered and is centrally collected and shared locally with the municipalities has many administrative and cost advantages over most locally administered taxes. Some states distribute part of the income tax receipts to municipalities either on the basis of origin or some measure of need. Appropriate distribution of

piggy-back transit tax receipts might prove difficult because of problems in determining the origin of the collected tax and separating the transit element from the rest of the tax.

Some states have legal and constitutional barriers to income taxation for any purpose. For example, the State of Washington passed an income tax in 1935 that was declared unconstitutional by the State Supreme Court. Constitutional changes have failed at the polls several times since then, the last time being in 1970.

Sales tax is a common tax that has been instituted in 46 states and yields about 16 percent of the total nationwide state-local tax revenue.¹ The number of items covered by the sales tax affects not only the amount of revenue but also the distribution of the tax burden on the population. Most sales taxes, like general property taxes, show a bias towards tangible property and omit services. Because low-income persons spend a greater fraction of their income on tangibles than do high-income persons, a tax on consumer purchases is inherently regressive. The addition of a piggy-back transit tax would reflect this regressive characteristic.

Ease of administration is said to be one of the virtues of a sales tax, although there are some exceptions. Some states require reports

¹/Advisory Commission on Intergovernmental Relations, Federal-State-Local Finances: Significant Features on Fiscal Federalism (Washington, D.C., 1973-1974).

and audits that involve many of the difficulties connected with the administration of the net income tax, but generally the cost is small in relation to the tax revenues. Aside from the inherent problem of defining a retail sale, administration of the sales tax is greatly facilitated by the fact that such taxes have a broad base and are set at a relatively low rate.

Property tax serves as the principal revenue instrument for local government. Although the percentage has been declining for decades, the property tax still produces almost 40 percent of all local tax revenues.¹ The property tax has been the object of severe criticism for decades. Gradually, nonproperty taxes (especially sales tax, excise taxes, and the personal income tax) have increased in use and assumed a greater part of the local tax burden.

The property tax is typically levied on all real estate and personal property. The main characteristics of the tax are its impersonality and its use as a locally collected, centrally shared tax. Criticism of the property tax has focused upon its poor correlation with both benefits received and ability to pay. It is inconvenient in timing and form in that it creates a heavy burden and a high fixed charge upon housing. The property tax when applied to personal property is subject to a high degree of evasion. In spite of these criticisms, it is still well suited to local governments and decentralized decision-making.

1/Ibid.

In terms of public acceptance, a recent survey of public attitudes¹ about major types of taxes indicates that most persons feel the local property tax is the most unfair. Aside from the Federal income tax, the state sales tax was chosen as the form of tax most desired for raising large amounts of new tax dollars.

Excise tax is a special sales tax that, unlike the general sales tax, applies only to specific retail items. Although an excise tax can avoid "necessities" and thus be potentially less regressive than a general sales tax, it tends to be discriminatory against specific lines of business and against specific groups of consumers. The burden depends upon varying taste that should be irrelevant in distributing the costs of transit.

Cigarettes and liquor are the most common items assessed by a special tax at the time of sale. All the states have a cigarette tax ranging from 2 cents to 21 cents per pack, and most states tax the sale of alcoholic beverages. Other retail items often assessed by a special tax are luxury items, such as furs and jewelry.

Massachusetts currently allocates 4 cents of its total (16 cents) cigarette tax per pack to the Massachusetts Bay Transportation Authority (MBTA) and similar authorities throughout the state. About \$28 million was allocated in 1973 to the MBTA, most of this being required by the state to contribute to the MBTA's debt service. The state's cigarette tax

¹/Advisory Commission on Intergovernmental Relations, Public Opinion and Taxes, (Washington, D.C.: May 1972).

collection procedure has proved to be very efficient. Of the revenue that is collected and disbursed to local authorities for transportation, collection (administration and overhead) costs are only \$130,000.¹

In some states, this excise tax may be more difficult to administer. The revenues must be collected from the large number of wholesalers and retailers, and evasion is a continuing problem. Aside from these difficulties, the liquor and cigarette taxes have an appeal because of their relatively stable demand. Moreover, they apply chiefly to adults and thus do not affect the family group adversely as compared with childless couples or single individuals.

A utility tax is another form of excise tax which is sometimes considered for financing urban mass transportation. A flat charge or percentage can be added to a household's monthly utility bill and then credited to mass transit.

In Tacoma, Washington, each utility bill includes a flat 75-cent charge per household per month that goes to mass transit--a central computer system processes each utility bill and credits revenue due mass transit. Other municipal services such as sewer and garbage collection are similarly credited. During calendar year 1973, gross revenues for mass transit

¹/Based on discussion between Department of Transportation representatives and Massachusetts Bay Transportation Authority representatives, May 1974.

from this source totaled \$620,000; collection costs totaled \$92,000; and net revenues were \$528,000.¹

A utility tax is easily implemented and administered because it is merely added to the existing utility bill. Administrative machinery already exists to collect and process utility charges, and can be used to collect the additional charge for transit. Flat monthly utility charges would not allow for inflation, but they would keep pace with population growth since they are charged to households. A transit tax that is assessed as a percentage of the monthly utility bills would keep better pace with rising costs.

A mass transportation tax which is incremented to any of the traditional forms of taxation is administratively attractive. Virtually by definition, any of the taxes discussed above would minimize problems of implementation and administration. The incidence of the tax increment would be essentially the same as that of the tax to which it is attached.

The piggy-back taxes will generally provide a stable flow of funds because their tax bases are expected to continue expanding. The questions of timeliness and public acceptability will depend heavily on the particular tax chosen.

¹/Based on discussion between Department of Transportation representatives and representatives of Public Utility Commission of the City of Tacoma, Washington, April 1974.

The principal difficulties which might occur with any tax increment on a major general tax are the lack of flexibility and the failure to encourage the most efficient development of the transportation system. The yield of the tax may be either too large or too small for the economic development of the total urban transportation system; and certainly the allocation of a specific tax increment to urban mass transportation reduces flexibility in the allocation of transportation resources over time.

Special Non-Transportation Financing Mechanisms:

The special non-transportation funding mechanisms provide greater flexibility for increased utilization than the traditional overburdened sources. However, these new funding mechanisms may not have the overall capacity to support transit development by themselves. Many of these special mechanisms have only recently been instituted by some states for limited purposes. Generally, where these existing mechanisms have already been implemented, a piggy-back tax increase for transit may furnish some share of the state's required revenue.

Payroll Tax is a tax charged to employers, usually based on a simple percentage of total salaries and wages paid to employees over a given period of time. Payroll taxes have been used for many years by local governments for a variety of purposes, including contribution to the general fund.

The payroll tax is simple in concept and easy to collect. The number of taxable entities within the jurisdiction is relatively small. Payroll records must be strictly kept for other tax purposes anyway, and so the tax upon the total payroll figure is easy to enforce. Administrative costs are very low for the large amounts of revenue generated.

The Tri-County Metropolitan Transportation District in Portland, Oregon, is an example of a local jurisdiction which uses a payroll tax specifically to fund mass transit. A rate of 3/10th's of one percent is charged to all employers within the three county area on a quarterly basis. The experience in Portland with the payroll tax has been good, and this tax has provided revenues of about \$8 million annually (a figure about equal to annual fare revenues) or roughly 50 percent of annual operating costs.¹

In most states, legal authority to institute a payroll tax should not be difficult to obtain since social security and unemployment taxes would serve as precedents. Cost of administration would be low and collection simple, since the payroll tax for transit could utilize the records and procedures of existing payroll taxes.

The distribution of the tax burden would depend partly upon the economic situation in the specific locality. In some areas, the employer

¹/Based on discussion between Department of Transportation representatives and representatives of the Tri-County Metropolitan Transportation District, Portland, Oregon, May 1974.

would absorb much of the tax burden, and would, in effect, subsidize his employees' work trips. In other areas, the employer might pass the tax burden onto the workers, thereby creating the effect of a straight percentage income tax. There are only a few instances where new payroll taxes may have induced businesses to relocate.

Generally, stable or constantly increasing payrolls should result in a steady revenue source that could enable long-range investments in urban public transportation.

License taxes on professions and businesses in their broadest sense are excise taxes levied for the privilege of engaging in business, occupations, professions, or exercising franchises. The taxes are usually administered by the state. In some states, local governments may also use this taxing power on businesses to generate revenue for a variety of purposes, including contribution to the general city fund or mass transit. Most business taxes are a flat charge at the time of license or renewal. At present, business taxes have not been used specifically for mass transit.

License taxes are generally very easy to set up and administer, since the machinery for granting licenses would already exist. This tax by itself could not be expected to produce large amounts of revenue for mass transit or to be a steady source of funding for long range planning.

