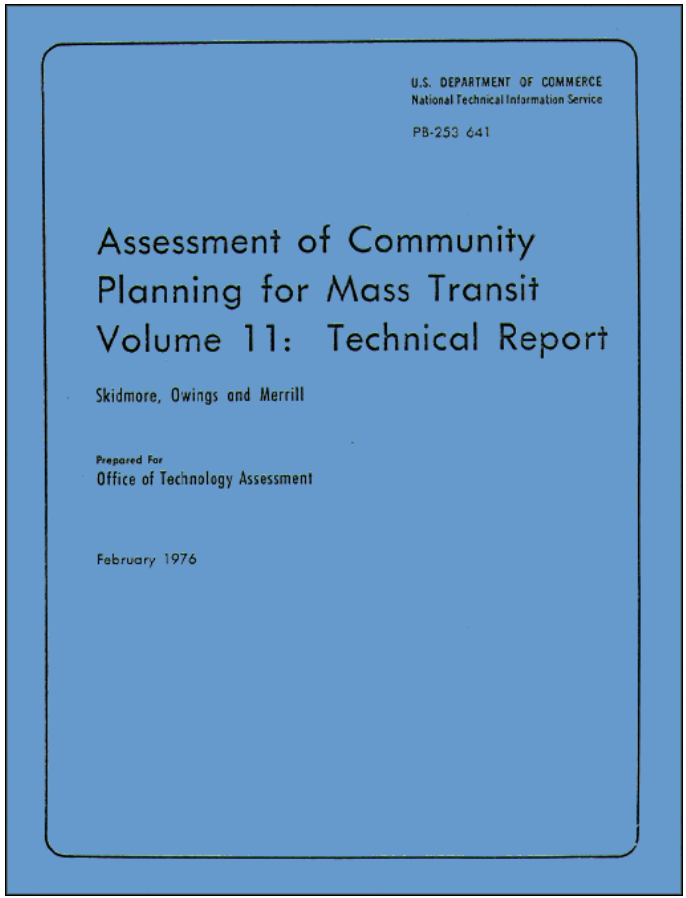
Assessment of Community Planning for Mass Transit: Volume 11—Technical Report

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An Assessment of Community Planning for Mass Transit

Technical Report

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INTRODUCTION

THE PURPOSE

Mass transit is beginning to stage a comeback. After decades of declining ridership, a modest upswing is in progress, at least in some metropolitan areas. Perhaps more importantly, there is growing popular interest in mass transit. Major issues of the 1960s -- traffic congestion, the plight of the poor and other minorities -- are combining with the issues of the 1970s -- degradation of environmental quality, energy shortages, and increasing gasoline prices -- to kindle more broadly based political support for mass transit.

Nearly all of the nation's metropolitan areas have some type of mass transit system. Six of them are served by rapid rail transit on rights-of-way that are separated from automobile traffic. The rest use streetcars, buses, and trolleybuses. Many of these systems were built by private entrepreneurs during the period when transit was a profitmaking business. Routes were laid where they would serve the most people and bring the highest returns, or they were extended to promote new real estate developments that, in turn, provided captive markets for these lines in the preauto era.

Thirty years ago transit operations in U.S. cities averaged a decent 11% profit. Then, a downward spiral in ridership and income began that led to an average loss of 23 cents per paying passenger (not including transfer passengers) by 1974. Eventually, ailing operations were sold to city governments, and by fall 1975 almost every major private transit enterprise in metropolitan 'areas of more than half a million population had been transferred to public ownership. In 1974, 90% of all revenue passengers were carried on publicly owned systems.

The public sector dominates transit now. New public agencies have assumed responsibility for transit operations, and they are pumping public dollars into the effort. The greatest commitment of both responsibility and money is occurring in the metropolitan areas that either operate rail transit systems or are building new regional rapid transit systems.

The Federal Government entered the transit business along with metropolitan areas. The Federal interest was spurred by the parallel concerns of making urban transit competitive with urban highways, which had been receiving Federal support since 1944, and shoring up the financially pressed transit operators. Federal participation began in 1961 with a modest program to support first-time applications of innovative transit concepts; by 1970 the Urban Mass Transportation Administration was able to begin providing substantial financial assistance to both existing and major new transit projects in metropolitan areas.

Since then, through the Federal-Aid Highway Act of 1973 and the National Mass Transportation Assistance Act of 1974, Congress has greatly expanded the capacity of the Federal Government to aid urban transit. ---------- --

When San Francisco's Bay Area Rapid Transit system -- BART -- began operating in 1972, it was the first new regional transit system to come on line with the aid of Federal funds. UMTA's $304 million contribution to BART was the largest sum the Federal Government had committed to a single transit system. [1]/ The new BART was a natural focal point for public attention, and considerable debate has ensured over whether BART has been a wise investment. Much of the BART controversy centered on technology issues. BART was designed as the most highly automated transit system in the United States, but a series of unanticipated technological setbacks and financial limitations has kept the system from performing at the expected service levels.

BART also raised questions that went beyond the merits of its technology. With employment in the suburbs growing faster than downtown employment, is a radial transit system focusing on the downtown the best approach for meeting the region's transit needs? Does a high-speed regional rapid transit system unfairly benefit the white-collar commuters who use it most often, while everyone pays a share of the costs? Some BART critics charge that the system was conceived and brought into being by self-interested property owners in downtown San Francisco who wanted to stimulate a rise in property values.

BART was the first major new transit program to request aid from the Federal Government. By the early 1970s a number of metropolitan areas were drawing up plans that included much higher price tags for the Federal share. Atlanta, for example, wanted over $1 billion to build its regional rapid rail system. Requests from Los Angeles were expected to reach as high as $11 billion. During the same period, a number of researchers began to report findings that rail systems were not cost-effective -- that is, for the same cost, other transit programs would provide more service.

The issue of how decisions about new transit systems should be made underlies all these concerns. The purpose of planning is to put decisionmaking on a rational basis so that public investments (and other public policy decisions) can be made wisely and in the public interest. A particular type of transit technology, route configuration, or level of service may have different impacts in different metropolitan areas and even in parts of one metropolitan area. One of the important functions

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[1]-/ BART was conceived and construction begun without the expectation of Federal support, and although the Federal contribution was great compared to the amount granted to other new transit programs, it represented only 19% of the total BART cost.

of planning is to provide enough information about these impacts and the impacts of alternative courses of action to provide a solid basis for making decisions. …

The effectiveness of planning depends on several factors.

One variable is the structure of the technical planning process -- the activities that are undertaken in doing the planning work. The past decade has witnessed an evolution in planning toward opening the door to public participation, toward broadening both the range of options considered and the range of goals they are intended to meet, and toward developing more practicable schemes for putting plans into effect.

A second factor is the extent to which constraint are put on the technical planning process by those who set it in motion. For example, the legislative mandates of the agencies responsible for planning can seriously limit the range of alternatives that will be examinea. Similarly, the controls political leaders and the public exert over these agencies influence the choice of options to consider and the means of considering them. where and how the money comes has an especially powerful influence on the planning work. The availability or unavailability of financing and the conditions under which the financing is provided limit the range of options that are feasible.

Federal policy has influenced and will continue to influence all the factors that shape transit planning. Federal regulations affect the structure of regional planning organizations and the scope of the technical planning process. The level and type of Federal financing affects what a community can afford to build.

The central question is how to shape Federal policy so it will strengthen community transit planning. What are the factors that help communities facing critical technological choices make wise decisions that are consistent with both local and national goals for transit? Answering the question entails looking at how transit decisions have been made in the past.

Thus, the objective of this assessment has been to obtain a better understanding of the impact of different financing mechanisms, institutional arrangements, and technical planning procedures. The ultimate purpose of the work has been to cast light on prospective changes in national transit policy programs and administration that might improve, in different ways and to different extents, the way communities plan mass transit systems.

SCOPE

The study focuses on the planning of transit systems rather than broader transportation programs. Yet because transit planning is closely related to other regional planning functions, particularly highway and land use planning, the study takes account of these interrelationships.

The assessment also concentrates on rail rapid transit rather than bus or other types of mass transportation. [1]/ The focus has two explanations. First, the impact of the new BART and its technological difficulties tended to frame a particular concern about the way communities make decisions about transit: namely, were they capable of correctly judging the impact and appropriateness of costly new transit technologies? Bus systems, in contrast, involve a less awesome commitment.

A more important reason for focusing on rail rapid transit is the fact that until recently, conventional "heavy rail" fixed-guideway transit, or technological improvements on it such as personal rapid transit, have dominated the imaginations of U.S. transit planners. Only within the past five years has serious attention been given to the potential for bus or "light rail" (sophisticated streetcar) transit, using parts of existing highways, to meet transit needs. There is yet no example of a planning process that has resulted in a final decision to build one of these innovative systems to serve a metropolitan area. [2]/

This report is based on a review of transit planning and decisionmaking in nine metropolitan areas that have, or have been considering, rapid transit systems. The areas were selected to represent the full range of issues that arise at different stages in the overall process of planning and developing a transit system:

- Boston and Chicaqo have long established rapid transit systems for which extensions and other improvements are currently being planned.
- San Francisco's BART is the first new regional rail transit system in recent decades.

1/ The term "rapid transit" is most commonly used to denote electrified rail transit operating on exclusive rights-of-way, although it is sometimes broadened to encompass bus or other fixed-guideway transit operating on exclusive rights-of-way. The term "fixed-guideway transit" is a broad term used to refer to any public transportation system operating on exclusive rights-of-way under direct lateral control, including conventional rail technology of any kind, monorail, or any of the several types of automated new technologies.

2/ On the other hand, several cities soon will introduce new light rail rolling stock on existing routes (Boston and San Francisco), several other cities are seriously considering new light rail systems (Dayton, and Portland, Oregon), and there are a large number of cities that have begun express bus service on highway rights-of-way.

Washington, D.C., and Atlanta have regional rapid transit systems under construction. The Washington, D.C., Metro system is scheduled to begin service on a 4-1/2-mile segment in 1976. Groundbreaking for Atlanta's regional rail transit system occurred in February 1975.

Denver has planned a fixed-guideway transit system but has not yet started construction. In June 1975, Denver requested Federal financial aid to build the first segment of its system.

In Seattle and Los Angeles, voters twice defeated rail transit proposals in referendum, but serious planning activity continues.

The ninth metropolitan area, Minneapolis-St. Paul, is attempting to make a final decision after several years of studying alternative transit schemes.

ORGANIZATION

The assessment involved three basic steps, and these steps provide the structure for this report.

Step 1: Establishing the National and Historical Context. A brief review of the historical trends in transit development and of the Federal Government's response to the changing urban transit situation provides a context within which the findings of the assessment can be more realistically interpreted. This review is contained in Part I of the report, which is titled "The National Setting."

Step 2: Assessing the Metropolitan Experience. The bulk of the study effort was an evaluation of the transit planning and decisionmaking process in the nine case metropolitan areas. The evaluation identified a number of problems that affect the performance of community planning for transit. The discussion of these problems, grouped in three categories according to their, roots in financing, institutional, and technical planning considerations, is contained in Part II of this report, called "Metropolitan Decisionmaking Issues."

Step 3: Developing Options for Public Policy. The lessons learned during the metropolitan case assessments lead to several courses the Federal Government could follow in taking steps to improve transit planning. The major issues for Federal policy and potential 'remedies for these issues are described in "Part III: National Policy for Mass Transit."

PART I

THE NATIONAL SETTING

CHAPTER 1

THE EVOLUTION OF THE TRANSIT INDUSTRY

The history of public transit in the United States covers a period of nearly I50 years. During the first part of this period transit was the dominant form of transportation in American cities, but since the 1920s the use of transit has been declining steadily. The decline was interrupted only during the years of World War II when the supply of fuel and new vehicles was severely constrained.

THE STREET RAILWAY ERA

The street railway was the predominant form of public transportation prior to the 1920s. The first fixed-route, urban public transit in the United States was a horse-drawn, eight-seater omnibus that began operating on New York City's Fourth Avenue in 1831. The cable car, which was introduced in 1873, more than doubled the horsecar's speed, but the cost of burying the cable limited use of this system to already densely developed corridors. In the 1880s, however, the electrification of the streetcar expanded the range of public transit in the cities, and until the end of World War I public transit ridership grew more rapidly than the urban population.

The extent of urbanization kept pace with the evolution of transit technology. Until the late 1880s a typical city had a two-mile radius, the distance a horsedrawn streetcar could cover during the 30 minutes most people were willing to spend to reach their destinations in the city core.

The electrification of the streetcar helped push the development horizons of the city five miles away from the center. During the height of the street railway era, lines leapfrogged past the densely developed part of the city to outlying areas and even satellite towns. The spaces in between soon were filled with new buildings, in part because of the new transit links.

In the typical development sequence, the appearance of electric streetcar lines helped precipitate the conversion of old residential streets to commercial and lower-income housing areas. Higher-income residents, who were offended by the noise and overhead wires from the streetcars sought property in outlying areas those same streetcars had made accessible. The densest retail and industrial development occurred where lines intersected and at their termini. Commercial activity continued to focus on the historic core, but important subcenters grew where new crosstown lines met the older radiating routes.

The Decline of Public Transit

Although the ridership on street railways held steady until the end of World War I, by the late 1920s a pattern of serious competition between the private automobile and public forms of transportation in urban areas had begun to emerge.

The automobile had begun to assert itself as a major form of transportation by the middle of the 1920s. With gradually increasing personal income and the efficiency of mass production, automobile ownership and use expanded quickly. In 1900, there were only 8,000 registered automobiles in the United States, but by 1925 the number had risen to 17 million.[1]-/

The rising popularity of the automobile threatened the transit industry in three main ways. First, the automobile directly competed with transit for riders, particularly for social and recreational trips. Second, the widespread use of automobiles meant there was less incentive to extend streetcar and other transit to serve new housing and industrial development. Third, automobiles 'increased congestion on the city streets and created a situation in which the public transportation industry had to compete for patronage on the private automobile's own ground, where the latter performed considerably better.

In response to growing suburbanization and the growing competition from the private automobile, the public transportation industry in the 1920s began to shift from rail to buses. In 1922 almost all transit patrons were carried by streetcar and rapid rail, but by 1925 over a billion passengers were being carried annually by buses. By 1930 this number had risen to 2.5 billion.

The shift to buses was at least partially an unintended secondary effect of the Public Utilities Holding Company Act of 1935. This act prohibited utility companies from holding financial interest in street railways. Utility companies had been buying into streetcar operations since the turn of the century, and profits from their other more solvent businesses offset the financial setbacks transit operations were suffering. By removing the remaining underpinnings of financial stability from many of the relatively few surviving streetcar lines, the Holding Company Act accelerated the modal conversion process.

TRENDS IN TRANSIT RIDERSHIP

The results of the transit/auto competition and other economic pressures are illustrated clearly by the trend in total number of passengers carried by public transit. Ridership on

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1/ Us. Department of Transportation, Federal Highway Administration, Highway Statistics, Summary to 1965, p. 12.

street railway operations more or less held steady during the 1920s but fell during the early 1930s. By the time of the Depression, the private automobile had corneredthe pleasure and social trip market. Transit therefore depended increasingly on work trips for revenue, and rising unemployment cut into work travel. The losses might have been even greater if two other forces had not come into play: a temporary halt in the rapid growth of the automobile industry and an influx of potential patrons into the cities from failed farms.