Merchant subsidies are a logical form of transit subsidy because downtown merchants often benefit by the quality of transit service provided to downtown during shopping hours. Merchant subsidies in the form of

reduced fares usually have been offered during off-peak hours only to ensure that the greatest percentage of the subsidy benefits downtown shoppers. The subsidy can come either through a general monthly assessment to downtown merchants based on off-peak ridership or store patronage (in this case, off-peak riders would receive a blanket fare decrease at the fare box) or through an individual reimbursement to patrons who present transit tickets to merchants, much like the practice of "validating" parking tickets. In both cases, off-peak transit ridership and revenues for transit operators should increase.

These kinds of merchant subsidies have been used in the past in many medium and large cities, but the number has dwindled in recent years, primarily due to an increased preference on the part of merchants to subsidize parking costs instead.¹ It is possible that the energy shortage and increased downtown congestion could reverse rider preferences and, therefore, the willingness of downtown merchants to subsidize transit.

New merchant subsidy programs are usually difficult to implement and administer since entirely new subsidy mechanisms have to be established. The simplest way to administer such a subsidy is to have a flat reduction of the off-peak fare throughout the entire transit system for which the transit company is reimbursed monthly by each merchant

¹/W. S. Ranville (ed.), A Manual of Transit Improvement and Self-Help (Washington, D.C.: American Transit Association, 1969).

at a previously agreed rate. This rate can be based upon a variety of statistics, including average daily off-peak patronage and average store patronage in relation to total downtown shopping. The establishment of a new merchant subsidy program usually requires a period of experimentation during which its success in attracting off-peak shoppers to downtown can be proven or disproven to merchants, and equitable subsidies can be worked out among merchants.

Merchant subsidies are one way to reduce the transit operating deficits caused by low off-peak ridership, a serious problem for most transit companies. The subsidy would be paid by downtown merchants who would theoretically benefit the most. However, the ability of the mechanism to provide a steady flow of funds for transit depends on the continued ability to attract shoppers downtown to use public transportation.

Lotteries that are state-run have in recent years become an additional means for raising revenue. Eight states currently have lotteries whose net revenues (lottery ticket revenues minus payoffs and overhead) have most commonly been used for educational purposes. In Vermont and New Hampshire, lottery revenues go directly into the state general fund.

The State of New Jersey has a relatively new lottery operation. The revenue from it goes primarily into the general fund, although 25 percent of the net revenue goes to programs to help the aged. During its first year

of operation, the New Jersey lottery spent about \$3.2 million on payoffs and overhead and administrative costs, and netted about \$17 million. In its second year of operation, the lottery is projected to net \$40 million.¹

The propriety of state-run lotteries as a funding mechanism is sometimes questioned. Many feel that lotteries profit from the gambling "weaknesses" of a relative few, and that states should not encourage gambling, let alone profit from it. Others look upon lotteries as simply another form of recreation, and since participation is completely voluntary, they believe that lotteries provide an acceptable way of obtaining public revenue. Using lottery profits for mass transit should pose no special problems regarding public acceptance in those states that currently have lotteries. New lottery proposals would have to receive public approval before they could be implemented.

While state-run lotteries may be initially difficult to establish and administer, net revenue--as in New Jersey--can be very high in the first few years. Net revenue tends to fall off after the first several years and stabilize thereafter. Once revenues have stabilized, they generally provide a steady and reliable source of financing that is relatively unaffected by economic fluctuations.

Commuter tax is aimed at charging those who work in, and presumably benefit from, a large city but do not contribute as greatly to municipal

¹/Based on discussion between Department of Transportation representatives and representatives of the New Jersey State Lottery Commission, May 1974.

taxes as do city residents. The tax can take many forms and be collected in many ways. Perhaps the easiest way, however, is to collect from employers (who in turn deduct from their employees' paychecks) because this keeps the number of collections small and ensures that only those who work within the city are taxed. Commuter taxes can apply both to those who live within and those who live outside the city, or commuters can be singled out for a special tax which city residents do not have to pay.

The City of Philadelphia has a wage tax which applies to all those who work within the city. This tax has the effect of being a commuter tax. A flat percentage of employees' income (3.3125 percent) is charged to employers, and is in turn deducted from the employees' paychecks. City property taxes are of course charged to property owners within the city as well, but the wage tax ensures that those living outside the city (but working within) contribute something to city finances. Total revenues from the wage tax are projected to be \$275 million in 1975.¹ While it is difficult to estimate how much of this can be attributed to commuters only, it is a substantial percentage.

The Philadelphia wage tax money goes directly into the city's general fund. It would certainly be justifiable, however, to use revenue from taxes levied on commuters for city or regional transit systems.

¹/Based on discussion between Department of Transportation representatives and representatives of the Department of Collections, City of Philadelphia, May 1974.

The major difficulties in initiating any new commuter tax are legal and political: one jurisdiction's imposition of a tax on the residents of another jurisdiction can create legal difficulties that are very difficult to overcome in most areas of the country. One factor that probably aided Philadelphia's imposition of the wage tax is the city's home rule charter which effectively exempts the city from many common state controls.

Transportation-Related Financing Mechanisms

The mechanisms in this category are similar in their potential to affect transportation use behavior in contrast to mechanisms presented previously that have no effect on the behavior of persons using the transportation system. Many of the transportation-related mechanisms that are proposed are for purposes besides generating revenue. For example, high parking taxes will discourage automobile use as well as generate transit revenue. The mechanisms presented here are evaluated only for their ability to raise revenue. These mechanisms are in addition to fare increases, which are discussed in Chapter V.

Parking taxes are not generally in use at present. They could, however, provide an additional source of transit revenues. Two levels of parking taxes are discussed here--one at a low rate designed to generate revenue, and the second at a high rate intended to discourage parking in congested areas as well as generate revenue.

As an example of the low tax rate, the City of Baltimore imposes a tax only on commercial parking lot patrons. The tax (15 cents per day,

75 cents per week, or \$3.00 per month) is collected by the garages for a collection charge of 3 percent of the tax receipts. The mechanism required about two months to institute, using existing parking lot license records, and now requires only about four man-days per month of city labor to administer. Revenues from this tax have ranged between \$1.2 million and \$1.5 million per year, and have gone into general funds.¹

Parking taxes at low rates such as in the case of Baltimore could be an untapped source of easy revenue for transit. Many cities may already have the authority to impose such a tax. The collection of the tax by parking garages and lots in a city is feasible. Extending the tax to parking meters would be simple as well, requiring only an adjustment of the parking meter to reflect the addition of the tax to the parking meter charge. The small amount of the tax would not affect business activity or the choice of transportation modes in the area by discouraging parking nor would the small tax impose much burden on parkers. The flow of funds from the tax would be stable and thus promote long-term plan implementation if the tax were earmarked for transit.

The high rate of parking tax could be, for example, a peak-hour charge. This peak-hour parking tax would serve as a congestion tax by discouraging parking (and thus driving) at peak hours. In order to be

¹/Based on discussion between Department of Transportation representatives and representatives of the Tangible Tax Division, City of Baltimore, May 1974.

effective in discouraging parking, the rate would have to be quite high (the Environmental Protection Agency in Washington, D.C. proposed up to \$2 per day).

Charter service--especially in the use of existing transit buses during off-peak periods--can generate significant revenue. Bus operations during normally idle periods have low marginal costs and can generate substantial net income.

Charter service is not, however, a particularly promising source of additional funds, since most transit systems already offer this service and currently realize from 2 percent to 10 percent additional revenues from it.¹ Generating additional revenue from charter service may be difficult, because of competition from private operators.

Motor vehicle taxes and registration fees for motor carriers are usually imposed for the privilege of use of the highways, although certain taxes on dealers may be in the nature of a business license. At the state level, an increase in the automobile registration fees would be a simple procedure. An incremental tax for transit would have the

¹/American Transit Association, 1972 Transit Operating Report (Washington, D.C.).

same advantages of ease of collection and implementation as other incremental taxes. The registration fees are ordinarily collected annually by the state or county motor vehicle agency.