The rally in transit ridership during the World War II years, when a surge in employment coincided with gasoline shortages, gave way to a steady decline that lasted nearly 25 years. Between 1945 and 1974 the total passengers carried by all forms of public transit had fallen from over 20 billion to just over 7 billion. There has been a slight increase in passengers during the past two years, a large part of which is due to fuel shortages-and rising prices. Figure 1 illustrates this trend dramatically.

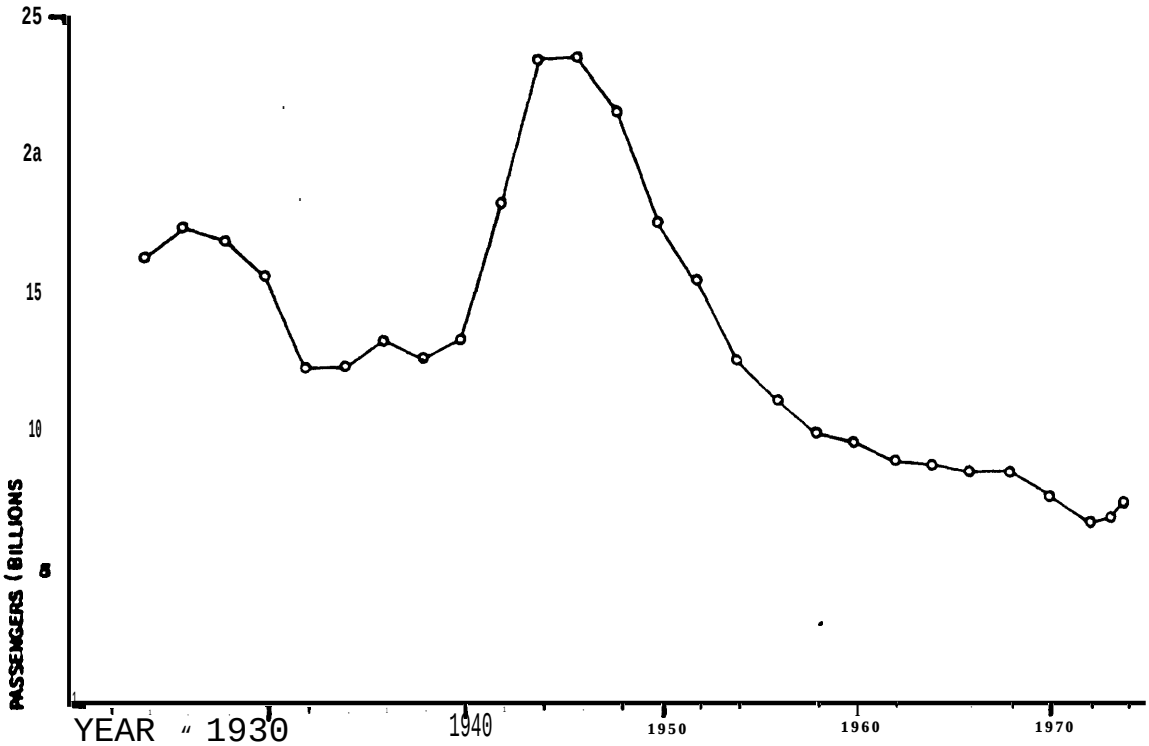


FIGURE 1: TOTAL TRANSIT PASSENGERS 1924-1974

Source: Wilbur Smith and Associates, Future Highways and Urban Growth, 1961
American Public Transit Association, '74-'75 Transit Fact Book

CAUSES OF DECLINE

In the almost three decades since World War II, the urban public transit industry in the United States has continued its economic decline. Even though average fares nationally have risen faster than the consumer price index, passenger revenue has not grown rapidly enough to offset increased costs. More and more systems have experienced operating deficits and many privately owned systems have either ceased to operate or sold their depleted operations to the municipalities they served. The basic causes of the decline in mass transit can be attributed to a number of interdependent factors:

- The urban population has grown rapidly outside the central cities in which most public transportation systems are located and where service is concentrated. (From 1960 to 1970 alone the population outside central cities in the United States increased by about 34% compared to a 1.5% population gain in central cities. Most of the older central cities suffered decreases.)

- Suburban living in the United States is largely automobile-oriented, in part because housing and population densities are low and parking space is usually freely available. Moreover, because of these low population densities and the wide dispersion of origins and destinations, conventional public transit cannot operate profitably and often is not even available to the suburbanite.

- Automobile ownership has increased dramatically. Even over the last decade there continued to be marked change. Automobile ownership per household between 1960 and 1970 increased from 1.09 to 1.27; the number of two or more automobile households rose from 13% in 1960 to over 30% in 1972. By 1972 only 20% of all households were without automobiles. These, of course, were concentrated among the poor, old, or too young -- the groups that are frequently considered to be "captive riders" of public mass transit systems -- as well as among dwellers in the centers of the largest cities.

- Public transit fares have escalated while the user's perception of the cost of driving has gone down.

- Lack of innovative management and marketing in the transit industry and conservative attitudes toward change generally have contributed to the difficulties of public transportation.

- Federal programs have been enacted and administered unevenly, giving impetus to one form of transportation over another. The support of highway construction from the Highway Trust Fund, for exmple, has provided relatively certain annual funding at relatively high levels for highways. Transit, in contrast, has no comparably dependable and ample source of funding.

- Federal planning funds for comprehensive urban planning available from the Department of Housing and Urban Development have been only partly coordinated with transportation programs within metropolitan areas. Coordinated planning is necessary to locate transportation services where they will get the most use and, conversely, to locate new development where it will be best served by public transportation. Much of the effort at coordination that has occurred has been thwarted by the lack of development controls and other powers necessary to implement the plans.

- During most of the period in which the nation's urban mobility problems were developing, the state and Federal governments were largely concerned with the problems of transportation between urban areas. It is only in the last few years that attention has increasingly focused on the transportation needs within these areas, although this shifting interest and concern has not yet caught up with the needs.

THE RAPID INCREASE IN OPERATING DEFICITS

Although ridership has declined sharply and continuously since 1945, it was not until 1963 that the industry as a whole first experienced operating costs in excess of revenues. By 1973 (the most recent year for which published data are available), despite a small increase in revenue passengers for the first year since World War II, the revenue deficit nationally had grown to two-thirds of a billion dollars and was growing at a rate of over 33% per year.[1]/ The deficit stood at 13 cents per revenue passenger.

Recently published data show that the annual percentage growth rate in 1974 was more than double the 1973 number as indicated in Table 1.[2]/ Because of these dramatic increases and the major implications of a continuation of this trend, a 1975 national projection has been obtained based on up-to-date experience in major metropolitan

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1/ '73-'74 transit Fact Book, American Public Transit Association., Table No. 1, p. 4.

2/ Ibid.

TABLE 1 -- NATIONAL ANNUAL TRANSIT DEFICIT

Year	Net Operating Deficit After Taxes ($Millions)	Annual Percent Change
1968	$161	
		37%
1969	$221	
		30%
1970	$288	
		43%
1971	$411	
		25%
1972	$513	
		44%
1973	$738	
		72%
1974	$1,271	
		33.9%
1975 (projected)	$1,702	

Source: American Public Transit Association, '74-'75 Transit Fact Book for 1968 through 1974; System Design Concepts, Inc. forecast for 1975 (see text for explanation).

areas. Metropolitan transportation officials in each of the cities listed are the sources of data for the forecasts of deficits indicated.

The total 33.9% projected increase for 1975 in the metropolitan areas was used as the basis for projecting the national figures shown in Table 2. This projection is presented with some reservation, recognizing that the basis for the individual figures varies widely. On the whole the individual estimates are likely to be on the conservative side, tending to reflect operators' optimism regarding their ability to manage costs. Nonetheless this analysis does clearly demonstrate that the rapid rate of growth of operating costs in excess of operating revenues is reaching an order of magnitude of major national consequences -- $1.7 billion. A recent

TABLE 2 -- TRANSIT OPERATING DEFICITS IN 1974 AND PROJECTED FOR 1975 IN SELECTED MAJOR METROPOLITAN AREAS
(Millions of Dollars)

Metropolitan Area	1974	1975	Percent Increase
New York* (Calendar Year)	315.0	421.7	33.8%
Boston (Calendar Year)	141.6	159.0	12.3%
San Francisco** (F.Y.)	87.6	109.9	25.5%
Los Angeles (F.Y.)	66.8	97.1	47.2%
Chicago (CTA only - Calendar Year)	62.6	93.6	49.5%
Philadelphia (Septa only)	58.5	75.1	28.4%
Washington, D.C. (Bus only - F.Y.)	17.5	38.4	121.1%
Pittsburgh	23.4	30.4	29.9%
Atlanta (F.Y.)	17.0	24.3	43.0%
Seattle	14.3	19.5	36.4%
Minneapolis-St. Paul (Calendar Year)	12.0	24.3	102.5%
Denver (Calendar Year)	7.4	10.4	45.4%
Totals	823.7	1,103.7	33.9%

*N.Y.C.T.A. only; based on interpolation of data for 11 months of F.Y. 1974 and prior years and projections of 1975 and 1976 calendar years by MTA.

**Based on data from five principal operators covering all estimated 95 percent of area's transit system and extrapolated to cover the entire transit service area in the San Francisco region.

Source: Telephone contacts with officials in each metropolitan area in March 1975. In each city, the numbers for the two years use common assumption,~ although some of the numbers are inconsistent with more recently reported data.

U.S. Department of Transportation projection of a $2.5 billion deficit in 1990 is unrealistically optimistic in light of this trend. [1]/

Recent growth in deficits reflect, to an increasing extent, the financial impacts of public takeovers of declining Private systems coupled with extensions and improvements in the quality of service. In addition, in contrast to a few years ago

1/ A Study of Urban Mass Transportation Needs and Financing, U.S. DOT, July, 1974, pp. 4,5.

operators have been tending to hold the line on fares despite rising costs.-&/ Average fares have been declining in real dollar terms nationally during the last few years. Thus, in contrast to earlier years, the financial problem is more and more a result of conscious policy decisions rather than a reflection of neglect and deterioration in the level and quality of service.

The financial impact of service improvements was illustrated during fiscal years 1974 and 1975. Transit operators responded to the oil embargo and higher fuel prices with new routes, route extensions, and more frequent service, placing " greater emphasis than before on innovative services. Ridership increased, but the gap between operating costs and farebox revenues generally grew wider. For example, WMATA here in Washington reported that the expanded service increased operating costs by 12% while ridership grew only by 2%.

The National Mass Transportation Assistance Act of 1974 provided a total of $3.975 billion over six years, through the new Section 5, for optional use to pay operating costs. The funds authorized are not to exceed $300 million for fiscal year 1975, increasing annually to $900 million in fiscal year 1980.

The results of a telephone survey of major metropolitan transit operators indicate their need for operating assistance is so great that most of them plan to use their entire allocation of Section 5 funds for this purpose despite the requirement of much greater local matching share (see Table 3) . The local share for operating assistance is at least 50% compared to 20% if the same funds are used for capital improvements. It is apparent that in at least some of the metropolitan areas surveyed the present level of transit service cannot be maintained under the existing fare structure through the remainder of this year without the operating assistance funds authorized in the 1974 act.

1/ During the period 1949 to 1970 transit fares rose 3% per year greater than the consumer price index; however, between 1971 and 1974 transit fares rose less than 2% per year, While the consumer price index rose more than 6% per year.

TABLES
NATIONAL MASS TRANSPORTATION ACT 1974
PROPOSED DISPOSITION OF SECTION 5 FUNDS F.Y. 1975
SELECTED METROPOLITAN AREAS

METROPOLITAN AREA	F.Y. 1975 ALLOCATIONS (MILLIONS	TRANSIT OPERATIONS (PERCENT)	CAPITOL DEVELOPMENT (PERCENT)	TRANSIT OPERATIONS (TOTAL)
ATLANTA	$2.4	100	0	$2.4
BOSTON	$6.5	100	0	$6.5
CHICAGO	$18.1	100	0	$18.1
DENVER	$2.4	0	100	0
L0S ANGELES	$24.0	100	0	824.0
NEW YORK	$42.7	100	0	$42.7
SAN FRANCISCO	$10.1	99	1	$10.0
SEATTLE	$ 2.7	0	100	0
TWIN CITIES	$ 3.3	0	100	0
WASHINGTON D.C.	$6.9	100	0	$ 6.9
TOTAL	$119.10	92%	8%	$110.60

In summary, the financial stability of the transit industry has undergone a dramatic reversal since 1945. As shall be discussed in the next chapter, the decline has spurred the continuing efforts for the Federal government to develop a sound public policy for supporting transit operations.

CHAPTER 2

EVOLUTION OF THE FEDERAL ROLE

The evolution of Federal transit assistance is characterized by a short but rapidly changing history. In a little over a dozen years Federal involvement has grown from tentative and small-scale support for demonstration projects to a long-term commitment to provide a major source of funds for all aspects of public transportation operations and improvements. The following account considers four major periods in this history: the early evolution of Federal transit legislation; efforts to expand transit support in the late 1960s; attempts to obtain operating subsidies; and passage of the National Mass Transportation Assistance Act of 1974.

EARLY EVOLUTION OF FEDERAL TRANSIT LEGISLATION

The Federal government became involved in supporting urban mass transit about 15 years ago. As discussed, at that time a severe post-World War II decline in transit patronage was curtailing transit operations throughout the country.

The first serious efforts to enact Federal transit legislation occurred in the late 1950s, stimulated by concern over the future of urban commuter rail services. In 1958, Congress passed the Transportation Act, which was an attempt to help the railroads out of financial difficulties they had experienced since the end of the war. The act gave the Interstate Commerce Commission power to discontinue unprofitable passenger service. This gave rise to legislative pressure from mayors of large cities who could foresee serious consequences from (1) a decrease in commuter services previously provided by the railroads and (2) an increase in city automobile use. 1/

Despite protransit lobbying by the National League of Cities and U.S. Conference of Mayors, an urban mass transportation bill introduced by Sen. Harrison Williams of New Jersey in 1961 failed to pass. Financial support for mass transit wound up, instead, in the 1961 Housing Act, at the modest level of $25 million for 2/3 Federal share demonstration projects and an additional $43 million for low-interest capital improvement loans. In the same act, transit planning became one of the half dozen eligible activities under the comprehensive urban planning program (Section 701) .

1/ George M. Smerk, Urban Mass Transportation: A Dozen Years of Federal Policy, Indiana University Press, Bloomington and London, 1974, p. 36.

The following year, Section 134 [1]/ was added to the Highway Act, in recognition that highway planning should be integrated with other transit and land use planning in cities. At this time, 25% of highway funds were being spent on urban highways. Effective in 1965, the act required "continuing, comprehensive and coordinated transportation planning," in cities greater than 50,000 people, as a pre-condition for Federal aid to highway projects.

The 1962 act made no additional funds available for either highway or transit planning. However, it tended to increase the amount of transit planning undertaken and to improve coordination between the system planning studies for the two modes. Actual project and program decisions continued to be made separately by the two Federal agencies involved: the Bureau of Public Roads, then part of the Commerce Department; and the Housing and Home Finance Administration, where transit responsibilities were lodged.

During this period, local officials and the public became aware that balanced planning for urban transportation modes was fruitless in the absence of balanced Federal funding for improvements. Highway planning during this period focused on developing long-range network plans for interstate highways and connecting arterial systems in metropolitan areas to accommodate rapid increases in auto traffic. Funding for the interstate program, in the form of 90% Federal support for specific routes, tended to create an incentive for maximizing traffic estimates in order to have reason to build more of these high-capacity highways. In response, those interested in reducing the scale and impacts of the highway systems to protect the urban environment sought financing for transit facilities that could compete with the interstate highways, particularly for work trips from suburban areas to downtown.

In 1962, a bill initiated by the executive branch to provide $500 million in capital assistance to transit over a three-year period failed to pass Congress. In the aftermath of this defeat, a growing coalition of major cities, organized labor, the transit industry, the railroads and equipment manufacturers went to work to build support for legislation that became the Urban Mass Transportation Act of 1964 (49 U.S. Code, Section 1601, et seq.) . When it became law in July 1964, this act representedtie first Federal commitment to mass transit capital needs. It increased the demonstration program to $30 million and authorized $375 million through fiscal year 1967 for capital improvements and demonstrations. The 1964

1/ Title 23 U.S. Code.

act provided money in the form of capital grants and loans to states and local governments to assist them with traditional, fixed-route transit services. The Federal contribution to a given project was limited to 2/3 of the net project cost.

Between 1966 and 1969, Congress expanded the scope of its interest in transit, reflecting a growing recognition that construction of new facilities and preservation of existing systems were not the only approaches needed to remedy transit's ills. Amendments to the Urban Mass Transportation Act in 1966 (PL-89-562) made technical studies, managerial training programs, and university research projects eligible for assistance. In 1968, Housing and Urban Development Act amendments (PL-90-448) widened the definition of mass transportation to make services other than fixed-route bus and rail projects eligible for Federal funds.

During the same period, Congress took action that put the transit program on an equal basis, in terms of organizational structure, with other Federal transportation programs. In 1966, Congress created the U.S. Department of Transportation (DOT), and, in 1968, the Urban Mass Transit Administration (UMTA). UMTA was lodged in DOT, and the transit program was transferred there from the Department of Housing and Urban Development. Although this move gave transit status as a permanent, independent program -- it was no longer merely an adjunct to the housing program -- the transfer marked the beginning of the program's gradual drift away from comprehensive planning and community development activities, to which it previously had strong ties.

EFFORTS TO EXPAND TRANSIT SUPPORT IN THE LATE 1960s

The 1966 amendments, followed by others in 1968 and 1969, raised the authorizations by $790 million and extended them through fiscal year 1971. The total commitment, therefore, was $1.165 billion over six years, for a potential spending average of just less than $200 million per year. Nevertheless, by the late 1960s there was a growing conviction that the Federal program was too weak to encourage many cities to make major commitments to new systems. Bond issues for new rail system plans developed under the UMTA program failed in 1968 in Los Angeles, Atlanta, and Seattle and again in 1970 in Seattle. Two causes were postulated: (1) the small size of the Federal program (each of these individual area plans was estimated to cost several times the annual national appropriations) , and (2) UMTA's inability to make a multiyear commitment.

The Institute for Public Administration, working for UMTA, extrapolated from planning underway at the beginning of the decade to estimate that a total capital expenditure for transit improvements of at least $35.6 billion and possibly $41.5 billion,

in current dollars, would be required during the period from 1970 to 1979. [1]/ The projections implied that UMTA would be called upon to finance as much as two-thirds of this amount, or up to $27 billion over the decade.

Congress began to consider two main options for providing this support. One possibility was to open up the Highway Trust Fund, established to finance the Interstate System and other Federal-aid highway programs in 1956, for transit use on a local choice basis. The alternative was to establish a separate transit trust fund.

Early. in the Nixon Administration, Secretary of Transportation Volpe endorsed and promoted the transit trust fund plan developed by James D'Orma Braman, then DOT's Assistant Secretary of Environment and Urban Systems. The proposal would have committed Federal automobile excise taxes to the new fund. The National League of Cities-U.S. Conference of Mayors and all the transit interest groups backed the plan and managed to obtain support from prohighway groups, who believed that the alternative was a "raid" on the Highway Trust Fund, which at that time was due to expire in 1972. [2]/ However, the Council of Economic Advisors and the Office of Management and Budget blocked the proposal in 1969 by arguing that it would limit the Administration's power to manage the economy.

The compromise worked out among all groups was the 1970 Urban Mass Transportation Assistance Act, which authorized $3.1 billion over five years and gave UMTA contract authority (i.e. power to obligate future appropriations), and a promise of $10 billion over 12 years. This meant a verbal commitment to spend about $850 million per year -- four times the authorizations of preceding years. However, no special fund was established and Congress retained authority for annual appropriations. [3]/

Even so, many transportation Professionals believed the 1970 act would rescue mass transit from the vagaries of the annual budget process. As former Secretary of Transportation Claude S. Brinegar wrote in a November 1974 article ~/, the

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1/ Institute of Public Administration “Estimates of Prospective Capital Investment in Urban Public Transportation" n.d., reprinted in House Appropriations Hearings F.Y. 1973, pp. 618-644.

2/ George M. Smerk, "An Evaluation of Ten Years of Federal Policy in Urban Mass Transportation,” Transportation Journal, Winter 1971, p. 46.

3/ Public Law 91-453,’ 15 October 1970.

4/ Automotive Engineering, Vol. 82, No. 10, November 1974; pp. 57-59, 69.

the $3.1 billion authorization brought mass transit into the "big leagues" of Federal funding. Early in 1971, however, the Office of Management and Budget (OMB) confirmed the transit industry's fears by setting the capital grant approval ceiling for fiscal year 1971 at, $269.7 million, plus a $57 million loan to the Washington Metropolitan Area Transit Authority (WMATA). The figure, obviously, was well below the $850 million figure the Urban Mass Transit Administration (UMTA) had told Senate and House appropriations committees it could obligate in fiscal year 1971.

ATTEMPTS TO OBTAIN OPERATING SUBSIDIES

Meanwhile more and more cities began to feel the need for Federal operating assistance. The impacts of inflation, popular demands to hold the line on fare increases, and rapidly increasing labor costs were keenly felt, particularly in metropolitan areas where there had been recent public takeovers. Spokesmen for these cities argued that operating assistance was needed to permit a necessary public service to continue. In response, Senators Williams and Percy introduced an emergency operating assistance bill in 1971 that would have provided $75 million a Year for five years to ease operating costs indirectly through payment of interest on loans to support operations. [1]/

The Nixon Administration strongly opposed direct operating assistance during this period. A November 1971 DOT report to Congress presented the spectre of an ever-growing heed or a "bottomless pit" for Federal operating assistance. Operating subsidies were expected to lead to high administrative costs and create incentives for inefficiency on the part of operators. [2]/

The initial alternative to operating assistance proposed by the Nixon Administration was transportation revenue sharing. The proposed plan would have provided approximately $2 billion per year by 1975, to be given to municipalities on an unrestricted basis for use in urban transportation. [3]/ This approach would have provided no special priority for public transportation over other transportation uses.

The alternative of tapping the Highway Trust Fund had not been discarded. Since 1968 the range of projects eligible

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1/ "Percy-Williams Measures Reintroduced," Passenger Transportation, Vol. 29, No. 9, February 26, 1971, p. 1.

2/ U.S. DOT, Federal Assistance for Urban Mass Transportation, November, 1971.

3/ I.R.T. Digest, September-October 1972, p. 18.

for Trust Fund support had been widened to include a few activities related to bus transit. In that year, the Federal-Aid Highway Act (PL-90-495) allowed cities with populations exceeding 50,000 to allocate highway funds to fringe parking demonstration projects. This program was based on a 50% Federal share. Federal-Aid Highway Act amendments in 1970 (PL-91-605) made preferential bus lane and fringe parking projects eligible for 50% Federal aid and raised the Federal share for these projects to 70% starting in July 1973.

The Highway Trust Fund issue was addressed more squarely in 1973, when a Federal-Aid Highway Act (PL93-87) was passed that opened the door for transit capital grants from the Highway Trust Fund. The 1973 act provided the option to use all Urban Systems funds (up to $800 million from the Trust Fund) for transit projects, as well as for highways, and to substitute transit capital projects for urban interstate highways. The same act increased the $3.1 billion UMTA contract authority to $6.1 billion and raised the Federal share of transit projects from two-thirds to 80% of "net project costs."

The new law came after more than a decade of effort by local governments who wanted to be able to exercise flexibility of choice among modes of urban transportation. According to Brinegar's article, as of fall 1974 the overall effect of the 1973 legislation had been to siphon off about 20% of otherwise allocated Highway Trust Fund monies to urban mass transit capital projects. By that time, according to Brinegar, Boston, New York, Philadelphia, and St. Louis had diverted $785 million of their interstate highway system money for mass transit uses.

However, the 1973 Federal-Aid Highway Act stopped short of addressing the operating subsidies issue. Bills for operating assistance passed both houses of Congress late in 1973 but died in conference after strong Administration opposition and promise of a veto. In his 1974 State of the Union Message, President Nixon again advocated special revenue sharing, with augmented funding. ~/

Shortly after this the Administration proposed the Unified Transportation Assistance Program (UTAP) , which would have consolidated the highway and transit programs in urbanized areas and provided a common 70% Federal share. Sixteen billion dollars in Federal assistance would have been available through UTAP for fiscal years 1975 through 1980. In the first year,

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1/ "Nixon Offers a Program for Progress," New York Times, January 31, 1974, p. 20.

$700 million in capital grants would have been disbursed at the discretion of the Secretary and another $700 million by a formula based on population. The second sum would be available for either capital neeeds or operating assistance at local option. Another $1.1 billion would be distributed by formula for capital improvements only. The annual amount would increase by 1980 to $2.7 billion. l\ This proposal would have provided much of the additional flexibility desired by transit interests -- local flexibility between highways and transit and between operating subsidies and capital projects.

THE NATIONAL MASS TRAMSPORTATION ASSISTANCE ACT OF 1974

UTAP was not destined for passage intact. In November 1974, after a long and complex legislative process involving issues of funding levels, allocation formulas, degree of state versus local control, and many others, the compromise National Mass Transportation Assistance Act of 1975 (PL-93-5C3) emerged. Although it draws heavily on the Emergency Commuter Relief Act introduced by Senator Harrison Williams and Congressman Joseph Minish, the act incorporates several aspects of UTAP, including a section of funds to be allocated by formula and a focus on urbanized areas as the planning and funding basis.

The National Mass Transportation Assistance Act of 1974 (PL-93-503)added a $4.825 billion authorization to the capital program, for total grant authority to date of $10.925 billion -- $7.825 billion of it unobligated as of spring 1975. UMTA was instructed to administer these funds on a discretionary basis between 1976 and 1980. Up to $500 million is reserved for capital assistance to rural transit programs.

The act added a new section (Section 5) to the UMTA Act of 1964 that authorized the allocation of $3.975 billion to cities in a block sum. The sum is calculated on a formula that takes into consideration both the population and population density of each metropolitan area. The formula grant money can be used either for operating costs, on a 50% Federal share basis, or for capital project costs, on an 80% Federal share basis.

Formula grant provisions in the Act result in an automatic subsidy of elderly and handicapped riders by requiring that these people be charged no more than half the normal fare during off-peak hours. The act also set aside $20 million in fiscal year 1975 and again in 1976 for a study of the advantages and disadvantages of “no fare” transit systems.

1/ A Study of Urban Mass Transportation Needs and Financing, U.S. DOT report to Congress, July 1974, p. I-12.

The Secretary is obligated to report back to Congress on this by June 30, 1975. The 1974 act also expanded the definition of facilities eligible for capital grants to include land and property in the vicinity -of the transit corridor that is needed to integrate transit with socially, economically, 'and environmentally sound patterns of land use.

In summary, from small beginnings in a program of demonstrations and loans, the Federal Government's involvement in urban transit has grown into a major financial commitment. While this step represents a major expansion of Federal support for public transit, the findings of the assessment indicate that a number of issues are still outstanding. The major issues among them are discussed in the following sections of this report.

PART II

METROPOLITAN DECISIONMAKING ISSUES

This part of the report compares the findings of separate assessments of transit planning and decisionmaking in nine metropolitan areas.&/ The following sections outline the assessment methodology and briefly describe each metropolitan area by way of providing-an introduction.

THE STUDY APPROACH

The Assessment of Community Planning for Mass Transit has been an inquiry into an evolving social process. The methodology for such an inquiry not only must be able to describe and analyze the many institutional, economic, political, and technical forces that shape the process but also must be capable of studying the 'changes that occur in these processes over time.

The study results, consequently, more closely resemble historical analysis than classical technology assessment. The information on which the assessment is based was drawn from interviews with major public and private participants in the planning process and from examination of key plans and documents.

The nature of this kind of investigation makes it difficult to develop explicit standards on which to base the evaluation of the experience of each metropolitan area. In examining planning for mass transit or any other type of transportation, the history of the setting in which the process occurs, the personalities of the different participants, and the interrelationships of local social and economic factors with happenings and trends in the national scene all come to play in different ways. General conclusions and trends can be drawn from a comparison of the metropolitan cases, but their experience is not susceptible to numerical evaluative measures.

1/ The findings of the case assessments are contained in detailed reports that have been prepared for each metropolitan area. These reports are contained in an appendix to this volume.

Nonetheless, the data collected in this study supported the formulation of alternative policies addressing major transit issues for Congress to consider. The findings yield guidance as to both the probable effectiveness of each policy option and the obstacles to its accomplishment.

This assessment employed a set of evaluation guidelines to orient the investigation in the nine metropolitan areas selected for study and to provide the basis for comparative judgments about them. The guidelines were developed following preliminary visits to the metropolitan areas that provided a general sense of the major issues affecting the transportation planning process. The guidelines were derived in light of these issues, a review of Federal requirements for transit planning, and an investigation via the literature into the state-of-the-art in the field.

The evaluation guidelines covered major topics for investigation during the case assessment process. They dealt with the character of the institutional arrangements, the conduct of the technical planning process, and the influence of financing policy on transit decisionmaking.

During visits to each of the nine metropolitan areas, the study team interviewed the principal representative of the transportation planning institutions and other main participants in the local planning process. The visits were supplemented by interviews with UMTA officials in Washington. Pertinent documents--official plans, reports, studies, and other material--were reviewed in each case.

The information thus collected was used in compiling a history of the transit planning process in each case area, organized around key decisions, such as the decisions to study transit, the selection of a particular transit system, and public ratification of the decision to pay for and build the system. The main political, institutional, financial, and technical characteristics affecting the conduct of the planning process were then assessed against the specific guidelines.

The same set of guidelines used in assessing each ‘case metropolitan area was employed in making a comparative evaluation of the metropolitan experience. The comparative evaluation allowed insight into lessons learned from the metropolitan case assessments. These findings are compiled in the three chapters in this part of the report. Each chapter corresponds to one of the three categories of evaluation guidelines: Institutional Context, Technical Planning Process, and Financing for Public Transportation.

DESCRIPTIONS OF THE NINE METROPOLITAN CASES

Special care was taken in choosing the metropolitan areas to be studied. As explained earlier? the nine cities were selected because they are characteristic of different stages in the long process of planning, engineering, building, operating, and modernizing a rail transit system. These stages are: (1) planning new extensions to long-established rail rapid transit systems (Boston and Chicago) or a recently completed transit system (San Francisco); (2) constructing new rapid transit systems (Washington, D.C., Atlanta), or awaiting Federal approval to begin final design (Denver); (3) conducting a transit system planning effort with no system selection decision to date (Minneapolis-St. Paul) or after repeated setbacks at the polls (Seattle, Los Angeles).