The state motor fuel tax is a special or selective sales or use tax usually exacted for the privilege of using the public highways. Two states (Hawaii and Mississippi) have piggy-backed gasoline taxes to provide additional revenue for local expenditure. The state dependence on motor fuel tax revenues has steadily declined since the late 1930's when such revenues accounted for almost 30 percent of the states' tax collections. In 1971, motor fuel taxes represented just under 13 percent of total state collections. All states have some existing form of the motor fuel tax. The gasoline tax rate varies among states, with Connecticut having the highest at 10 cents per gallon and Texas the lowest at 5 cents per gallon.¹

Of all the taxes that have ever been employed, the motor fuel tax probably comes nearest to being a popular tax. Its first virtue is ease and inexpensiveness of administration. Another advantage to the states is that the gasoline tax exacts contributions from out-of-state tourists in rough proportion to their use of highway facilities. Finally, the tax has proved to be a consistent producer of substantial revenue. Its yield

¹/Advisory Commission on Intergovernmental Relations, Federal-State-Local Finances: Significant Features on Fiscal Federalism (Washington, D.C., 1973-1974), Table 59; Table 15, Part 2; Table 164.

can be counted on in poor, as well as in good, years. From the taxpayer's standpoint, the tax is accepted as the price paid for good highway service. However, the motor fuel tax is a specific tax (based on quantity rather than value) and, as is the case with all taxes of this character, its relative yield tends to lag during periods of inflation. Ad valorem taxes, in contrast, have a built-in escalator.

Motor fuel taxes were conspicuously free from administrative difficulties when the rates were low, but with successive increases in rates some problems of evasion have appeared. The earliest evasion consisted of smuggling motor fuel across state boundary lines, but the cooperative efforts of dealers, exchange of information among states, and a strict licensing system have largely eliminated this problem.

Many states exempt from tax all or most motor fuel not used on the highways. However, where the same taxpayer owns both a highway vehicle and a vehicle that consumes gasoline off the highways, it is exceedingly difficult to determine the relative amounts of gasoline used on and off the highways, and thus how much should be taxed.

In order to avoid taxing motor fuel not used in motor vehicles, a common procedure is to require the purchasers of such gasoline to pay the tax at time of purchase and then seek a refund. To qualify for the refund, he must present to some state official an invoice of the purchase and an affidavit of use off the highways. The state has scant check upon the honesty of the affidavit. Beyond the assurance of purchase evidenced

by the invoice, the possession of a mechanism using gasoline off the highway (which can be checked), and the plausibility of the amounts upon which the refund is demanded, the state must rely largely upon the honesty of the taxpayer.

Exemptions and refunds are very important in a state such as North Dakota where the majority of the population are farmers, most of whom own tractors and automobiles. In such states the annual amount of refunds may range as high as 30 percent or even 40 percent of collections.¹

A number of states provide motor fuel tax exemptions or refunds to transit operators (see Exhibit IV-2 in Chapter IV).

Tolls paid for other transportation services may be used in some instances to support transit operations. Examples include sections of urban mass transportation systems in New York and San Francisco. In the San Francisco case, the trans-bay tube for the Bay Area Rapid Transit System has been financed from surplus tolls from the San Francisco-Oakland Bay Bridge. In a somewhat different situation, the trans-Hudson PATH system was taken over by the Port of New York authority and is financed from general revenues of the authority (including bridge, tunnel, airport, and port revenues).

Joint Development Financing

Joint development as a funding mechanism for mass transit has been defined as the actions taken and funding made available jointly by the

¹/Groves and Bish, p. 246.

transit authority, other government agencies, and private organizations and individuals to construct transit improvements and develop or adjust land uses within a transit corridor pursuant to a corridor development plan.¹

Joint development funding makes use of several devices to finance mass transit. These include (1) excess condemnation and air rights development initiated by transit agencies whereby land over and adjacent to transit facilities is acquired and leased or resold to developers; (2) special assessments levied on areas adjacent to transit facilities and based upon the enhanced value of land; and (3) special development funding provisions providing for private investment in public transit facilities whereby developers are induced to pay for transit in return for certain zoning and land-use benefits.

One concept of joint development funding is closely tied to the use of special development districts with special taxing and land-use powers. These powers can be exercised to promote coordinated development of transit facilities and adjacent land uses consistent with districtwide master plans. It should be noted, however, that joint development is a much broader concept than special development districts. Joint development can also be implemented through other defined governmental entities such as transit agencies and municipalities.

¹/Transit Station Joint Development, National League of Cities, prepared for U.S. Department of Transportation, June 1973, p. I-1.

Certain legal, political, and institutional limitations may exist as discussed later, making joint development funding difficult to implement. Despite these limitations, certain elements can be identified which permit workable joint development funding. Necessary elements for a workable joint development program include:

- (1) Specific statutory authority. Specific legislation is needed to set up a framework to finance joint development pursuant to a definite plan. The legislation should give a defined governmental entity specific powers to implement joint development financing with a defined development area or district. It should also provide for coordination of activities and transactions between transit agencies, other development agencies, and private developers. The statute or ordinance should have the following specific provisions:
 - . a distinct legal entity to implement and administer joint development within a designated area;
 - . a coordinated interagency development plan to determine developmental goals and parameters for which joint financing is necessary; and
 - . defined financing mechanism(s) to provide for a stable flow of funds.
- (2) An effective incentive system. Statutory authority must be combined with an official program to induce private developers to

participate in joint development. Unless this program is instituted, statutory authority will not be of any use for joint development. This system can include exemptions from cumbersome zoning and public hearing criteria and provisions for land acquisition by transit agencies and resale to developers at favorable rates.

The following are some examples of joint development:

The Special Greenwich Street Development District is administered by the Office of Lower Manhattan Development.¹ A special New York City zoning resolution set up the Greenwich Street Development District with specified goals: to foster orderly development, to develop and implement a plan for improved pedestrian vehicular circulation, to improve rapid transit facilities in the area, to encourage a desirable urban design relationship between each building in the District, and to encourage development in accordance with a District plan. The ordinance outlined specified goals for development and a funding scheme for mass transit improvement. The zoned lots were given mandatory and elective Pedestrian Circulation Improvement allowances (PCIs) designed to achieve desirable goals of access for the District. Developers were required to build in accordance with these allowances. Mandatory PCIs were required to be included as part of the development of certain lots, based

¹/See Special Greenwich Street Development District published by the Office of Lower Manhattan Development, Office of the Mayor, City of New York.

upon their public nature. Elective PCIs were optional improvements (such as pedestrian tunnels) desirable for fostering pedestrian circulation.

A developer can select a combination of mandatory and elective PCIs and receive a floor area allowance based upon his development desires as long as the allowance does not exceed the adjusted basic maximum floor area ratio. When the floor area allowances for the PCIs total less than the desirable maximum floor area ratio, and there is no elective PCI available which would bring the total closer to but not more than the desired amount, the developer may contribute to a Special District Development Fund and receive an additional floor area allowance per unit of contribution. The rate of contribution and allowances given have been adjusted by the City Planning Commission to reflect changes in the assessed value of land in Lower Manhattan.

The Zoning Ordinance specifically authorized the City Planning Commission, the transit authority, and the comptroller to establish the Special District Fund and apply monies solely toward the improvement of public transit facilities within the District pursuant to a Transit Improvement Program prepared by the New York City Transit Authority and approved by the City Planning Commission. The Transit Improvement Program financed partially through the fund sets forth a series of required improvements such as better lighting, modernization of turnstiles, graphic design improvements, and painting of walls, floors, and ceilings.

As an incentive to build according to the plan, developers can construct "as of right" without the need for special permit application to the City Planning Commission. Delays in the granting of special permits have traditionally meant significant cost increases as a result of legal expenses, inflation of building costs, and higher taxes on property. The complying developer also requires no public hearings on his proposal since the hearings that preceded the approval of the Special District by the City Planning Commission covered both the general provisions of the District and the specific provisions of the District plan.

Analysis shows that this program includes the essential elements for workable joint development. The statutory authority exists creating a distinct entity (the Development District), a coordinated interagency development plan and transit authority, and a defined funding mechanism (the District Fund). An effective incentive system (grant and permit exemptions for developers) also exists to make the program workable.

Despite these elements, the system has not generated a significant amount of revenue for mass transit. Many private developers have paid for public amenities associated with mass transit, such as public walkways near transit stations. This has occurred through the use of floor area bonus allowances to developers who build public facilities themselves. To date, however, only one development project

has had less than the adjusted basic floor area ratio, thus allowing for contribution to the fund. That contribution was only about \$63,000.

The Market Street Development Area, San Francisco. The San Francisco Redevelopment Agency has used a combination of tax increment financing and impact zoning regulations coordinated with Bay Area Rapid Transit System activities to finance and coordinate joint development in the downtown area.¹ San Francisco utilizes its delegated powers to zone land uses and tax property values to implement joint development financing.

The financing of a station in the BART system has occurred with the use of tax revenue bonds² sold on the basis of previous increases in assessed value. Thus revenue increment resulting from redevelopment in the immediate station area has been utilized to finance much of the station.

In addition, San Francisco has adopted an urban design element as part of its citywide master plan. The city zoning code has instituted a system of zoning, height bulk controls, density bonuses, and public facility allowances to induce denser development near transit stations consistent with the city's urban design goals.