Although the entire history of transit planning in each case was examined, the fact that they represented different stages in the planning process offered two distinct advantages. First, at each stage different issues arise and different decisions have to be taken by policymakers. By selecting metropolitan areas whose current or recent status of transit planning fell into different stages, the study team could be assured of the opportunity to interview key participants in each case whose memories of the events under study were still fresh and who often might still be active in the process. Second, the approach allowed the team to study how the same kind of decision was made at different points in history and thus to better understand how changes in Federal policy and the planning state-of-the-art affected the decisionmaking process.

The following descriptions summarize the status and focus of transit planning in each of the cases and briefly describe their population and transportation characteristics. The accompanying tables (See Table 4, Table 5) show contrasts and similarities among the metropolitan characteristics and place the nine cases in the broader context of the nation's 33 largest SMSAs.

TABLE 4: COMPARATIVE METROPOLITAN CHARACTERISTICS NINE SMSA's

	Population (000s) 1970	Density (people per square mile) 1970	% Change Population 1960-1970	Land Area (square miles) 1970
Atlanta SMSA	1,390 20	804 18	36.7% 7	1,720 24
Center City	496	3,779 26	1.8%	131.5
Suburban Ring	894	560	68.7%	1,596.5
Boston SMSA	2,754 8	2,791 3	6.1% 31	987 30
Center City	641	13,936 5	-8 .1%	46
Suburban Ring	2,113	2,245	11.3%	941
Chicago SMSA	6,979 3	1,077 6	12.2% 23	3,719 10
Center City	3,369	15,136 4	-5.1%	222.6
Suburban Ring	3,609	1,032.3	35. 2%	3,496.4
Denver SMSA	l,228 27	335 29	32.1% 9	3,660 8
Center City	515	5,406 23	4.2%	95.2
Suburban Ring	713	200	63.7%	3,564.8
Los Angeles SMSA	7,037 2	1,729 8	16.5% 17	4,069 7
Los Angeles	2,810	7,364 20	13.3%	463.7
Long Beach	359	6,059 16	4 .2%	48.7
Suburban Ring	3,869	1,088	20.3%	3,556.6
San Francisco SMSA	3,108 6	1,253 11	17.3% 16	2,480 15
Center City	716	15,764 2	-3 .3%	45.4
Suburban Ring	3,392	983	25. 4%	2,434.6
Seattle SMSA	1,422 17	336 28	28.4% 12	4,226 5
Center City	531	6,350 19	-4.7%	83.6
Suburban Ring	891	216	63.0%	4,142.4
Twin Cities SMSA	1,814 15	860 15	22.4% 14	2,108 20
Minneapolis	434	8,135 14	-l0.0%	53.4
St. Paul	310	5,935 21	-1.1%	52.2
Suburban Ring	1,070	534	56.0%	2,002.4
Washington, D.C. SMSA	2,862 7	1,216 12	37.8% 6	2,353 16
Center City	756	12,321 6	-1.0%	61.4
Suburban	2,106	919	60.4%	2,291.6

[ ] Rank among 33 most populous SMSAS.

[1]There figure reflect the annexation of 27 miles by Denver City between 1960-1970.

-Source: Urban Transportation Fact Book, American Institute of Planners and Motor Vehicle Manufacturers of the U.S., Inc., March 1974.

A Standard Metropolitan Statistical Area (SMSA) includes a center city (or cities) , usually with a population of at least 50,000, plus adjacent counties or other political divisions that are economically and socially integrated with the central area.

TABLE 5: COMPARATIVE METROPOLITAN TRAVEL CHARACTERISTICS 1960-1970

City	Work Trip Distribution 1970		% Change Work Trip Distribution 1960-1970		Work Trip Mode 1970		% Change Work Trip Mode 1960-1970	
	to city/to suburb		To city/to suburb		auto/transit		auto/transi	
Atlanta SMSA '							82%	-20%
City Residents (13)	27%	7%	-14%	171%	71%	21%	34%	-23%
Suburban Residents	28%	38%	64%	117%	92%	3%	113%	- 98
Boston SMSA							34%	- 9%
City Residents (12)	18%	5%	-18%	14%	44%	38%	13%	-14%
Suburban Residents	20%	57%	1%	21%	74%	14%	38%	5%
Chicago SMSA							46%	-13%
City Residents (6)	39%	8%	-20%	132%	53%	36%	18%	-17%
Suburban Residents	14%	39%	8%	61%	78%	11%	71%	4%
Denver SMSA							61%	-37%
City Residents (26)	36%	7%	0%	79%	80%	8%	28%	-43%
Suburban Residents	24%	34%	72%	83%	89%	2%	94%	2'
Los Angeles SMSA							32%	-21%
[1]/ City Residents (25)	34%	12%	1%	41%	82%	9%	30%	-21
Suburban Residents	17%	37%	6%	26%	89%	3%	34%	-24
San Francisco SMSA							33%	1
City Residents (8)	31%	5%	-12%	29%	56%	30%	18%	-9
Suburban Residents	19%	45%	32%	22%	84%	7%	37%	19
Seattle SMSA							50%	-19
City Residents (21)	35%	6%	- 2%	- 3%	74%	15%	11%	-21
Suburban Residents	21%	38%	7a%	64%	90%	2%	88%	- 4
Twin Cities SMSA							52%	-16
~/cit, Residents (8)	340	8%	-19%	180%	69%	17%	a%	-20
Suburban Residents	25%	33%	48%	114%	89%	3%	99%	-3
Washington, D.C. SMSA							84%	4
City Residents (5)	20%	5%	-18%	44%	49%	36%	22%	8
Suburban Residents	25%	50%	28%	129%	83%	8%	lo?%	34

[1]Los Angeles and Long Beach. [2]Minneapolis and St. Paul.

Source: Urban Transportation Fact Book, American Institute of Planners, Automobile Manufacturers Association of the U.S., Inc., 1974.

A Standard Metropolitan Statistical Area (SMSA) includes a center city (or cities) , usually with a population of at least 50,000, plus adjacent counties or other political divisions that are economically and socially integrated with the central area.

Boston

Boston is the nation's eighth largest metropolitan area and its third most densely settled. Its rapid transit system is one of the oldest and most extensive in the country and includes the first subway in the United States, built in 1897.

The Boston area developed an ambitious plan for a radial-circumferential expressway system and suburban rapid transit extensions in the 1950s and early 1960s. In the wake of an explosive reaction to these plans, a moratorium was called on most of the expressways in the early 1970s and, as a result of the Boston Transportation Planning Review, the first transfer of interstate highway funds to transit was achieved. A major new commitment to transit improvements has been made with more emphasis on improving inner-city services and reconstructing aging transit facilities.

Boston's center city lost population at an 8.1% rate between 1960 and 1970. Suburban population grew at a modest pace of 11.3%. Although it has a relatively high percentage of both suburban and city transit riders (14% and 38%, respectively), transit ridership declined by 9% in the Boston SMSA between 1960 and 1970.

Boston has received the second highest total amount of UMTA transit assistance among the nine case metropolitan areas.

Chicago

Like Boston, Chicago is a densely populated, large metropolitan area with a longstanding transit system. It ranks third in population and fourth in density in the nation.

The Chicago area has had a long history of master planning of transit and highway systems with successful implementation and competent management of operations. Most recently, emphasis has focused on (a) coordinated rail extensions within expressway corridors, (b) the successful establishment by referendum of a new Regional Transportation Authority, with taxing power, to coordinate all services and to provide new services where needed, and (c) efforts to plan, design, and finance a new subway to replace the elevated rapid rail line defining Chicago's downtown "loop." The new subway would serve as the rejuvated heart of the regional rail system and link all elevated, subway, and commuter rail lines with all of the hiqh-density central business district activities.

Chicago experienced a decline of over 5% in center city population between 1960 to 1970, while suburbs grew by 35%. The suburban growth was reflected in a more than doubling in the number of city-to-suburb "reverse" commutes. Intrasuburban trips also grew, by 61%. During the same period, transit ridership declined in the SMSA at a 13% rate. The level of UMTA support to Chicago transit programs is third highest among the nine metropolitan cases.

San Francisco

San Francisco, the nation's sixth largest metropolitan area, 'ranks eleventh in density. Its transit system is the first new regional system put into operation* in recent years.

The 1974 opening of the last link in the San Francisco Bay Area Rapid Transit system, the tube under the Bay, climaxes more than 20 years of system planning and implementation for the largest single urban transportation development project completed to date in U.S. history. More has been written about this process than almost any urban planning project, providing a wealth of lessons for other areas. Interesting planning issues include local versus regional control of transit development, the conduct of BART extension studies, coordination of BART with several other well established transit systems in the Bay Area, and the establishment of the Metropolitan Transportation Commission with authority to veto projects of regional consequence and to allocate transit development funds among the many transit operators of the region.

San Francisco's center city lost 3.3% of its population between 1960 and 1970, while its suburbs grew by more than 25%. Intra-suburban, suburb to city, and city to suburb work trips all increased. The fastest growth rate, 32% occurred in trips to the city from the suburbs. While auto use increased 33% in the SMSA, transit ridership barely held steady.

San Francisco has received more UMTA support than any other of the nine metropolitan cases.

Washington, D.C.

Washington follows immediately behind San Francisco in both population size and population density, ranking seventh in population and twelfth in density among the nation's largest metropolitan areas.

The Washington Metropolitan Area Transit Authority is within a few months of opening the first section of what may eventually be the largest single urban transportation development program in U.S. history, if the area can find a way to refinance the .$2 billion cost overrun. Almost 20 years of intensive technical planning studies have included highly sophisticated in-depth analytical work. Most of the serious consideration of alternative systems was carried on Within a complex Political and institutional framework peculiar to the capital, involvin$_g$ Congress and the various ad hoc and standing agencies of the Federal executive branch. A variety of interesting issues have been associated with implementation of the system: route locations, improved service to the inner city, joint development around stations, potential extensions, and the complexities of multistate and local financing.

Washington was among the nation's' fastest growing areas between 1960 and 1970, ranking in sixth place. The center city lost a bare 1% of its population, but suburbs grew by over 60%. This relatively high suburban growth rate led to an increase of 129% in intrasuburban work trips. The region showed the largest increase in transit ridership among the nine cases, although the figure was only 4%.

Atlanta

Atlanta has less population than any other area studied except Denver, and only the Denver and Seattle areas are lower in density. Even so, planning of its regional transit system was begun relatively early, in 1960.

Groundbreaking for Atlanta's 40-mile regional system took place in February. The planning history has been strongly influenced by two factors. First, a business-oriented power-elite with a mission to make Atlanta a focus of international business activity played the dominant role in Atlanta transit decisionmaking. Second, there was a close correspondence between the timing of the planning effort and the evolution of Federal transit programs, which meant that Atlanta always expected to be the first major recipient of UMTA funds for a new regional system.[1]/

1/ Construction had begun on BART before it received Federal assistance; Atlanta expected to have the first new system to be supported by UMTA funds from the start.

The recent activities in Atlanta have centered on whether or not the transit system would receive UMTA support, and how much.

The Atlanta region grew at a relatively fast pace between 1960 and 1970, second only to Washington among the nine cases. Changes in travel patterns reflect a 117% increase in intrasub-urban work trips and a 171% growth in work trips from the city to the suburbs. The percentage of suburban residents who drive to work--92%--is highest among the metropolitan cases. Transit use declined by 20% in the region between 1960-1970.

Denver

Denver ranks near the bottom of the large SMSAs in population and density and is the least densely populated area among the nine cases. It is served by a regional bus system and has requested UMTA support to begin final design and construction of a first link in a regional rapid transit system.

Denver took steps to become the first region in the nation to build an advanced technology rapid transit system. In 1973, voters approved a sales tax levy to permit further work on a tentatively defined personal rapid transit system. At that point, UMTA inter-vened to require a more thorough analysis of alternatives, and Denver responded 'with a proposal for an automated rapid transit system that could build in demand-responsive features. The entire process has been characterized by close cooperation between regional transit planners and land use planners.

Denver's population gained at a relatively fast pace (over 32% between 1960 and 1970. The number of work trips grew as well, and at a particularly rapid rate between suburban origins and destinations (83%) and from the city to the suburbs (79%). Relatively more workers commute by auto in Denver than in any of the cases except Los Angeles, and it has the lowest rate of transit use. The region lost transit riders at an overall rate of 37% between 1960 and 1970.

To date, Denver has received the smallest amount of UMTA financial support among the nine cases.

Seattle

Among the nine metropolitan areas only Denver is less densely settled than Seattle, and it ranks seventeenth in pop-ulation among the nation's largest SMSAs. It operates a regional bus transit system that includes several lines of trolley buses.

The double defeat of the proposed Seattle rail system in 1968 and 1970 was followed by a successful referendum in 1972, which provided new regional taxes and authority to take over the regional bus system and to implement the short-range bus transit improvement program. Cautious efforts are underway to initiate new long-range system planning for fixed guideway transit, considering a wider range of technologies and system configurations.

Seattle's center city declined in population between 1960 and 1970, while the suburbs grew by 63%--the third fastest rate among the nine cases. Work trips originating in the suburbs grew significantly, while city commuters declined in numbers. A high 'percentage of the area's workers drive, and their ranks doubled between 1960 and 1970. The number of transit commuters fell 19% over the same period.

Los Angeles

Los Angeles, second largest metropolitan area in the United States in terms of population, has a center city that is less densely populated than any of the case cities except Denver and Atlanta. Although it is a region known for sprawl and smog, Los Angeles once supported the nation's most extensive interurban streetcar system.

The Los Angeles area has experienced two defeats of very ambitious fixed-guideway system plans, in 1968 and 1974. Planning for the last of these two referenda brought to sharp focus the issues of local versus regional service and control, the incremental approach to implementation versus the grand long-range master plan, and the need to carefully evaluate a range of alternative technologies and system configurations. Los Angeles now wrestles with changes in its planning process and institutional structure as it moves toward a first-stage implementation of some type of fixed guideway system.

Between 1960 and 1970, both the suburban areas and the two cities in the Los Angeles SMSA (Los Angeles and Long Beach) gained population at a moderate pace. Changes in distribution of work trips saw relatively high growth in intrasuburban and city-to-suburb trips. Auto use grew both in the cities and in the suburbs, while transit ridership declined by 21%.

Minneapolis-St. Paul

Minneapolis-St. Paul/ or Twin Cities, falls midway down the list of large SMSAs in terms of population and density. The area has taken a strong interest in transit improvements over the past decade and a half, as is witnessed by the trend-setting Nicollet Mall transitway that was opened in Minneapolis in 1965.

Twin Cities is the only one of the nine cases that has not yet officially proposed a fixed guideway transit system. Planning bodies in the region have been engaged in system planning studies since 1967. At present there is debate among proponents of a conventional rapid rail transit system, supporters urging utilization of advanced technology such as a group rapid transit concept, and others who argue for placing emphasis on community-level service and policies to promote fewer and shorter trips.

Twin Cities suburbs gained in population between 1960 and 1970, but their two central cities both suffered losses. Significant gains occurred in work trips within the suburbs and from the two cities to suburban destinations. All the increased travel was accommodated by automobiles, whose users nearly doubled in number between 1960 and 1970. Meanwhile transit use declined at an overall rate for the region of 16%.

Next to Denver, Twin Cities has received the smallest portion of UMTA funds among the nine cases.

Summary

The nine case metropolitan areas vary widely in status of transit system planning and operation and illustrate a range of population and travel pattern characteristics. However, each of the case metropolitan areas experienced a more rapid rate of growth in their suburban areas than in their central cities between 1960 and 1970, and in six of the nine cases, central city population fell. The pattern of suburban growth was accompanied by a surge in auto work-trip travel--ranging from a low of 32% to 84%--and a corresponding decline in transit use in all case regions except Washington, D.C. and San Francisco.

These changes in population distribution and travel patterns can be correlated with the national decline in transit ridership and corresponding decrease in operating revenues. The situation underlines the difficulties the nine metropolitan area cases, and many other U.S. cities, have been facing in the course of planning new or improved transit systems--and it points to the urgency of the reasons for doing so.

CHAPTER 3

INSTITUTIONAL CONTEXT FOR TRANSIT DECISIONMAKING

The metropolitan cases examined in this study adopted a variety of institutional arrangements for urban mass transportation planning and decisionmaking. These arrangements have been shaped by the historical setting of each case, local politics and institutional factors, and Federal legislation and administrative requirements. Despite the variations that exist among the metropolitan cases, their common experience underscores a number of issues that have affected the planning and decisionmaking process.

During the past two decades a fundamental shift has occurred in the institutional character of the process. With the decline of the private transit industry, the role of the public sector has come to dominate the transit field. On the local level, there has been a vast increase in the number of public authorities in district planning, developing, and operating mass transit systems. On the Federal level, there has been a major increase in the level of Federal assistance to localities for mass transit.

The Federal policy, procedures, and regulations accompanying this assistance have emphasized a distinctly regional approach to urban transportation decisionmaking. The intent of current Federal policy is that planning should be done by -- and planning funds should go to -- a single Metropolitan Planning Organization, representative of all the political jurisdictions in the urban area. By executive branch requirement, all capital project and technical study grant requests are also subject to review by a single areawide agency. This chapter discusses the inadequacy of most regional planning organizations, as they are presently structured, to deal effectively with more localized needs and concerns.

Along with this regional orientation Federal policy also has sought to promote multimodal planning and a greater integration of transportation planning with other metropolitan policymaking and planning functions. Achieving a more closely integrated relationship between transportation and land-use planning has been one of the canons of policy for some time. Likewise, Federal policy has sought to achieve an integrated, multimodal approach to urban transportation planning in order to bring mass transit, highway, aviation, and other modal agencies into an integrated regional forum for decisionmaking.

One of the central issues discussed in this chapter is the inability of Federal policy to accomplish either of these latter

two objectives. Neither effective integration of highway and transit planning nor meaningful coordination between transit and land use decisionmaking has yet occurred except in a limited way.

Instead, partly due to their emphasis on regionwide planning and partly due to a combination of other reasons, Federal policy and programs have given rise to an institutional structure for transit decisionmaking that often lacks the political or statutory authority to develop and carry out responsive and effective programs. Most of the organizations that have been created or designated to assure multimodal and multifunction coordination do not have the statutory power to finance or administer the programs they plan. Thus, in spite of Federal requirements, transit decisionmaking responsibility remains fragmented among regional and local agencies of government. The resulting competition and confusion makes it difficult for the public to identify the public officials and institutions responsible for the process and hold them accountable for their actions.

This chapter describes these issues more extensively. Following a general review of the generic institutional structure and the evolution of the Federal role, the basic guidelines that shaped the assessment are defined and the experience of the metropolitan areas is reported.

GENERAL GUIDELINES FOR METROPOLITAN ASSESSMENT

The institutional context for transit planning and decisionmaking was assessed according to a number of broad guidelines. These guidelines were derived by examining the general characteristics and functions of the types of partipating organizations in light of Federal legislative and administrative requirements and current planning theory.

Basic Elements of the Institutional Structure

The variety of institutions that participate in the decisionmaking process for mass transit include Federal, state, and local governments, as well as special purpose units of government and coordinating agencies. The participants in. the metropolitan decisionmaking process interact through policymaking and technical coordination committees tied together by statutes or formal agreements.

Organizations. The principal organizations on the regional level are Metropolitan Planning Organizations and special purpose metropolitan transit authorities. The Metropolitan Planning Organizations (MPOs) are set up to meet Federal requirements for linking the transit authorities (and special purpose organizations) with areawide comprehensive planning. Local and state

governments also play an important role in metropolitan transit decisionmaking.

Metropolitan Planning Organizations. Most MPOs are regional councils of government or metropolitan planning commissions. These organizations usually have responsibility for areawide comprehensive planning and for reviewing areawide applications for all Federal grants. In the past, most transportation planning was done by other agencies, and in some cases this practice has been continued. Recent Federal legislation has given these bodies increasing strength, and they may begin to play a more significant role in developing integrated regional multimodal work programs than they have in the past.

Metropolitan transit agencies. Created by state legislation, metropolitan transit authorities or special districts usually are empowered to plan, design, construct, and operate transit systems. The number of these special purpose authorities has increased with the widespread public acquisition of transit properties. Many of the responsibilities of transit operating authorities overlap to some degree with those of the Metropolitan Planning Organizations. However, the operating authorities are more involved with day-to-day problems and are often limited in their authority to plan and to finance the implementation of significant new capital facilities.

Local governments. The role that local municipal governments play in the transit planning and decisionmaking process varies. Traditionally, the large central cities whose leaders first promoted rapid transit systems have played a commanding role, but the growth of suburban areas has eroded the influence of the center city. Nevertheless, several ma]or cities still control transit operations, while municipal powers over land use and traffic management also make local governments important participants in the process.

State governments. Traditionally state governments have played a key role in the urban transportation planning process through state highway departments. In recent years, a greater number of states have established departments of transportation (DOTS) with mandates for multimodal transportation policymaking and planning, and, in a few cases, transit operations. As the state role in providing financial assistance to localities increases, state DOTS will have more leverage over local and metropolitan areas.

Responsibilities. The following paragraphs briefly describe the key responsibilities of the different agencies involved in transit decisionmaking. Some functions typically are shared by several agencies; others usually are assigned to one organization. The pattern varies in every metropolitan case.

Comprehensive planning. This responsibility usually is shared by the areawide planning agency and local city, town, and county governments. While the powers that the areawide agency holds over the local governments may vary it usually is limited to coordinating local land use plans while actively pursuing plans for regional services (sewers, water, health, and other programs). There-is some give and take over housing, schools, transportation, and other issues of both local and regional significance, although the importance of the regional role is becoming more widely recognized.

Long-range regional transportation planning. The areawide planning agency and/or another Federally designated body usually takes responsibility for formulating regional, multimodal transportation plans. Components for that plan often are developed by the state, transit authorities, and/or local units of government.

Transit system planning. Areawide transit planning usually has been the responsibility of special purpose transit agencies. When this is the case, transit plans become subelements of long-range regional comprehensive plans and transportation plans. In some regions, the transit planning function is performed by areawide planning organizations.

Transit programming. Transit programming -- setting priorities among projects, developing schedules, and budgeting -- is a pivotal activity. Like transit planning, it traditionally has been done by transit agencies, but in recent years areawide planning organizations have begun assuming this responsibility.

Highway programming. Responsibility for scheduling and budgeting urban highway projects traditionally has been lodged in state highway departments, although regional planning organizations have played a bigger role in recent years.

Transit financing. Decisionmaking responsibilities for transit financing are held by those agencies and units of government with authority for operating and for raising funds for transit projects. Power for taxing, bonding, and expenditure of Federal funds usually is held by transit authorities or special districts, the state, and local governments. Increasingly Metropolitan Planning Organizations are becoming involved in finance policy by virtue of their function as the regional channel for Federal transit funds.

Final. design, implementation, operation, and maintenance. Once a project is planned and programmed, and financing has been arranged, the final design, construction, operation, and maintenance functions are the responsibility of transit authorities or of local government. Transit improvements requiring changes in traffic management and parking, for example, are the domain of local governments.

Urban development implementation and land use controls. Although UMTA does not require these functions to be part of transit decisionmaking, the relationship between transit and land use development is widely considered to be a critically important consideration. In most areas, local governments

possess the basic land use controls, but in some cases regional commissions are developing review powers over land use planning.

Federal Legislation and Administrative Regulations

The amount of Federal legislation that has some bearing on the institutional context for mass transit decisionmaking is considerable. Some of these policies and requirements have been discussed in earlier sections of the report. Others include the specific laws and programs relating to areawide comprehensive planning, housing, air pollution, relocation assistance, elderly and handicapped provisions, transportation research and development, and civil rights. In one form or another all these can directly or indirectly affect the procedures of the planning process.

The Federal legislation and requirements discussed in this section have a direct bearing on the institutional context for urban transportation planning and development process. Within the past two decades, Congress has taken steps to centralize local planning efforts within regional organizations. The Federal Government also has attempted to structure the institutions to maximize cooperation between transit and highway planning, and between these transportation functions and other areawide planning functions. Finally, the Federal Government has developed more detailed requirements to enhance the accountability of the decisionmakers to the public and to strengthen community participation in transportation planning.

Forum for decisionmaking. Federal policy has encouraged a regional framework for transit planning in order both to improve coordination between planning functions and to give all affected jurisdictions a voice in making decisions whose impacts cross jurisdictional boundaries.

When transit money for capital costs first became available through the Urban Mass Transportation Act of 1964, no requirements for organizational structure were specified in the law. The administering agency, which at that time was the Housing and Home Finance Agency, had to determine only two general facts about an applicant to approve the application: (1) did it have the legal, financial, and technical capacity to carry out the proposed project; and (2) would it exert satisfactory continuing control over the use of the facilities and equipment.

The Urban Mass Transportation Administration Planning Requirements Guide of February 1966 elaborated on the directives of the act. The guidelines list criteria for relating the transportation function to areawide comprehensive planning, as is described in the subsection on coordination among organizations. They also indicate that whenever possible transportation planning should be the responsibility of the same agency carrying on comprehensive planning for the urban area.

Section 701 of the Housing and Urban Development Act of 1965 put teeth into the regional planning concept by requiring that planning grant allowances "for the solution of metropolitan or regional problems" should be distributed only to "organizations composed of public officials. . .representative of all political jurisdictions within a metropolitan area or urban region. . . ."

Several Federal acts in recent years have recognized the need for coordinating the planning and development of burgeoning metropolitan and urban activities. The most important acts are the Federal-Aid Highway Act of 1962; the Demonstration Cities and Metropolitan Act of 1966, and the Federal-Aid Highway Act of 1973.

The Federal-Aid Highway Act of 1962 established a significant provision for coordinating highway planning and development with other metropolitan planning activities in urbanized areas of more than 50,000 population. Section 134 of the act required highway projects to be based on a "continuing, comprehensive transportation process. . carried on cooperatively by state and local communities.. .." This provision is often called the 3-C planning requirement. It resulted in the creation of new planning organizations to certify that regional transportation planning conformed to the 3-Cs.

The Urban Mass Transportation Act amendments in 1966 required technical studies for urban mass transportation projects to fit into "a unified or officially coordinated urban transportation system" which was, in turn, part of the comprehensive development plan of the urban area.

The UMTA planning requirements guide also mandated an areawide approach. Legislation for Demonstration Cities and Metropolitan Development in late 1966 (Section 207) reinforced the concept of regionwide coordination by requiring an areawide planning agency to certify that regional transportation projects are consistent with an official comprehensive plan acceptable to state, regional, and local governments. Somewhat redundantly for transportation planning, the Intergovernmental Cooperation Act of 1968 extended the requirement to all Federally assisted projects. , Guidelines for the clearinghouse-type grant review process were provided by the Office of Management and Budget's Circular A-95 three years later, in 1969.

Circular A-95 is to date the single most important statement of Federal policy regarding comprehensive planning for metropolitan areas. The A-95 process requirements specify important interrelationships for information exchange between planning organizations.

The Federal-Aid Highway Act of 1973 expressed the intent of Congress to encourage better coordination of the various transportation services within each city. To implement that policy, in September 1975 the administrators of the Federal Highway Administration and UMTA issued joint regulations requesting governors to designate a single Metropolitan Planning Organization in each metropolitan area for receipt of available planning funds. [1]/ Accompanying the letter were guidelines stating that:

- The agency should be a metropolitan organization responsible for continuous comprehensive planning (including transportation).
- The agency should have sufficient resources to coordinate the development and monitor the execution of a unified work program for all transportation planning activities, and to produce short- and long-range transportation service and capital improvement programs for the area.
- The agency should be the same organization performing the functions established in accordance with Circular A-95.

This joint communique was one of the steps planned by UMTA and FHWA to work cooperatively in establishing a coordinated approach to the new urban planning process. Most of the designated Metropolitan Planning Organizations (MPOs) are now receiving funds. Ultimately, the agencies seek to achieve a unified, integrated multimodal transportation planning process.

Since the passage of the National Mass Transportation Assistance Act of 1974, the importance of the MPOs has increased, as they may be the recipients of new Section 5 funds (for optional use to meet operating or capital costs) channeled by UMTA through the states.

Accountability of decisionmakers. UMTA's 1966 guidelines also outline who should be represented on the planning body. These requirements reflect the earner provisions of Section 701 of the Housing and Urban Development Act of 1965.

1/ Draft regulations were published in November 1973, and by the time of final publication most metropolitan areas had designated a Metropolitan Planning Organization. The final regulations appeared under the title "Planning Assistance and Standards: Urban Transportation Planning" in the Federal Register, Vol. 40, No. 181, September 17, 1975.

As explained, the UMTA guidelines specify that local units of general government should be represented on the planning body receiving funds. The quidelines require elected officials or their appointees to provide the representation. Recent provisions outlining the requirements for the designation of MPOs reinforce UMTA's commitment to seeing that local elected officials are adequately represented on the decisionmaking body.

Public involvement. The 1966 guidelines call for involving transit agencies or operators, state and local transportation and planning agencies, and major private interests in the planning process through technical or special advisory committees.

The National Environmental Policy Act of 1969 provides for citizen and public agency review of all major Federally sponsored projects, including transit projects. The environmental impact statement and review process gives the public and governmental agencies the formal opportunity to comment upon all aspects of a project's effect on the environment.

Recent UMTA guidelines also call for commomity participation through official public hearings. . 'Specific statutory requirements for public hearings are contained in the Urban Mass Transportation Act of 1964, as amended in 1970. These provisions formally tie together the environmental assessment and public input aspects of the planning process.

None of the statutory requirements of administrative regula-.tions spell out how to put citizen participation into practice. UMTA guidelines, including the recent proposed policy [1]/, emphasize the importance of obtaining community input in the early stages, but there are no specific directives for doing so.

In summary, these Federal statutes and administrative guidelines have shaped the organizational structure of urban transportation planning. They either explicitly mandate the participation of specific actors and agencies or require a particular structure in which specific program responsibilities can be accomplished.