¹/Transit Station Joint Development, National League of Cities, prepared for Department of Transportation, June 1973, p. IV-19.

²/Transit Station Area Development Studies, Land-Use Controls and Incentives Conference Proceedings, prepared by the Atlanta Regional Commission, October 1973, p. 14.

Analysis shows that San Francisco coordinates existing zoning and taxing powers with a master plan for development cooperatively with BART to promote and finance joint development. A workable incentive system is created, although the absence of any special legislation with specific powers and goals makes coordinated joint development more difficult. To date, only the Embarcadero transit station has been financed in this manner.

The Toronto Transit Commission, Toronto, Canada, supplies the initiative for joint development through its extensive powers to acquire land throughout the area for transit purposes. The Commission has broad statutory powers to acquire, lease, and resell properties and therefore is in a better position than the separate municipalities to promote joint development. The Metropolitan Toronto government does not have regional land-use control, since it comes under the jurisdiction of individual areas. Each municipality in the area prepares a comprehensive district study which may entail a change in zoning. The Transit Commission works cooperatively with municipalities within the metropolitan area to coordinate and finance joint development activities. The Commission has utilized two types of approaches to fund joint development projects: development of air rights, and disposal of excess property.

Air rights involve ownership and development of a space above the surface of the ground and legally recognized as independent from ground use. The Toronto Transit Commission acquires property and leases air

rights to developers on a long-term basis consistent with metropolitan development goals. This has resulted in a considerable annual rent to the Commission. The developer must submit a proposal rent that he is willing to pay and a fairly detailed plan of what he proposes to do in his development. Before a tender is accepted, these plans are submitted to each of the interested civic departments: streets, planning, public works, roads, and so forth, for their input and approval.¹ Monies attained in this way can help to offset the capital costs of construction and assist in providing operating funds. Also, proposed development can be coordinated with city and metropolitan development goals.

The Commission's program for disposal of excess property around the system has also provided opportunity for joint development and yielded considerable income. The Commission has a policy of acquiring larger sites than are actually needed for rights-of-way, in order to attract larger development proposals. The excess property is resold after the development plans are reviewed by the interested agencies just as lease arrangements are reviewed. Revenue obtained from this process goes to offset capital and operating costs.

The Commission has carefully planned its transit facilities to promote joint development. Provisions have been made during construction of the transit system to allow for the integration of transit land acquisition and

¹/Transit Station Area Development Studies, The Development of Air Rights and Excess Property, a staff working paper prepared by the Atlanta Regional Commission, September 1973.

development. Also, subway structures have been reinforced to permit additional construction above them.

It is noteworthy that while the Toronto program lacks specific legislation creating development districts to coordinate joint development, the Commission uses its powers to plan and finance joint development in conjunction with local land-use plans. The Commission has established a workable funding mechanism through its powers to lease air rights and resell excess property. This has created a stable flow of revenue to pay transit capital and operating costs. The Commission has also provided stimulus for development near transit facilities through favorable lease and resale arrangements. The Commission has been successful in generating considerable revenue for mass transit.

There are several U.S. proposals similar to the Toronto program although they have not yet been implemented:

Montgomery County, Maryland. A recent report produced by the Citizens Advisory Committee to Study Zoning for Central Business Districts and Transit Station Areas tries to lay the groundwork for joint development in Montgomery County, Maryland.¹ The report proposes enabling legislation and a State Constitutional amendment to empower

¹/Planning Zoning and Development of Central Business Districts and Transit Station Areas, the Final Report of the Citizens Advisory Committee to Study Zoning for Central Business Districts and Transit Station Areas, January 1973.

the County to establish Development Districts. The County would be granted powers to implement development around Metro-Station areas consistent with the new zoning plan for development proposed in the report. Among the powers granted would be the power to acquire land for construction, selling or leasing land holdings to private developers, and assembling land for development where private capital would be inadequate. Revenue generated by this process would go to pay for capital costs of transit stations and surrounding public amenities. In addition, the legislation would also allow the creation of special taxing areas throughout the district in order to obtain additional revenues for mass transit.

Atlanta, Georgia.¹ The Metropolitan Atlanta Rapid Transit Agency (MARTA) and the Atlanta Regional Commission (ARC) are investigating techniques for air rights and excess property acquisition and resale or lease, in coordination with regional development plans. Statutory authority currently exists enabling MARTA to acquire and resell or lease property, thus allowing it to take the lead in joint development.

The utility of joint development (and special district) funding for mass transit in the United States is subject to certain limitations. First, it has been quite difficult to implement politically. For example, recent draft legislation submitted to the Maryland State legislature has not passed as of the date of this report. Political pressures work against such statutes

¹/Transit Station Area Development Studies, The Development of Air Rights and Excess Property, a staff working paper prepared by the Atlanta Regional Commission, September 1973.

since they would usurp traditional local powers of taxation and land acquisition. Second, the U.S. Constitution generally restricts to minimum right-of-way acquisition the amount of land that a transit agency (desiring to initiate joint development) can acquire and resell as excess. Finally, the incentives necessary to promote widespread joint development and ensure public investment in transit facilities are difficult to implement on the large-scale basis necessary to make joint development funding successful.

Despite these limitations, joint development can potentially generate large amounts of revenue for mass transit and coordinate desirable land uses. If the legal and institutional roadblocks are overcome, joint development funding can be instituted through the initiatives of the legal entity having jurisdiction. A steady flow of private capital into transit could result.

CRITERIA FOR EVALUATING FINANCING MECHANISMS

This section presents an approach for evaluating financing mechanisms in general. The selection of a particular set of mechanisms, however, must depend on local conditions and fiscal objectives. This approach is intended to stimulate thinking on the evaluation of financing mechanisms. The criteria presented are designed to help indicate the best mechanism(s) for financing urban mass transit at the state and local levels of government.

The criteria are listed in Exhibit VI-2. An explanation of each criterion follows below. The final part of the chapter describes a method for applying these criteria to alternative transit financing mechanisms.

. Minimizes problems of implementation and administration

A funding mechanism with the least problems of implementation and administration will become likely to generate the most revenue for transit. Two factors are likely to contribute most to the problem of implementation and administration. The first is legal or constitutional difficulties of implementation and the second is the cost of administration.

The implementation of some funding mechanisms may require authorizing legislation or an extension of existing statutory authorization. In a few cases, state constitutional provisions may prevent the use of certain funding sources. The consideration of legal problems associated with a particular mechanism is a significant criterion for evaluation.

Financing mechanisms already established for transit development can be expected to have fewer legal problems compared with an untried funding concept. Most existing mechanisms have statutory authorizations, or, at the least, have not been prohibited. An examination of local and state statutes may ensure that the funding mechanism meets legal and constitutional requirements, although in some instances legal interpretations or case law may determine the legality.

Simplicity and economy in administration and operation are usually assumed to be related. A mechanism which is administratively simple

EXHIBIT VI-2

CRITERIA FOR A DESIRABLE FINANCING MECHANISM

- . Minimizes problems of implementation and administration.
 - . Minimum of legal problems.
 - 1) Mechanism already has legal authorization; or
 - 2) Mechanism could easily obtain legal authorization.
 - . Simple and economic to administer.
 - 1) A simple new mechanism; or
 - 2) A rate increase on existing tax.
- . Incidence should be equitable among income classes.
- . Suitable for implementing long-term transportation and joint development plans.
 - (1) Stable long-term flow of funds.
 - (2) Encourages comprehensive planning and coordinated action.
- . Able to generate enough timely revenue to ensure the implementation of short- and long-term plans.
- . Publicly acceptable.
 - (1) Historical precedents.
 - (2) Degree of support for mass transit.
 - (3) Attitudes toward existing taxes.
- . Encourages the most efficient use of the transportation system.
 - (1) Increase transit usage.
 - (2) Increase car pooling.
 - (3) Decrease energy consumption.
 - (4) Encourage off-peak transit usage.
- . Encourages resource allocation flexibility.
- . Minimizes negative effects resulting from impact on item taxed.
 - (1) Effect on demand.
 - (2) Effect on investment.

can be assumed to be economical in operation. This criterion is designed to assure that the largest possible percentage of revenues is made available for financing transit, and that administrative costs are kept to a minimum.

In most instances the financing mechanisms with lowest costs and the least administrative problems will be those which can utilize existing data sources and personnel. The simplest financing mechanism is usually an increase in the rate of an existing tax. An increase in the tax rate does not always result in low collection costs, however. In Connecticut, for example, a one cent per gallon addition to the gas tax can be collected by the local districts.¹ In this case, however, the additional tax is not collected through the existing state collection administration, but must be collected by the local transit district from local service stations, adding to the costs of collection.

New financing mechanisms may have higher costs of collection and more administrative problems, but not always. In Portland, Oregon, a business license tax was rejected as too cumbersome to administer and expensive to collect. At the same time, Portland adopted a new payroll tax for transit because it could be inexpensively administered and easily computed. The economy of administration can be credited to the ability to use the existing government resources. Ease of collection of a new tax can make up for the problems of instituting a completely new tax.

^{1/} Passenger Transport, March 9, 1973, p. 5.

. Incidence should be equitable among income classes

Urban mass transit provides benefits to all of the residents of the area, not just the regular transit users. Benefits to non-users result from fewer cars on the road, less air pollution, welfare cost reductions attributable to the availability of low cost transportation, and the system's availability for potential use by all. These benefits are shared more or less equally by all residents of the area and thus a portion of the system costs should also be shared equally.

Although it is true that transit users are likely to receive more benefits from the system than non-users, they also pay more of the costs in the form of fares. The additional revenue required for the provision of a high level of service can be assumed to match the benefits of the transit system to the community as a whole, and thus could be paid by the community as a whole in an equitable fashion.

A mechanism which is not applied to all of the residents of the area should be applied to individuals or institutions which receive the most benefits from the transit system. At the same time the mechanism should allow for individuals with the least ability to pay to receive the benefits.

. Suitable for implementing long term transportation and joint development plans

This criterion attempts to encourage financing mechanisms which aid the implementation of urban mass transportation plans in coordination

with comprehensive plans. The two aspects of this criterion are (1) a stable flow of funds to ensure that long-term plans can be implemented, and (2) the degree to which the financing mechanism encourages the implementation of comprehensive plans or joint development efforts.

Stability in the flow of funds implies consistency in the amount of revenue over time in order to provide a financial basis for successful implementation of long-term transit plans. The 1971-1972 annual report of the Southern California Rapid Transit District noted that "a permanent base of public fund support is serving as a building block for better public transit in the Los Angeles area as well as throughout the state." The National League of Cities reports that in Akron, Ohio, year-to-year budget fights for subsidies have made long-range transit planning impossible.

Four factors affect the stability of the flow of funds:

- (1) Any financing mechanism which does not have an established share of the revenues from a source cannot be considered stable. For example, a funding mechanism which required the annual appropriation of the amount of general funds credited to transit cannot be considered as conforming to the "stability of the flow of funds" criterion.
- (2) The stability of the base to which the tax is applied must be considered. Most items taxed (such as property, income, gasoline sales, and so forth) are reasonably stable.

(3) The life span of the financing mechanism is another consideration when evaluating the "stability of the flow of funds." Unless the financing mechanism is assured of producing revenue for transit over the planning period, it cannot guarantee a stable source of funds. Taxing authority which must be renewed periodically would constitute an uncertain source of funds.

(4) The current high inflation rates require that a financing mechanism produce increased revenue over time in order to maintain a stable flow of real dollars. A mechanism which generates increasing revenue over time to offset inflation should be considered more favorably than a mechanism which produces a constant number of dollars. An ad valorem tax, such as one on property values or income, would thus be superior to unit taxes, such as a gas tax on each gallon.

. Able to generate enough timely revenue to ensure the implementation of short- and long-term plans

The adequate and timely flow of revenue is also important in implementing plans. The delay before revenues start flowing varies greatly among funding mechanisms. Income from right-of-way development may take years to materialize, whereas a payroll tax could have funds flowing in weeks. Local funding requirements will determine the importance of this aspect of the mechanisms.

. Publicly acceptable

An especially important criterion, when financing is to be provided by the public, is public acceptance. Certainly a mechanism which enjoys the most public support (or the least public animosity) is preferable.

The willingness of the public to accept a mechanism can be indicated by several factors including (1) historical precedents, (2) attitudes toward supporting urban mass transportation, and (3) general attitudes toward existing taxes. Local officials are likely to be in tune with public attitudes and thus able to judge which mechanisms are likely to be more acceptable to the public.

Existing mechanisms usually have been commented on by the public, thus providing an indication of the degree of public acceptance to an increase in the rate of an existing tax. In Portland, Oregon, for example, a sales tax increase had been recently rejected by the voters and the income tax was already considered high. Thus these two mechanisms were avoided for transit financing but a payroll tax was favored.

Strong public support for transit may increase the number of publicly acceptable financing mechanisms. In Dayton, Ohio, the public acceptance of a one mill property tax was at least partially due to the fact that the tax was for transit.¹

¹/"Dayton Says Yes to Transit Tax," Passenger Transport, October 15, 1971.

In areas in which tax levels are considered high it may be difficult for the public to accept any tax increase. In instances such as this, financing mechanisms which are not paid directly by the public (such as payroll taxes or income from right-of-way development) may be the only publicly acceptable alternatives.

. Encourages the most efficient use of the transportation system

This criterion applies to financing mechanisms which can affect the use of the transportation system, such as gas taxes, parking taxes, fares, and so forth.

These financing mechanisms not only help to finance urban mass transportation but also affect the use of the total transportation system. The effect on the transportation system should be consistent with a policy of more efficient use of the system.

Financing mechanisms which will encourage more efficient use of the transportation system are likely to take the form of a cost increase for automobile usage, such as gas or parking taxes. The primary purpose of these mechanisms, however, is to finance transit, and not to restructure transportation patterns, since the level of parking or gas taxes required to fund transit may not be sufficient to reduce auto usage. For example, a one-cent gas tax addition or a 10-cent parking tax may have little effect on community behavior, but may be sufficient to finance transit. On the other hand, a 50 cent gas tax or a \$3.00 parking tax would

also tend to discourage automobile usage. An evaluation of the large taxes must be made not only in terms of their ability to fund transit but also their effect on automobile usage.

- . Encourages resource allocation flexibility

This criterion applies to funding mechanisms which display flexibility in the allocation of revenues to reflect changing priorities. For example, a gas tax earmarked solely for transit may generate revenues in excess of transit's needs, but these excess revenues would go for transit nonetheless. A mechanism which provided only enough to meet transit needs, with surpluses going into general revenue, would allow for more flexibility in overall resource allocation.

- . Minimizes negative effects resulting from impact on item taxed

This criterion ensures that the impact on the item taxed is examined. For example, the effect of a 10 cent tax on gas sales or the effect of a large property tax on the location and amount of new investment should be calculated. The ability of the mechanism(s) to generate a satisfactory revenue stream can be severely impaired if the tax adversely affects the demand for, or the investment in, the item taxed.

Taxing commodities or services for which demand is generally not sensitive to the price level should result in a reliable flow of funds with relatively little effect on the consumption of the item taxed. In particular, good examples are liquor and cigarettes.

The useful application of these criteria is seen in the two representative case studies below:

Chicago Metropolitan Area. On March 19, 1974, voters in Chicago, suburban Cook County, and five surrounding counties passed a referendum enacting Illinois Senate Bill 27.¹ The bill set up the Regional Transportation Authority (RTA) designed to preserve and improve existing public transportation systems throughout the northeastern area of the state. The legislation acknowledged that farebox receipts were inadequate to underwrite the operating expenses of transportation systems and that these expenses must be absorbed by public funds.

The Authority was given the power to utilize various financing mechanisms to raise money for transportation systems within its jurisdiction. According to the Illinois Department of Transportation, the state legislature decided to utilize a portion of the state sales tax (3/32 of the state sales tax collected in the six county region) as the only non-transportation related revenue source since it was considered the most dependable source of revenue. A questionnaire was also circulated at the public hearings on the legislation asking what would be the fairest way to fund RTA. The questionnaire listed a number of funding sources. The overwhelming response was that the sources should be transportation related. According to Illinois DOT the legislators then focused on parking

¹/Illinois, Revised Statutes (1974), c. 111 2/3, Public Utilities, par. 701.01 - 704.10.

and gas taxes as the fairest transportation tax which would yield the greatest long-term revenue. The ultimate legislation gave the RTA Board the power to levy a regional off-street parking tax and a maximum 5 percent sales tax on motor fuel. The RTA estimates that the state sales tax, motor fuel tax, and parking tax would raise approximately \$80 million, \$60 million, and \$10 million, respectively, if levied to their maximums.¹

In addition to these three taxes, the RTA legislation requires the state to contribute \$14 of each annual state vehicle license fee collected by the state solely in the City of Chicago. Both this revenue and the state sales tax revenue are to be taken from the general revenue fund and placed in the public transportation fund. The monies from this fund are to be distributed to RTA. It is estimated that in 1975, state license fees will yield approximately \$16 million.