Guidelines for Metropolitan Evaluation

In evaluating the various metropolitan, local, and state institutional structures for transit decision-making, a number of general guidelines were applied. These guidelines, listed below, were derived from Federal eligibility requirements and a review of institutional characteristics that would promote continuous, cooperative, and coordinated planning and decisionmaking in an efficient and timely manner. These guidelines help illuminate the variations and problem areas among the cases.

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1 / "Proposed Policy on Major Urban Mass Transportation Investments, Urban Mass Transportation Administration, Federal Register, vol. **40**, No.. 149, August 1, 1975.

The forum for decisionmaking should be clearly designated and should involve all relevant public agencies. The institutional structure has been examined to determine the extent to which responsibilities of each participating institution have been stated at all levels of planning and implementation. Inter-agency coordination should include other local, state, and regional agencies as appropriate to provide the necessary policy and technical information. Cooperation with comprehensive land use planning bodies is particularly important. The relationship of these agencies within the decisionmaking forum should be cooperative, not negatively competitive.

Decisionmakers should have authority and responsibility. The participants operating in the forum should have properly designated decisionmaking authority, and the public should have formal channels for holding decisionmakers accountable for their actions. Under some circumstances, direct election of decisionmakers may provide a greater degree of accountability. planning agency boards filled by elected officials from local governments are more directly accountable bodies than those with boards composed of appointed local officials or private individuals.

The general public should be effectively involved. Citizens should participate in the transit planning process from its beginning and should have open lines of communication with final decisionmakers. A responsive process includes representatives of all interested and affected groups including the business and financial community, labor organizations, environmental groups, representatives of the handicapped and the elderly, and the citizens of impacted neighborhoods. The planning and design program should be structured in such a way that citizens can have an input into the formulation of goals and objectives and the evaluation of alternative transportation solutions. Direct communication with decisionmakers should be possible throughout the process, and the decisionmakers should not rely exclusively on public hearings to provide citizen input.

METROPOLITAN EXPERIENCE

This section examines the institutional structure for decisionmaking in the nine metropolitan cases. The evaluation is subdivided into categories corresponding to the guidelines discussed above.

Forum for Decisionmaking

During the last decade Federal policy has fostered a distinctly regional approach to urban transportation and decisionmaking. Recently this orientation has been coupled with an effort to achieve a more unified multimodal planning process that would be closely coordinated with areawide comprehensive

planning. However, the institutional devices that the nine metropolitan areas have adopted in response to them are distinguished by their compliance with the form rather than the substance of the law.

Although the forums for decisionmaking in most of these metropolitan areas are designated clearly in a formal or official sense, the real process of decisionmaking is characterized by a lack of clearly specified responsibilities for policymaking, planning, and implementation and a considerable amount of competition for these functions among regional, local, and state agencies. The institutional mechanisms devised by each metropolitan area reflect the interplay of these competing forces.

The Metropolitan Planning Organization forum. In four of the metropolitan cases, the principal forum for decisionmaking is provided by the traditional council of governments or regional planning commission. In Twin Cities, Atlanta, Seattle, and Los Angeles, local governments and modal agencies negotiate agreements on regional transportation policy inside the boardrooms of these agencies or within their subcommittees. The four agencies are the official Metropolitan Planning Organizations (MPOs) in their respective regions.

Among the nine cases, these four forums, with the land use planning organization in nominal command, adhere most closely in structure to the Federal guidelines for MPOs. In theory, this type of institutional. structure offers the possibility for integrating comprehensive areawide development policy and plans, including long-range regional transportation plans, with mass . transit planning and project implementation.

As the following examples illustrate, however, the division of responsibilities is not always so neatly drawn, and competition exists over policymaking and priority-setting responsibilities. In addition, because most Metropolitan Planning Organizations do not have statutory authority to raise funds and implement projects, they often are at a disadvantage in relation to special purpose transit operating agencies.

Minneapolis - St. Paul. Minneapolis - St. Paul offers an example of a relatively clearly defined decisionmaking structure. In 1974, the state legislature acted to clarify the responsibilities of the two main actors in the transit field, the Metropolitan Council (the MPO and A-95 agency) and the Metropolitan Transit Commission. The Metropolitan Reorganization Act of 1974 directed the Metropolitan Council to prepare a comprehensive development guide for the area. The guide was to include policies for all forms of transportation and constitute a policy

evaluation framework for reviewing the plans and programs of the Metropolitan Transit Commission (as well as the-other areawide commissions) . In turn, the Commission was required to prepare a transportation development program that implements the Metropolitan Council's policy plan. This explicit relationship sets mass transit plans and priorities firmly within the context of overall metropolitan growth and land use policy and draws the distinction between "policy decisions" and "technical decisions."

However, full resolution of past conflicts between the two organizations will not occur until the present process of selecting a transportation development program is worked out. The Commission has developed several plans for automated fixed-guideway transit systems, while the Council has supported a regional bus system. The Commission argues that the choice involves a "technical decision" and therefore is the Commission's prerogative; the Council says it is a question of policy and therefore should be decided by the Council.

Atlanta= In Atlanta, the forum for transit planning also is distinguished by a relatively close integration of comprehensive regional planning and transportation planning. The Atlanta Regional Commission is the official MPO and A-95 review agency for the area. It is empowered to prepare a Development Guide to shape regional growth. Regional transportation policy and priorities are formulated within the ARC, although the process occurs through a complex structure of special committees whose members still enjoy a considerable degree of autonomy.

The process is spelled out in the Atlanta Region Transportation Planning Program. It allows the Metropolitan Atlanta Rapid Transit Authority (MARTA), the Georgia State Department of Transportation, the mayor of Atlanta, and the representatives from ARC's member counties to reach policy decisions within ARC's Transportation Policy Subcommittee. The members of this subcommittee formulate the area's annual work program; and although the ARC board reviews the work program and sets priorities among its elements, neither the state DOT nor MARTA always adheres strictly to them.

Thus, the forum permits a relatively close integration of comprehensive areawide planning and urban transportation planning, but it is not likely to place ARC in a commanding policy-making position as long as MARTA and GDOT have their own powerful project implementation authorities. As an operating authority in the midst of developing a major rapid transit system, MARTA can exercise a powerful voice in the regional forum.

Seattle. In Seattle, the major participants in the transit planning process have not clearly defined their respective responsibilities. From the official point of view, the Puget Sound

Council of Governments (PSCOG), which is the designated MPO and A-95 review agency for the region, is responsible for areawide comprehensive planning, including transit planning. Despite its regional policymaking and planning authority and its role as a channel for Federal funds, PSCOG exercises little effective control over Metro, the primary transit operator.

Covering the metropolitan area of Seattle and empowered with voter approval to levy taxes, Metro has the potential to assume a broader range of functions than the special purpose transit districts found in other cities. Its enabling legislation gives it planning and development authority over solid waste, water supply, metropolitan planning, and parks and recreation, as well as transit, pending approval in referenda for each function. Although Metro has not received voter approval to carry out all these functions, its potential role in the metropolitan area is considerably more powerful than that of PSCOG.

In terms of mass transit, which Metro was empowered to operate in 1972, the two agencies are in sharp disagreement over which one is responsible for transit planning and policymaking in the area.

Los Angeles. Like Seattle, Los Angeles is a case in which the regional comprehensive planning organization provides a poorly integrated forum for regional policymaking. The Southern California Association of Governments (SCAG) is the officially designated MPO. It has A-95 review powers, a state mandate to develop the Southern California component of the statewide transportation plan, and authority to review and approve state assistance funds for the region's transit operators.

Within the six-county region covered by SCAG, the major transit operator is the Southern California Rapid Transit District (SCRTD). Although SCAG's powers have grown over the past few years and it can influence the rapid transit planning activities of SCRTD, it has no direct power to shape SCRTD's policymaking and planning activities. As a single-purpose agency with an explicit mandate from the state legislature to design and implement a rapid transit system within Los Angeles County, SCRTD traditionally has acted independently. Prior to the November 1974 referendum, neither UMTA nor SCAG was able to get SCRTD to effectively coordinate its rapid transit activities with the county or any of the other counties in the region, and disagreements between SCAG, the Board of Supervisors of Los Angeles County, the city, and SCRTD made it impossible to reach a workable consensus on the nature of the rapid transit policy and plan.

Legislative initiatives now being taken in California may create a new structure for policymaking and priority setting for transit that would clarify and rationalize the fragmented forum in Los Angeles. Under the proposed Assembly Bill No. 1246, SCAG would retain responsibility for long-range regional transportation planning and coordination, but the primary forum for decisiopmaking would be placed on the county level in a Los Angeles County Transportation Commission that would have responsibilities for policymaking, transit service coordination, short-range transportation planning, and the approval of a public mass transit system. The responsibilities of SCRTD would be clearly limited to operating the transit system.

Other kinds of forums. The other five cases provide examples of a range of types of decisionmaking forums. None of them are as directly linked to land use planning organizations (and MPOs) as the previously described case examples. San Francisco's Metropolitan Planning Commission, which is separate from the region's comprehensive planning agency, is a strong multimodal forum. Denver and Boston represent ad hoc solutions to the problem of establishing an integrated metropolitan planning organization. In both these cases, the idea of making the regional planning organization the umbrella for areawide transportation policymaking gave way in the face of competition between relatively independent agencies; and each of the public agencies, while preserving their fundamental autonomy, joined together in a forum in which they could achieve negotiated agreements. Washington is a case in which the metropolitan transit authority has provided the decisionmaking forum, while in Chicago the forum is in flux.

San Francisco. In the San Francisco area, the Metropolitan Transportation Commission represents a clearly designated regional forum for transportation decisionmaking which many critics nevertheless believe has not yet lived up to its potential. Created by the state legislature, MTC is mandated to prepare a regional transportation plan that should include highway and transit elements. MTC is the MPO for the region [1]/ and, as such, prepares the annual list of projects for which UMTA funds are solicited. It has policymaking and priority setting authorities and is empowered to allocate state transit funds to operators within each county of the region. Aside from the Bay Area Rapid Transit District, MTC's responsibilities cover four other major transit operators. Two of these operators, East Bay's A.C. Transit and San Francisco's Muni, are larger than BART.

1/ The Association of Bay Area Governments (ABAG) , not MTC, is the A-95 review agency with land use planning responsibilities for the region. By agreement, MTC acts as the transportation review agency for ABAG, although ABAG retains final review authority.

The MTC has come under criticism for not exercising its authority more forcefully. Although the Commission does have priority--setting and project approval powers, it is sometimes reluctant to curb the demands of the transit operators. Some observers speculate MTC's reluctance to exercise the power it does have stems from fear of legislative reprisals. In the eyes of these critics, MTC is too concerned with protecting the organization and too little concerned with setting any basic policy direction. Another interpretation of MTC's cautious stance may be in order, however, as the Commission only has had since 1970 to organize itself and establish credible control over the activities of transit operators like BARTD that have policymaking, implementation, and financial powers of their own.

It should be noted that the MTC is one of many regional special-purpose districts in the Bay area. Although the Association of Bay Area Governments is supposed to coordinate their activities, it is too weak to do so, and there are periodic movements to establish an effective regional government within the area.

Denver. Denver's forum for transportation decisionmaking is called the Joint Regional Transportation Planning Program (JRPP). Established in 1971, the JRPP is made up of the Regional Transportation District (RTD), the Colorado Department of Highways (CDH), and the Denver Regional Council of Governments (DRCOG). Although DRCOG is the A-95 agency for the area, the JRPP itself is the designated MPO. Within it, however, each agency retains independence. The JRPP board consists of the executives of the three agencies, and it approves funding requests and allocates funds among the three agencies. But the RTD has full responsibility for all aspects of-transit decisionmaking,and the CDH holds sway in highway matters. DRCOG, responsible for preparing long-range regional transportation plans, takes a strong position vis-a-vis the other agencies on many issues. The situation makes it difficult for the agencies operating within JRPP to establish priorities among their programs.

Boston. In the Boston area the Massachusetts governor recently designated a Metropolitan Planning Organization which, like Denver's, is based on an association of statutory agencies joined together by a memorandum of understanding. Unlike the Denver's JRPP, however, the Secretary of the Executive Office of Transportation and Construction (EOTC) of Massachusetts has a central role to play in the MPO. The MPO is composed of the five agencies that, under state law, have responsibilities for some aspects of the 3-c transportation planning process. Aside from the state EOTC, these are the Department of Public Works (DPW), the Massachusetts Bay Transportation Authority (MBTA)? the Advisory Board to the MBTA, and the Metropolitan Area Planning Council (MAPC).

The MPO includes the requisite planning functions and is representative of local and state Officials. Transportation planning and implementation activities are covered by four of the agencies, and comprehensive land use planning and A-95 review functions are the responsibility of the MAPC. In addition, the membership of the MAPC and the Advisory Board of the IMBTA represent local cities and towns within the Boston area as well as the City of Boston and state officials.

The central role played by the Commonwealth Secretary of the EOTC sets this forum apart from the others described. As chairman of the Committee of Signatories, the Secretary can coordinate the activities of the members and play a pivotal role in negotiating priorities for the annual list of projects seeking Federal funds and for the allocation of both state and Federal funds. The EOTC's influence is enhanced by its close working relationship with the Central Transportation Planning Staff (CTPS), which is the technical planning arm of the EOTC.

Washington, D.C. The Washington case is special due to the involvement of Congress and the jurisdictional peculiarities of the multistate national capital region. The Washington Metropolitan Area Transit Authority was created by interstate compact to plan and operate a regional transit system. At the time the, Metro system was adopted in 1968, there were no A-95 requirements, and 3-C coordination was still largely focused on highways. The Transportation Planning Board (TPB) , which is the 3-c agency and a part of the Washington Metropolitan Council of Governments (COG) , accepted the Adopted Regional System as given in its long-range plan. COG (with TPB) is now the regional A-95 and MPO body, but its reviews of WMATA's plans for changes in the Metro system tend to be rubber-stamp exercises. Most of the members of the Transportation Planning Board -- representatives from the region's jurisdictions -- also sit on the WMATA board, and almost all transit decisions are reached in that forum.

The opportunity will be presented for TPB to exercise its potential role when the current effort to update the long-range transportation plan moves further along and begins to deal with the question of extensions to the Metro system.

Chicago Chicago historically has had an array of transit planning and decisionmaking institutions with overlapping and competing responsibilities. This situation allowed the City of Chicago to retain paramount control over the decisionmaking process. A number of factors recently have altered this situation.

The creation of the Illinois Department of Transportation (IDOT) introduced a new force on the scene which is increasing it-s power. IDOT has replaced the city as the dominant force on the Chicago Area Transportation Study (CATS) , the body that has temporary status as the region's MPO. The governor still has not made a final designation.

In addition to the establishment of IDOT, the Chicago Transit Authority has become dependent on state, county, and Federal subsidies and has consequently lost a measure of its autonomy. Finally, the creation of the Regional Transportation Authority (RTA) has-introduced a new force on the scene.

The Regional Transportation Authority was established by the state legislature in 1973 and approved in a referendum in March 1974. Charged with setting fares, determining schedules, contracting for the management of transit services in the region, and preparing the five-year transit development program, the RTA commands an array of transit funding mechanisms and has power of eminent domain. On matters of service and policy, the RTA is advised by the Metropolitan Area Transportation Council, whose members, appointed by local officials, can adopt resolutions and hold public hearings. The direction in which the Chicago area institutional structure is evolving suggests an increasingly powerful role for the state and the RTA.

Discussion. This review of the different institutional patterns for decisionmaking suggests several trends or issues that appear in one form or another in the metropolitan cases. One is the growing influence of state governments in the process; another is the adequacy of traditional councils of governments to effectively perform the additional responsibilities many of them have been asked to assume; and a third is rooted in the way decisionmaking powers generally are distributed among the state, regional, and local agencies that participate in the process.

The role that state governments are playing in the transit planning and decisionmaking process is becoming increasingly important. Although state highway departments traditionally have played a key role in the urban transportation planning process, the advent 'of more state departments of transportation with responsibility for mass transit indicates a strong trend toward a multimodal role. This role will be expanded as more states begin to provide more financial assistance to transit authorities facing increasing operating deficits and as state DOTS begin to intercede as policy mediators in the fragmented regional decisionmaking process. The Federal Highway Act of 1973 and the NMTA Act of 1974 have both enhanced the influence of state governors by way of MPO designation requirements and the stipulation concerning Section 5 funds for optional capital or operating assistance.

There is a need for involvement by the state-level executive branch, backed by strong legislative direction, to deal with several typical problems:

- In the absence of a paralleling involvement with transit, the major state role in highway programs often has led to biases in transportation planning that have worked against transit.

- Opportunities for localities to improve public transportation through traffic engineering and highway management measures often have been foreclosed by the state, when they should be creatively and energetically pursued.

- The creation of land use control powers necessary at the metropolitan level to carry out the land development objectives associated with transit requires state legislation.

- State action is needed to rationalize the tangle of special purpose independent transportation agencies and the various metropolitan planning functions.

- State legislation is generally required for transit matching monies -- even when they are to be collected only within metropolitan areas. States are becoming increasingly involved in providing financial assistance for transit improvements and operations.

- The National Mass Transportation Assistance Act of 1974 delegates significant responsibility to states in allocating operating subsidies. This will place even greater pressures on states both to review the performance of local transit operations and to provide financial assistance for the local match.

The metropolitan cases in which the state role has begun to be felt most clearly are Los Angeles, San Francisco, Boston, Chicago, and Washington, D.C. California's CALTRANS is responsible for the preparation of a statewide transportation plan under Assembly Bill 69, and the state provides funds for both transit capital and operating assitance. The Illinois DOT has an increasing role in the Chicago metropolitan area. In Massachusetts, the Executive Office of Transportation and Construction provides an effective centralized forum for establishing and coordinating transportation policy. As head of the MPO, it can play a lead policy role in transit decisionmaking, while the Massachusetts Bay Transportation Authority functions more and more as a transit operating agency. In the Washington, D.C., area, the Maryland Department of Transportation is assisting suburban counties with their share of the capital costs of constructing the Metro system.

Another issue involves the controversy that developed in some areas over the official designation of Metropolitan Planning Organizations, Since the passage of the Highway Act of 1973 which required -governors to designate official Metropolitan Planning Organizations in areas receiving Federal transportation assistance, UMTA has generally favored the designation of the traditional A-95 review agencies and areawide comprehensive planning organizations. This approach has met with criticism from many local public officials and transit operators.

On one level the criticism stems from a common political and bureaucratic desire to protect institutional prerogatives. Some local officials are concerned that the law gives the state (and, by implication, the state highway departments) too much power over local decisionmaking issues. They fear highway interests will predominate if decisions are made in one multimodal forum.

Other local officials have different concerns. For example, transit operators argue that they should have the responsibility for making transit decisions since they produce up to 70% of operating revenues. They feel their practical experience in the field qualifies them above regional planners to be able to represent their customers' best interests. On the other side, it is said that transit operating agencies are too narrowly concerned with transportation alone and tend to be unresponsive to the public. To the extent that they have independent sources of funding, they can operate with a degree of freedom that may override local interests or disregard coordination with other regional or local entities.

A different kind of critism questions the ability of traditional regional planning agencies to effectively carry out transit decisionmaking responsibilities. Historically, these agencies have had to depend on the participating jurisdictions to implement decisions reached in the regional forum, because they seldom have direct statutory authority over the activities of local government. The MPO designation did not alter these fundamental weaknesses.

It also has been argued that regional planning agencies should become MPOs because they can provide the mechanism for integrating regional land use planning and transportation planning. This argument is difficult to connect with experience. The record suggests that truly effective coordination is not yet commonplace. Highway and transit modal agencies operate under separate policies and programs, and neither transit nor highway planners have established effective coordination between their activities and comprehensive land use planning. Although there was some sharing of data base and assumptions, in none of the metropolitan cases can the rapid transit plan developed by a regional agency be said to rest on strong commitments from local municipal authorities to implement complementary land use plans.

The question of cooperation between regional, local, and state agencies leads to the issue of the manner in which policy-making, priority setting, and other powers are distributed in the metropolitan areas. The major source of these conflicts lies in the fact that the separate responsibilities of each of the levels of government in the metropolitan areas are not clearly enough defined for any one agency to have decisive responsibility for resolving conflicts and establishing budgeting and programming priorities. There is a broad spectrum of responsibilities among the agencies ranging from regional comprehensive planning to detailed project engineering and construction of capital projects or the implementation of operational improvements General agreement exists about the distribution of responsibility at the extremes of the spectrum but the area of priority setting and budgeting is the subject of much competition.

How this competition is resolved will depend on establishing a forum in which one lead institution has well defined and well supported responsibility for formulating policy and priorities. Such an institution could be a metropolitan planning agency, a special purpose agency, a local government body, or a state agency. No one institutional framework will be appropriate for every metropolitan area. Aside from enhancing the effectiveness of the decisionmaking process, defining the locus of these responsibilities more clearly will make that process more responsive and accountable.

Accountability and Authority of Decisionmakers

Historically, the question of how accountable and responsive transit operators were to the public was not a pressing concern. Most transit companies were privately owned, and though they were regulated by public utility commissions, they were concerned primarily with the requirements of the private market. In the 1960s, however, an increasing number of transit companies came under public ownership, and people began to pay more critical attention to the factors contributing to the accountability and responsiveness of these public entities. The formal powers of the transit agency, the method of selecting its governing board, its source of funds, and the extent to which it was subject to the control or oversight of other public institutions are all subjects critics have begun to examine more closely.

These concerns also have appeared in the nine metropolitan cases. Although each case has a different history and different traditions of leadership, a review of some of their common characteristics shows that the question of the accountability and responsiveness of their transit decisionmaking institutions is an increasingly important issue.

In general terms, the institutions for decisionmaking in the nine metropolitan cases have several characteristics that bear on the issue. First, they are usually regional entities with special mandates from state legislatures to perform transit planning and operating functions. Second, with the exceptions of San Francisco's BART and A.C. Transit, they are all governed by

either directly appointed boards or boards composed of local elected officials. Third, although they tend to need legislative and voter approval to secure financing for major public works projects such as rapid rail transit systems, once that financing is sucured, they are able to operate with relatively unrestrained autonomy. Obviously these three characteristics are not reflected equally in each of the cases, but some aspects of one or the other do appear in all the metropolitan cases. .

In most of the metropolitan areas, the agency responsible for mass transit planning and operations is a special-purpose organization with an appointed board that tends to regard its mandate from a regional-perspective. Although variations exist, these organizations are generally public authorities or special districts, and, in all the cases, critics have raised questions about their representativeness and their ability to respond to changing times. In many cases, the agencies were established to carry out transit programs on which local consensus had already been reached. Under these circumstances, the agency's programs tend to gather such momentum that they are difficult to check or change. This problem is most serious when a transit agency has difficulty responding to special local concerns or requirements because it is focusing on its mandate to build a regional rapid transit system.

The following paragraphs discuss the transit decisionmaking institutions in the nine cases in terms of the measures they employ to gain accountability. The descriptions are grouped in categories by type of transit agency.

Public authorities. The two predominant types of special-purpose agencies found in the metropolitan cases are public authorities and special districts. In general, public authorities are nonprofit public corporations established by state legislatures. They have appointed boards and do not normally have independent powers of taxation. Atlanta's MARTA, Boston's MBTA, and the Washington Metropolitan Area Transit Authority are examples of this type of special body. Chicago's RTA is a transit authority that does have taxing powers.

Atlanta . The Metropolitan Atlanta Regional Transit Authority (MARTA) was created by the Georgia legislature in 1965 expressly to pl design, construct, and operate a rapid transit system. The MARTA board is made up of 10 members appointed by local officials representing the City of Atlanta and the four suburban counties.

The question of fair representation on the MARTA board has been as issue since its creation. The business and civic leaders who were the driving force behind the creation of MARTA in the 1960s were not directly accountable to any particular constituency. When MARTA was established, the appropriate composition of the board became a point of contention between the City of

Atlanta and the suburban counties. The decision was made to diminish the influence of local politics on MARTA's board by excluding elected officials. Instead, the members are appointed by local county officials and the mayor of Atlanta.

The City of Atlanta and Fulton County, which encompasses the city, dominate the MARTA board with six members, but there is new pressure to increase the representation of suburban DeKalb County because it produces 40% of the sales tax revenues that support MARTA. Although Clayton and Gwinnett voted against the MARTA referendum in 1971, they retain voting representation on the board.

Washington, D.C. The Washington Metropolitan Area Transit Authority (WMATA) is an interstate compact approved by Congress and created to cut through the institutional jungle of the Washington metropolitan region. The WMATA compact clearly spells out WMATA's powers to design and construct the regional Metro rail system.

Within WMATA, decisionmakers can be held accountable due both to the realities of the Metro financing situation and the composition of its board. The board is made up of two delegates from each of the three major political subdivisions of the national capital region. They are appointed from the membership of the District of Columbia City Council, Maryland's Washington Suburban Transit District, and the Northern Virginia Transportation District. The Maryland delegation can include two "qualified residents," but all the rest of the delegates to WMATA must be local officials accountable for their actions to their constituents.

WMATA's financing plan is a negotiated agreement among all the participating local governments. Board members must have backing from their jurisdictions before the financing plan can be changed. Financial aspects of WMATA decisiomaking, therefore, have tended to be kept in the public view.

Boston. Public checks on transit decisionmaking in Boston are now exercised more throuqh the state executives than through the Massachusetts Bay Transportation Authority (MBTA). Since the reorganization of the transportation functions in the Boston region, the responsibility for transit decisionmaking has shifted more and more to the Secretary of Transportation and Construction. As the Secretary serves at the pleasure of the governor of the Commonwealth, this structure makes the governor ultimately accountable for major transit policy decisions. This shift of responsibility to one clear y designated elected official has increased the formal control that the public may have over the mass transit decisionmaking process.

· Chicago. In the Chicago region, the exact source of accountability is difficult to pin down. As noted earlier, the City of Chicago has sought to maintain a dominant role in the planning and decisionmaking process, but the influence of both the State of Illinois and the Regional Transportation Authority has grown. With regard to public authorities, the Regional Transit Authority has major powers that neither Atlanta nor WMATA possess.

The RTA was approved by the voters of six northern Illinois counties in 1974. The margin of the vote showed a majority of support for the authority in the City of Chicago rather than the suburban counties, and the question of suburban versus city representation on the RTA board became an issue. The resolution was to establish a nine-person board in which four members are chosen by the city, four are chosen by the suburbs, and the ninth member is selected by the other eight to serve as chairman. The current chairman of the RTA was chairman of the Chicago Transit Authority before assuming his new post.

The RTA possesses extensive powers. Aside from being authorized to contract for the management of transit services and set fares and schedules, it can levy a motor fuel tax and tax parking lot revenues. It also receives a portion of the state sales tax and is empowered to commit up to $500 million in general obligation bonds. Although it is too early to evaluate the record of the RTA, it is clear that it has a unique set of powers that may make it a model for regional transit authorities.

Special districts. The second major institutional form that special-purpose agencies take is the special district. Like public authorities, special districts are created by state legislatures, but they usually have broader independent powers. Their governing boards usually are made up of representatives of local municipal and county governments, and often they have powers of taxation and eminent domain. Special districts must still go before the voters for approval of general purpose bonds.

The metropolitan cases offer two primary examples of the special district form: the Southern California Rapid Transit District and the Bay Area Rapid Transit District. The first is a Prime example of the problems of accountability and responsiveness that can arise in such cases, while the second represents the attempt to overcome some of these problems through the direct election of the BARTD board members.

Los Angeles. The Southern California Rapid Transit District was created by the California state legislature in 1974 with an explicit mandate to design and implement a mass rapid transit system with Los Angeles County. SCRTD is governed by a board appointed by local officials. The composition of the board is such that the City of Los Angeles, which is the jurisdiction most interested in obtaining mass transit service, is underrepresented in comparison to the County Board of Supervisors and the suburban jurisdictions within the county. The 11 member board has five members appointed by the Los Angeles County Board of Supervisors, four appointed by a special city selection committee representing 76 cities in the county, and only two appointed by the Mayor of Los Angeles.

The SCRTD board has been unable to produce a plan for rapid transit that responds to all the needs of its constituents. Predisposed to building a large-scale regional system, SCRTD has been caught between the needs of the city and the demand for equal treatment from outlying jurisdictions. As a result, SCRTD sought to develop a rapid rail system for the entire region instead of a more flexible plan with only one short segment of a rapid rail system in the city. The cost of the adopted system ultimately defeated it, and only recently have the City of Los Angeles, SCRTD, and SCAG begun to investigate an incremental approach to developing a plan. Both the city and the County Board of Supervisors have sought ways to make SCRTD more representative of the area.

San Francisco. The Bay Area Rapid Transit District (BARTD) was established in 1957 to plan, construct, and operate a regional rapid transit system. Unlike SCRTD, BARTD has secured approval of its bond issue and receives special earmarked local taxes provided by the state legislature. Originally, BARTD's 12-member board was appointed by local officials in Alameda, Contra Costa and San Francisco counties. But controversies over lack of responsiveness to local needs, cost overruns, and the management of the District led to a directly elected board whose members represent nine sub-BART districts. This is the first example of such a transit board for a regional rapid transit district. However, A.C. Transit has had a directly elected board for many years and has been considered by most observers to be a competently managed, responsive transit operator.

Denver. Denver's Rapid Transit District (RTD) bears mentioning because so far it has managed to be reasonably representative of the area. Although RTD's board can be said to have been predisposed to designing a particular type of system for the Denver area, the system won solid voter approval in the local referendum in 1973.

Denver's RTD, which bears the responsibility for the bulk of decisionmaking~ has a board that is structured to reflect the will of elected officials. RTD's 21-person board is appointed by the officials of the participating jurisdictions. The mayor of Denver appoints 10 delegates and the suburban counties appoint a total of nine. Within each county the appointees are subject to confirmation by a majority of the municipalities in that county, a procedure that provides an additional degree of public responsiveness. The remaining two board members are appointed by the other 19 to represent the region at large. Due to the dominating number of Denver representatives, the RTD board is able to bear greatest allegiance to people who produce the bulk of the sales tax revenues that will be used to finance the RTD transit proposal.

Variations. Among the metropolitan cases, Seattle and Minneapolis-St. Paul offer variations on the common pattern that should be noted.

Seattle. In the case of Seattle, the transit institution is similar to a special district in its representativeness and authority, but unlike the other cases, Seattle's Metro has powers over programs other than transit. This makes it more like a general purpose government.

Minneapolis-St. Paul. Minneapolis-St. Paul provides a unique example of a transit operator, the Metropolitan Transit Commission, whose board members are directly appointed by the areawide comprehensive planning organization, the Metropolitan Council. The provisions for accountability, therefore, are found in both agencies.