Together, these four sources give the RTA \$166 million for 1975. An additional \$5 million is required to be contributed annually by the local governments in Cook County before the Chicago Transit Authority can enter into any agreement or can receive a subsidy from the RTA. This increases the potential funding for 1975 to \$171 million. This amount will increase annually as the amount of sales, motor vehicle purchases in Chicago, and gas consumption or motor fuel prices increase.

¹/Ronald C. Johnson, "Where's the Bus to Barrington Hills - The Regional Transportation Authority," Chicago Public Works Journal, October 1973, p. 5.

The RTA is also empowered to issue bonds that pledge the general obligation of the authority. Such bonds are to be used to fund capital projects, that is, equipment, construction of buildings, new rail lines, stations, and acquisition of existing rail facilities. The RTA is limited by a \$500 million ceiling on the total amount of bonds it may issue. Payment of these bonds must come before all other expenses, that is, all revenues are "first pledged" to the payment of such bonds before any other costs can be paid.

In addition, the legislative package authorizes an additional \$75 million in State Transportation Bond funds to be spent in the six county area outside of the City of Chicago. What is significant about this legislation is that it does not require local matching money.

Portland, Oregon. The Tri-County Metropolitan Transportation District (Tri-Met) in Portland was created in 1969 by state law¹ which, in addition, authorized all rapid transit districts in the state to supplement their fare revenues by one of the following seven means:

1. One percent income tax on wages or one percent sales or personal property tax.
2. A license fee on business, trade, occupation, and professions in the district.
3. Employee payroll tax for up to 6/10th's of one percent on wages paid.
4. A retail sales tax.

1/Oregon, Legislative House Bill 1808; Oregon, Statutes (1971), c. 267.

5. Property tax.
6. A special property tax of not more than \$150 per \$1,000.
7. Sell general obligation or revenue bonds.

The property tax and the sale of general obligation or revenue bonds would require direct voter approval within the transit district before they could be implemented. The major recourse which voters would have on the other tax measures would be by initiative and referendum after a formal decision to levy a tax had been made.

The newly created Tri-Met Board chose among the seven financing methods largely by a process of elimination. General obligation bonds and revenue bonds would not have been immediately available and would have to have been secured by property taxes. Since property taxes had already been increased in Portland, the Board knew that any additional property tax would not gain the necessary voter approval. Therefore, those methods were removed from consideration.

Historically, sales tax proposals have had difficulty gaining popular support in Oregon. At the time the Tri-Met Board was deliberating over the financing issue, Portland voters had rejected a proposed sales tax by an 8-to-1 margin. Since income taxes were already considered high, the one percent income tax on wages was also rejected. A business license tax was rejected because it was difficult to establish and expensive to administer.

The payroll tax remained as the only practical funding mechanism. The tax could be inexpensively administered and easily computed. Moreover, prior voter approval was not required. The payroll tax could start generating revenues almost immediately, thus allowing Tri-Met to match Federal funds early. The payroll tax also had more popularity among voters, thereby avoiding the likelihood of a referendum on the tax. The Board felt that business had a very important stake in an efficient transit system.

The tax was initially levied at $1/2$ of one percent of payroll totals collected quarterly. This figure was designed to help meet the early capital needs of Tri-Met: to acquire all essential elements of bus service in the Portland area, to purchase new buses, and to begin studies of mass transit. Most of these costs were nonrecurring, and, when coupled with a Federal assistance program, allowed the payroll tax rate to be reduced to $3/10$ ths of one percent in 1971, one year after the first rate was established.

Although the payroll tax was probably the most popular of the seven funding mechanisms (or least unpopular), it was not without controversy and opposition once a selection was made. Local business interests strongly opposed the measure, despite the Tri-Met Board's assertion that they would reap benefits from improved mass transit. The business interests argued that because the tax was a flat percentage charge on payrolls, it was in no way related to ability to pay. They further argued

that the tax was discriminatory since it applied to most businesses and nonprofit institutions but exempted certain other financial businesses. Moreover, many suburban businesses outside the Tri-Met service area (but still within the three-county district) had to pay the tax for which they received no direct benefit.

Since the tax burden fell directly on employers and not on the public at large, opponents of the measure had difficulty gathering enough support for a referendum. The only other recourse was to legally challenge the tax, which was done in 1970. The Oregon Supreme Court upheld the Oregon Legislature's right to create Tri-Met and give it taxing powers to support mass transit.

The primary challenge aimed at Tri-Met's decision to levy the tax on employers was filed by a grocery company and retail grocers association. The lower court's opinion which was upheld stated (1) a vote in the area was not required to levy a tax for which the District had legislative authorization; and (2) placing the major tax burden on certain employers did not deny them equal protection of the law. The Oregon Supreme Court, in refusing to hear an appeal, added that "the most efficient way of fitting the method of revenue raising to the needs of the district was that adopted by the Legislature, delegating the power to make the choice to each district board, and was a constitutional delegation of authority."

Thus Tri-Met's use of its legislative authority to levy a payroll tax to fund mass transit was upheld, and the District's experience with the payroll tax since has been successful. It allowed the District to gain a two-thirds grant from UMTA in the first year of implementation and the current tax, at the reduced rate, is generating about \$8 million annually, a figure about equal to fare revenues.

VII. FINANCIAL IMPLICATIONS OF THE IMPLEMENTATION OF THE 1980 PROGRAMS

This chapter considers the financial implications of the 1980 Programs which have been analyzed in Chapter III. It does not deal with the technical, economic, social, or financial reasonableness of the 1980 Programs. Of particular concern here are (1) the proposed dollar levels of the future Federal program, as represented in the proposed Unified Transportation Assistance Act of 1974; (2) the residual levels of urban mass transportation financing which must be paid by state and local governments; and (3) the quantitative relation between state and local urban transportation financing requirements and levels of state and local revenues.

As noted in the preceding chapter, it is reasonable to expect the Federal Government to provide financial support to the extent of the national interest. The Department believes that the appropriate level of Federal financial involvement in the implementation of urban mass transportation plans is an issue separate and distinct from the issue of the magnitude or reasonableness of those plans. After considering the national interest, the difference between the level of the 1980 Programs and the proposed level of Federal support becomes the fiscal responsibility of the state and local governments.

UNIFIED TRANSPORTATION ASSISTANCE PROGRAM

The Unified Transportation Assistance Act of 1974 now under consideration by the Congress proposes the Unified Transportation Assistance Program (UTAP) as the Federal participation to assist the states and local governments in accomplishing their 1980 Programs. UTAP would assist the urbanized areas with the financial resources and flexibility to meet their financing requirements--it would thereby continue the progress made by the Federal-Aid Highway Act of 1973. Increased sums are proposed under UTAP for mass transportation projects, and Federal funds would be permitted for transit operating expenses. UTAP would consolidate two separate and relatively inflexible capital programs (the Federal-Aid Highway and UMTA programs) which, in various ways, have been distorting local decisions on the investment of transportation funds and on transit operating practices. Unifying the Federal program and expanding the ranges of funding uses would encourage better planning and decision-making at the local level. Furthermore, urbanized areas would be assured a source of Federal funds over a period of several years, permitting long-term local planning.

In the first year (Fiscal Year 1975) UTAP would provide the following Federal funding:

1. \$700 million in capital grants would be devoted to major mass transit projects, and distributed on a discretionary basis by the Secretary of Transportation;

2. \$700 million, to be apportioned according to population and population density, would be available for either capital investment or operating subsidies at local option; and
3. \$1.1 billion in Federal-Aid Highway funds, also to be apportioned by population, would be available for urban highways, streets, or mass transit capital projects at local option.

In total, \$2.5 billion would be available in 1975 for urban mass transportation. In the subsequent years, \$2.6 billion would be available in 1976, and \$2.7 billion in each of the following four years, as outlined in Table VII-1.

The Unified Transportation Assistance Act of 1974 is divided into three titles. Title I, which would become effective at the beginning of Fiscal Year 1975, contains amendments to both the urban and rural highway programs under Title 23 USC. In Fiscal Year 1977, Title I would authorize additional funds out of the Federal-Aid Highway funds and establish equivalence between Title 23 projects and those eligible for funding under the UMTA Act. The Administration has recommended to Congress that the share for transit and highway projects be 70 percent. The apportionment formulas would be revised in Fiscal Year 1975 to distribute funds on the basis of the population of urbanized areas (50,000 or more) for both urban and urban extension systems. The apportionment formulas for the rural primary and secondary systems would be adjusted to include small urban areas with populations between 5,000 and 50,000. Title I

TABLE VII-1

UTAP FUNDS AVAILABLE FOR URBAN MASS TRANSPORTATION
(Contract authority in millions of dollars)

Fiscal Year	Distributed by Urban Population Formula			Transit Direct Capital Grants	Total
	Highway or Transit Capital	Transit Capital or Operating	Transit or Highway Capital or Transit Operating		
1975	1,100	700		700	2,500
1976	1,100	800		700	2,600
1977	1,100	900		700	2,700
1978			2,000*	700	2,700
1979			2,000*	700	2,700
1980			2,000*	700	2,700

*Transit operating expenses up to 50 percent of total.

Source: Proposed Unified Transportation Assistance Act of 1974.

would also realign programs so that projects in small urban areas would be financed out of rural authorizations. Title 23 USC would also be amended by increasing the population criterion for defining areas for which urban funds would be earmarked. The population criterion would be increased from 200,000 to 400,000 inhabitants.

In response to the need of persons living in rural areas for improved public transportation, the Federal-Aid Highway Act of 1973 authorized \$30 million for a two-year rural highway public transportation demonstration program. Title I would extend this program for an additional year, authorize an additional \$45 million for a total of \$75 million, and expand its coverage to include small urban areas (5,000 to 50,000 inhabitants). Operating expenses of rural and small urban public transportation systems would be eligible for Federal funding under UTAP. In addition, to further strengthen rural and small urban area public transportation systems, primary and secondary system funds would be made available to Governors for the purchase of buses in these areas. This rural public transportation assistance would encourage the provision of public transportation access to numerous isolated rural areas now reachable only by automobile.

Finally, in addition to providing increased flexibility, Title 23 would be amended to permit up to 40 percent of the primary, secondary, urban extension, and urban system apportionments to be transferred among any of these apportionments. Furthermore, the entire apportionment for urban extensions could be added to the urban system apportionment.

Title II would amend the Urban Mass Transportation Act of 1964 in the following ways: (1) an additional \$1.3 billion would be available for mass transportation projects; (2) an urban transportation formula grant program would be established by apportionment from the total amount available under the UMTA Act of \$700 million in 1975, \$800 million in 1976, and \$900 million in 1977; and (3) it would provide for the payment of operating expenses. Eligible projects would include construction of exclusive or preferential bus lanes, highway traffic control devices, bus passenger loading areas, and fringe parking facilities.

The Federal funds used for transit operating expenses are to assure improvements to public transportation service and must be supplementary to and not in substitution for state and local funds now used to operate the system (maintenance of effort limitation).

Another important provision in Title II would require that 3 percent of the funds apportioned to the Governors be passed through to metropolitan planning agencies for planning in urbanized areas. Furthermore, funds apportioned to urbanized areas over 400,000 population must be used in those specific areas.

The proposed formula grant program is modeled on the existing urban highway program, and employs an allocation formula based on population and population density. This formula parallels the urban highway formula and permits consolidation into a single program in Title III with minimum disruption.

The additional authorizations provided in Title II, together with those currently available, would be sufficient to retain a \$700 million annual discretionary mass transportation capital grant program through Fiscal Year 1977. This grant program would operate very much like the existing UMTA capital program. Since a large number of bus-related transit projects could be financed through the urban formula grant program, more rigorous project selection criteria would be applied to direct these funds to the large cities with high-density cores which face the most serious transportation problems and the highest costs.

Title III, which would take effect in Fiscal Year 1978, merges the UMTA formula grant program (established in Title II) and the urban highway program into the Unified Transportation Assistance Program. This would be accomplished by amending Title 23 USC, effective at the beginning of Fiscal Year 1978, as follows: (1) change the description of the Federal-Aid urban system to include the public mass transportation systems of urbanized areas; (2) add the payment of operating expenses (subject to both a maintenance of effort limitation and a 50 percent ceiling on the amount of any state's apportionment which may be spent for operating expenses) as a permitted use of urban funds; (3) authorize \$2.7 billion per year for urban highway and public mass transportation projects for each of Fiscal Years 1978, 1979, and 1980; (4) require that of this sum \$2 billion should be apportioned each year for the combined urban highway and mass transit programs, and the

remaining \$700 million would comprise a discretionary fund to be made available for major mass transportation capital projects, but not for operating expenses; and (5) include the transit discretionary program in Title 23 USC, and add a new Chapter 5 to the Title containing a number of provisions analogous to those now in the UMTA Act.

The apportionments under Title III would be made to the Governors, who would be required to appoint a state agency suitably equipped to carry out the provisions of the expanded Title. Three percent of each year's urban system apportionment would be reserved for urban planning and would pass through to planning agencies in urbanized areas. Title III would create a single pool of funds available for the full range of highway and transit projects.

STATE AND LOCAL PROGRAMS AND FUNDS

As reported in Chapter III, the proposed capital costs for the 1972-1980

Programs are:

Nine Largest Urbanized Areas	\$14.3 billion
Other Urbanized Areas	<u>9.3 billion</u>
Total	\$23.6 billion

It is important to stress that the \$23.6 billion program is not necessarily realistic. In preparing its program for purposes of the 1974 NTS, each state was permitted to program Federal funds up to 15 percent of the national

total of funds projected to become available in the UMTA program under present law; that is, 15 percent of \$6.2 billion in 1971 dollars, or about \$930 million for any given state. Additional funds for transit could be programmed under the provisions of the Federal-Aid Highway Act of 1973. The states programmed about \$13 billion in UMTA funds for this period, or about twice the total projected to be available, and less than \$2 billion in funds under the Federal-Aid Highway Act of 1973, leaving about \$9 billion in state and local funds. It thus appears that the states and local governments are programming their own funds considerably in excess of the matching requirement.

Financial Implications of 1980 Programs. An analysis of the financial implications of the 1980 Programs is given in Table VII-2. The \$23.6 billion capital outlay reported by the states pertains to the eight-year period 1972 through 1979. Of this, about \$3.6 billion has already been expended, leaving about \$20 billion for the five-year period 1975 through 1979. Adding \$3 billion for the year 1980 brings the total to \$23 billion for the six year period (1975 through 1980) when UTAP would be in effect. Recognizing that this estimate does not account for general inflation, an additional \$5 billion is shown on the next line, leading to a capital outlay total of \$28 billion. The \$7 billion operating deficit reflects an average annual operating deficit of \$1 billion which would be incurred in this period according to state reports, plus a factor for inflation. These figures add to a total of \$35 billion in public funds over this six-year period.

TABLE VII-2

POTENTIAL MASS TRANSPORTATION FINANCING PLAN
(\$ billions)

	1975-80		1972
	<u>Total</u>	<u>Yearly Average</u>	<u>Actual</u>
Use:			
Capital outlay	23	3.8	0.7
Add for inflation	<u>5</u>	<u>.9</u>	<u>-</u>
Total capital outlay	28	4.7	0.7
Operating deficit	6	1.0	0.5
Add for inflation	<u>1</u>	<u>.2</u>	<u>—</u>
Total operating deficit	7	1.2	
Public funds	<u>35</u>	<u>5.9</u>	<u>1.2</u>
Estimated reductions in fund requirements:			
Higher fares	3.5	0.6	--
Reduced capital outlay after careful studies	7	1.2	--
Source of remaining funds:			
State and local	12.25	2.05	0.7
Federal	<u>12.25</u>	<u>2.05</u>	<u>0.5</u>
	<u>35.0</u>	<u>5.9</u>	<u>1.2</u>

Two assumptions would have the effect of reducing the financial burden. The first assumption is that each project in the proposed programs would be carefully evaluated in terms of its cost-effectiveness and that the scope of the proposed programs would be carefully reviewed in order to determine the practical feasibility of implementing in a six-year time period a capital program involving such large increases in annual outlays. A 25 percent reduction of \$7 billion is a reasonable estimate of the program reduction which would result from this process. The second assumption is that a fare policy more consistent with these large financial commitments would be implemented. Instead of a reduction of fares as a percentage of operating costs, this policy would require a moderate increase, designed to reduce the anticipated deficit by half (by \$3.5 billion over the six years).

Finally, an equal division of funds is assumed between state and local governments on the one hand and the Federal Government on the other hand. This is a reasonable assumption based on the fact that in recent years the state and local share of the capital outlays plus operating deficits has been greater than 50 percent (for example, about 58 percent in 1972). Moreover, in the 1974 National Transportation Study, the states and local governments have indicated that they are programming capital funds for urban mass transportation considerably in excess of the 20 percent matching requirement.

Consider first the Federal share--\$12.25 billion. As summarized in Table VII-1, UTAP would provide a total of \$16 billion over the six-year period for urban mass transportation and highways under the Urban System. The \$12.25 billion (financed at an annual rate of \$2.05 billion) could be made up of UTAP funds plus funds resulting from the states' decisions to substitute urban mass transportation investments for investments in portions of the Interstate Highway System. For example, in the year 1977 this would consist of \$1.6 billion in funds earmarked for mass transportation plus an additional \$0.45 billion of the \$1.1 billion of UTAP funds that could be spent on highways or mass transportation. Alternatively, some states and urban areas may avail themselves of the provisions of Section 103e(4) of Title 23, in which a state is allowed to substitute mass transportation projects for segments of the Interstate Highway System with the approval of the Secretary of Transportation. This would then reduce either their usage of UTAP funds for mass transportation or their state and local commitment.

Consider next the state and local share--also \$12.25 billion. This could be financed in either of two ways as shown in Table VII-3. If both the operating deficit and the capital outlay were financed on a pay-as-you-go basis, the annual expenditure would be \$2.05 billion in 1980. If the capital outlay were debt-financed, then the annual expenditure would be only \$1.42 billion in 1980.

TABLE VII-3

STATE AND LOCAL FINANCING OF \$12.25 BILLION OUTLAY
FOR 1975 THRU 1980

	<u>Total</u> 1975-1980	<u>Public Expenditure</u> in Year 1980
	(\$ billions)	
<u>Method 1: Pay-as-You-Go</u>		
Operating Deficit	3.5	0.6
Capital Outlay	<u>8.75</u>	<u>1.45</u>
Total	<u>12.25</u>	<u>2.05</u>
<u>Method 2: Debt Financing of Capital Outlay</u>		
Operating Deficit	3.5	0.6
Capital Outlay	<u>8.75</u>	<u>0.82*</u>
Total Outlay	<u>12.25</u>	<u>1.42</u>

*Principal plus interest, assuming 25-year retirement at 8 percent interest rate.

It was noted in Chapter IV that there is little similarity in the manner in which urbanized areas can or do choose to finance urban mass transportation. Nonetheless, it is possible to obtain some appreciation for the size and reasonableness of the foregoing urban mass transportation financing requirements by comparing them with total tax revenues of state and local governments.

Comparison With State and Local Tax Revenues. Table VII-4 shows the state and local revenues from selected taxes which are likely candidates for financing urban mass transportation, and for total tax revenues. Clearly, the property tax is the principal source of local revenue. It amounted to

TABLE VII-4

SELECTED TAX REVENUES OF STATE AND LOCAL GOVERNMENTS, 1972 AND 1980
(billions of 1971 constant dollars)

(Projections subject to assumptions and notes in Appendix A)

Type of Tax	1971-1972 ^a			Annual Average Percentage Increase 1968-72 ^b	Deflated Annual Percentage Increase ^d	Projected 1980	Urbanized Area Pro Rata Share ^e
	State	Local	Total				
Property	\$ 1.26	\$40.88	\$42.14	11.2%	6.5%	\$69.74	\$44.08
General Sale	17.62	2.68	20.30	14.1	9.4	41.65	26.32
Individual Income	13.00	2.24	15.24	21.1	16.4	51.36	32.46
Corporate Income	4.42		4.42	14.1	9.4	9.07	5.73
Motor Fuel	7.22	.06	7.79	8.7 ^c	4.0	10.66	6.74
Alcoholic Beverage	1.68	.07	1.75	10.2 ^c	5.5	2.69	1.70
Tobacco Products	2.83	.17	3.00	10.7 ^c	6.0	4.78	3.02
Public Utilities	1.22	.91	2.13	16.4 ^c	11.7	5.16	3.26
Total Tax Revenue ^f	\$59.87	\$48.93	\$108.80	12.8%	8.1%	\$202.88	\$128.22

^aAdvisory Commission on Intergovernmental Relations, Federal-State-Local Finances: Significant Features of Fiscal Federalism, 1973-74, Table 6.

^b*Ibid.*, from Table 3; and computed from Table 14.

^cComputed from state taxes only.

^dAfter deduction of 4.7% average annual increase in Consumer Price Index, 1968-1972.

^eProrated at 63.2%, the estimated ratio of urbanized to total population in 1980.

^fTotal tax revenue includes other taxes in addition to specific itemized taxes.

some \$40.9 billion in 1972, and, projected at the average 1968-1972 growth rate, is expected to amount to some \$69.7 billion for both state and local governments by 1980. The general sales tax is currently the principal source of revenue for state governments, amounting to some \$20.3 billion in 1972. This tax would increase to some \$41.7 billion by 1980 for both state and local governments. The individual income tax is becoming increasingly important to state governments. In 1972 this tax yielded \$15.2 billion, and the yield would increase to \$51.4 billion by 1980 at current growth rates. Total state and local government tax revenues amounted to some \$108.8 billion in 1972, and they would increase to some \$202.8 billion by 1980 at current growth rates.

The foregoing data on tax revenues comprise the entirety of the 50 states. Since the 1980 Programs relate only to the urbanized areas, it would be desirable to prorate the tax revenues to the urbanized areas. The 1974 NTS data estimate the population of the urbanized areas at approximately 63.2 percent of the total population by 1980. Using this percentage to provide an approximate proration of taxes to the urbanized areas, the results are shown in the final column of Table VII-4.

A comparison of transit financing requirements and estimated state/local tax revenues for 1980 is shown in Table VII-5. The entries in the table show state and local transit financing requirements as a percentage of total tax revenues. These percentages are conservatively high since an amount was added to the capital costs to account for general inflation, while the tax revenue projections are in real terms (with inflation factored out).

TABLE VII-5

COMPARISON OF ESTIMATED STATE AND LOCAL TAX
REVENUES WITH ESTIMATED STATE AND LOCAL
TRANSIT FINANCING REQUIREMENTS, 1980

		<u>(Dollar amounts in billions)</u>	
		Total Tax	Prorated Tax
Financing Requirement		(202.9)	(128.2)
Pay-as-You-Go	\$2.05	1.0%	1.6%
Debt Financing	\$1.42	0.7%	1.1%

Source: Tables VII-3 and VII-4

On the pay-as-you-go assumption, a state and local financing requirement of \$2.05 billion in 1980 would amount to 1.0 percent of estimated total state and local tax revenues and 1.6 percent share of state and local tax revenues prorated to the urbanized areas. The corresponding figures for an assumed debt financing requirement of \$1.42 billion are 0.7 percent of total state and local tax revenues and 1.1 percent of prorated revenues. These figures compare exactly to state and local financial assistance in 1972 of \$722 million, which represents 0.7 percent of total state and local tax revenues and 1.1 percent of prorated revenues.

Two key assumptions were made in this analysis which have the effect of reducing the requirement for state and local funds over the six-year period: a 25 percent reduction in the total capital program, yielding \$7 billion; and a halving of the operating deficit over this period, yielding \$3.5 billion (see Table VII-2). The 25 percent reduction in capital outlay represents a judgment by the Department that part of the program would have to be postponed because of implementation difficulties and part of it would be eliminated in favor of more cost-effective solutions.

The halving of the operating deficit is an important policy matter. As noted in Chapter III, fares in 1972 covered approximately 85 percent of the annual costs, but according to state reports would cover only 65 percent by 1990. If, instead of the 65 percent coverage, fares were to remain at the 85 percent level in 1990--the same as in 1972--then the operating deficit in that year would be reduced by about 57 percent. To halve the

projected operating deficit during the period 1975 through 1980 would require an even more stringent fare policy. The average percentage of annual costs covered by fares during this period would have to be increased from 81 percent (calculated from reports of the states) to 91 percent, implying a reversal of current trends in fare policies.

While states and localities appear capable of providing their share of the financial requirements for urban mass transportation, the substantial financial commitment involved would mean that they would have to make some hard decisions about public expenditure priorities, fare policies, and the relationship between taxation levels and spending for urban mass transportation.

APPENDIX A

NOTES AND ASSUMPTIONS FOR STUDY PROJECTIONS

APPENDIX A

The table listed below has been prepared on the basis of the information and assumptions set forth in this appendix. The achievement of any financial projection is dependent upon the occurrence of future events which cannot be assured. Therefore, the actual results achieved may vary from the projections.

All of the tables, figures, and other data in the report displaying projections for 1980 and 1990 report data provided to the U.S. Department of Transportation as part of the 1974 National Transportation Study (1974 NTS).

VII. FINANCIAL IMPLICATIONS OF THE IMPLEMENTATION OF THE 1980 PROGRAMS

Table VII-4 SELECTED TAX REVENUES OF STATE AND LOCAL GOVERNMENTS, 1972 and 1980

1. Basic source: Advisory Commission on Intergovernmental Relations, Federal-State-Local Finance: Significant Features of Fiscal Federalism, 1973-1974, various tables.
2. 1980 projections based on average annual percentage increases in taxes, as reported in the foregoing source, deflated by the average rate of general inflation.

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