Both MTC and the Council were created in 1967. The Metropolitan Council was created to establish a framework to coordinate regional development in the Minneapolis-St. Paul metropolitan area. Sixteen members of the Metropolitan Council are appointed by the governor on a nonpartisan basis, after consulting with members of the legislature from the candidate's Council district (a regional subdivision that corresponds to legislative districts rather than county lines) . The chairman of the Metropolitan Council is appointed by the governor as the seventeenth voting member of the Council and must be experienced in the field of municipal and urban affairs.

Minnesota's recent Metropolitan Reorganization Act(1974) has designated the Metropolitan Council as the policymaking body with final approval power for transportation development in the metropolitan area. The Metropolitan Transit Commission covers the same seven-county area as the Council. It is empowered to plan, construct, equip, and operate a transit system in accordance with the Council's policy plans. The act directs the Metropolitan Council to appoint the members of the Metropolitan Transit Commission as terms of present members expire. The governor still appoints the chairman of the Commission.

Discussion. This review of the patterns of accountability found among transit agencies raises a number of issues. One issue concerns the effectiveness of the different approaches for providing formal public control over decisionmakers. A related, but more important, question examines how the decision-making forum can be made equally responsive to local needs as well as broad, regionwide concerns. A final issue points up the advantages of increasing the state legislature's role in overseeing community transit activities.

The main formal channel for accountability is the mechanism by which the transit decisionmakers are placed in (or removed from) office. UMTA regulations call for adequate representation of local elected officials on the agency that receives UMTA grants, and most boards of transit agencies and Metropolitan Planning Organizations alike are composed of local officials who are elected or appointed to office. The experience in the nine cities shows that elected officials -- mayors, commissioners -- and high-level appointed officials of local governments tend to be responsive because they owe their office to the public. Board members who bear primary responsibility for a functional area such as transit or highways or other special purpose agencies tend to look out for their subject area interest rather than more generalized expressions of the public will.

The experience of San Francisco's Bay Area Rapid Transit District (BARTD) offers a different model for board representation: direct election of board members. BARTD is the only example among the cases of a regional transit district with a directly elected board. Conversion to an elected board was effected in fall 1974 in an effort to make BARTD more responsive to the concerns of the public. However, because the board members are elected from large districts, each containing several political jurisdictions, there may not be a clear sense of common interest among the constituents of any one board member. A.C.'s board members have little public identity; no incumbent board member has ever been defeated. BART likely will continue to generate greater public interest than A.C., but seats may go to special interests that can afford to support candidates' campaigns. Unlike elections for general-purpose government office, such elections may not attract enough interest to ensure significant popular support. Thus, the effectiveness of using an elected board to improve accountability is not proven.

In BART's case, as in several others, an important accountability issue has been the dominating role played by the engineering contractor. To the extent that transit decisions are made by hired consultants and not the members of the board, the process cannot be responsive. Consultants are unlikely to place top priority in conserving public funds unless appropriate contract incentives are created. They are more likely to seek to continue to work in their field of specialization, and this self-interest may provide incentives to bias the results of planning studies in the direction of projects which will utilize their expertise.

Another means for gaining accountability is illustrated by the Boston case. There the public has the recourse for holding the Massachusetts governor responsible for the transit policy formulated by his appointee, the Secretary of the Executive Office of Transportation and Construction. The governor and the secretary are not only accountable, but they also bring visibility to the decisionmaking process, and to their role in it. However, the transfer of decisionmaking power to the state executive grew out of circumstances somewhat peculiar to the Boston region -- the location of the state capitol in the

city and its tradition of involvement in city affairs, the power vacuum created by the weak regional planning body, and other considerations. Although in every case there is room for stranger state leadership, the Boston model might not be appropriate in many regions.

Visibility is a key ingredient for creating an accountable decisionmaking process. Cases in which major decisions are reached in forums dominated by competing modal agencies offer particularly little recourse for the public. In Atlanta and Denver, for example, regional transportation policy tends to be decided in a' process of negotiation between mode interests. In Atlanta, the Georgia Department of Highways and the Metropolitan Atlanta Rapid Transit Authority have equal status with the representatives of local governments when they do business in the Transportation Policy Subcommittee of the Atlanta Regional Commission. Decisions tend to reflect the trade-offs between the two powerful agencies; yet, these trade-offs are rarely debated publicly by the board of the subcommittee's parent organization. The structure of Denver's Joint Regional Planning Program offers less accountability, because this agency does not include political representatives. It is strictly a forum for negotiation between, the state highway agency, the transit district, and the comprehensive planning body.

The question of fair representation on the boards of the decisionmaking agencies is another issue. There is a trend toward more representation for suburban jurisdictions vis-a-vis the center cities. In Atlanta, this issue involves a further dimension: the suburban jurisdiction (DeKalb County) that has requested more representation on the MARTA board provides a substantial portion of the sales tax revenues that support the agency. In San Francisco, the representation issue was resolved by applying the one man-one vote principle, on which basis BARTD has been divided into nine districts principally on the basis of population.

At the heart of the representation question is the issue of structuring decisionmaking bodies to represent both local interests and regional interests in a fair manner. To date, several factors have kept the process from responding adequately to the needs of regional subsections. One reason involves the structure of the transit agency boards. Each local elected official (or high level appointee) who sits on a board is responsible to his constituents for making certain that they get a fair share of any transit improvement plan. The pressures of competition tend to produce overextensive plans that serve everyone more or less equally, rather than smaller plans focused on parts of the region that may have specific transit problems. The Los Angeles case is a particularly good example of this problem. Atlanta's MARTA has attempted to avoid this kind of distortion by forbidding board members to hold local office, but in practice delegates have remained responsive to the local jurisdiction by which they were appointed.

The procedures for obtaining local financing have reinforced the regional perspective. In almost all the cases, the transit agency has had to secure the lion's share of its local funding from an areawide referendum. In San Francisco, Los Angeles, Denver, and Atlanta, among others, the approval of plans for regional rapid transit systems depended on the voters' approval of a mechanism for financing these plans.

Requiring voter approval of such mechanisms is an ultimate means of assuring accountability. At the same time, however, it may oblige transit planners to devise plans that satisfy local demands but are too large to be financially feasible. The need to get the suburban vote in order to raise the money for a rapid transit system may force the planner to make the system more extensive than it need be. Again, this is most clearly demonstrated in Los Angeles.

The most promising approach for removing the distortion is to make changes in the financing basis for transit improvements. The changes, discussed in more detail in Chapter 5, . basically involve providing transit agencies with the means to finance systems without having to go to the voters. The formula grant program authorized by the National Mass Transportation Assistance Act of 1974 is a step in this direction. In addition, UMTA's recently proposed investment policy would help accomplish this goal by requiring metropolitan areas to build (and obtain financing for) transit proposals in separate subsystem increments.

The examination of the metropolitan areas also underscored the need for more state legislative oversight of urban transit programs. California has taken the lead in this area, largely in response to the problem of finance, administration, and technological development at BART. Extensive staff work has been undertaken by the Legislative Analyst's office and the Assembly Committee on Transportation. Georgia has established the MARTA Overview Committee (MARTOC), a legislative committee to oversee, MARTA's program. The Minnesota Legislature has moved to resolve the controversy between the Metropolitan Council and Metropolitan Transit Commission.

Legislative oversight is an essential part of a responsible state transit program. Arguments in favor of a strong state role in transit have been explained. For these same reasons, highly competent state legislative review should be encouraged in areas where major Federally funded transit development programs are undertaken.

In summary, several actions might be taken to increase the extent to which transit decisionmaking organizations can be held accountable. Decisionmaking bodies should fill their boards with high-level officials representing local governments, not mode-oriented interests. Direct election of board members is a possible course, although not a panacea. Local financing mechanisms should be made available that remove the need to

overextend plans to gain regionwide financial backing. Increased state participation in financing and decisionmaking could provide an additional measure of accountability. Finally, establishing a procedure for legislative review at the state level could provide a range of benefits.

INVOLVEMENT OF THE GENERAL PUBLIC

Good citizen participation programs allow public participation in an effective way without unnecessary disruption or delay in the planning process. Experience proves that unless adequate public participation occurs, programs are likely to be stopped or to result in projects that later will be recognized as ill conceived.

The extent and effectiveness of public participation in transit decisionmaking has evolved over time. Elections -- the ultimate form of public participation, at least in the sense of numbers -- have been a recourse throughout the period of planning in the nine cases. During the past decade, public information programs aimed at civic organizations gradually came to be supplemented by citizen advisory groups. Recently, partly in response to Federal requirements, efforts have been made to bring citizens from all major constituencies into the planning process to help define goals and evaluate alternative solutions. Yet, although public officials increasingly regard public participation as an integral part of the planning and decisionmaking process, well structured participation programs have not yet become a common feature of that process in many areas.

Early programs: the sales-bitch approach. The experiences in Washington, D.C. and Atlanta provide excellent illustrations of earlier approaches to citizen involvement.

Washington, D.C., Prior to adoption of the regional Metro rail system in 1968, the program for involving the Washington, D.C area public in the planning process relied on public information techniques followed by public hearings. The planners gave slide shows and made speeches at various clubs and organizations throughout the region. After the region's jurisdictions had approved a "proposed regional system," the plan was presented at a series of 11 public hearings, most of which were sparsely attended. Voters from only five communities (out of some eight jurisdictions) had the chance to register their will at the polls.

Even after the system was adopted and moved into final design, the Washington Metropolitan Area Transit Authority's approach to public involvement remained defensive and reactive, and citizens had to resort to legal action to win the chance to review route and station area plans.

Atlanta. The failure of the Metropolitan Atlanta Rapid Transit Authority to bring the public into the decisionmaking process except in a perfunctory way was cited as a major reason

for the defeat of the transit issue in 1968. Shortly after it was established in 1966, MARTA began an informal public information effort that was, like Washington's, a campaign to sell rapid transit. The approach reached an audience composed mostly of businessmen and public figures -- not the general public. Public hearings, which were required by MARTA's enabling legislation, occurred at the end of the planning process, after preliminary engineering had been done and the plans already had been presented to local jurisdictions.

To gain support for its 1971 transit proposal, MARTA undertook a much wider-reaching public information campaign that was considered to have been an important factor in MARTA's success at the polls that year.

Later, more participatory programs. Denver, Twin Cities, San Francisco's BART extension studies, and, especially, the Boston Transportation Planning Review provide examples of more thoroughly participatory public involvement programs.

Denver. Denver citizens were involved in planning its regional transit system from the beginning, although the effectiveness of the public role diminished during the course of the process. Citizens and public organizations actively participated in formulating goals and objectives for both the regional transportation plan and the complementary land use plan that was being developed simultaneously. The Regional Transportation District organized citizen advisory councils (CACs) for this purpose, and they worked closely with the RTD consultants. However, after the 1973 referendum the CACs were reorganized, and they were provided little opportunity to contribute to the evaluation and selection of alternatives.

Twin Cities. The early phases of long-range planning conducted by the Twin Cities Metropolitan Transit Commission in cooperation with the Metropolitan Council. relied on a 41-= member Advisory Committee on Transit (ACT) , a volunteer group composed of representatives chosen by the commissioners themselves. The group heard presentations on all projects but due to poor attendance at meetings and other reasons they did not have significant influence on the Commission's decisions.

However, when the Metropolitan Reorganization Act of 1974 placed responsibility for long-range comprehensive transportation planning with the Metropolitan Council, it also contained a provision for public agency and citizen involvement that led to the establishment of a Transportation Advisory Board. Overall, the Transportation Advisory Board appears to have the potential for being a more effective channel for agency and community input inasmuch as it has been assigned its own staff coordinator and appears to have better access to the Metropolitan Council.

San Francisco. Corridor studies for proposed extensions to the BART system in San Francisco provided a well-structured approach to community participation, quite in contrast to the original BART planning process. (That process had been a sales campaign with limited interest group involvement in the planning, similar to the Washington, D.C., and Atlanta experiences described above.)

The extension studies, conducted over the past few years, employed a structure in which each study was governed by a "board of control" comprised of representatives from BART, from the Metropolitan Transportation Commission, and -- after pressure was applied -- from affected local jurisdictions. Citizens' advisory committees were set up to advise each board, although they had bigger roles in some studies than in others. In the Northwest Extension BART study in San Francisco"s Geary Street corridor, which was considered a model for citizen participation, a community advisory consultant was hired to assist the citizens' council. The citizens enumerated goals and evaluation criteria and used them to evaluate and select final options from among about 40 preliminary alternatives. The process was relatively open and fluid; the participants generated new options in the course of the evaluation.

Boston. The Boston Transportation Planning Review was a major experiment of nationwide significance in its approach to developing an open, participatory study process. It greatly expanded and refined the process of citizen and public agency participation in the transportation planning process. Numerous individuals, groups, and agencies that previously had had little interest or means for becoming involved in transportation decisionmaking were provided with a forum in which conflicting views could be debated and resolved, or at least thoroughly explored to identify commonality of interest and bases for compromise.

The Steering Group that developed the BTPR study design was a broadly based body representing cities and towns, state agencies, and private organizations throughout the Boston area. It continued in operation throughout the 18-month BTPR planning period in a policy advisory capacity as the BTPR "Working Committee," where it had a significant role in decisionmaking. Many of the same groups continue to be involved in Boston regional transportation planning through membership on the Joint Regional Transportation Committee.

Citizen reaction. One of the lessons learned from the experience of the nine case metropolitan areas with community involvement is the difficulty in stimulating interest among citizens during the early stages of systems planning. Typically, the public ,remains generally approving of system plans until final design

and construction begin. Then, long after the system selection decision has been made, communities or citizens launch efforts to make improvements -- and in some cases, significant changes. Experiences in San Francisco, Washington, D.C., and Atlanta illustrate this situation well.

San Francisco. The Berkeley subway/elevated fight was the most prolonged and costly battle of the many that occurred during the BART-building years. It received national attention and involved expert witnesses from Canada and other U.S. metropolitan areas. After several ultimatums and extreme polarization between the community and BART, Berkeley overwhelmingly approved a bond issue (by an 82% margin) to finance the extra cost of several miles of subway. The fight cost BART heavily because of over two years' delay in construction, because of the loss of credibility of its engineers, and because of the polarizing effect it had in communities throughout the area.

Atlanta. Several transit station area plans in Atlanta have come under attack by local citizens whose homes or businesses would be displaced. The Decatur Street Station plan, for example, is tied up in three lawsuits.

Washington, D.C. Washington's adopted regional Metro system is being challenged at several points, and a formal study has already recommended one alignment shift (on the Greenbelt line) . Another such study is underway (in Anacostia), and others are likely to follow in the wake of outspoken citizen opposition to portions of the system plan.

Discussion. There are several explanations for the tendency for public reaction to occur after plans have been approved. The most obvious reason is that people tend to discount all but the most immediate and most direct threats. Planning involves the intangible future, while the bulldozer at the door cannot be ignored. However, neither BART, MARTA, nor WMATA provided adequate channels for citizen review during the system design and planning process, so little opposition from the affected groups and individuals might be expected. Also, awareness of the potential undesirable side effects of transit construction was slow in coming. Throughout the period of system planning in Washington, the public believed generally that transit was a harmless alternative to destructive highways -- underground and out of sight. Likewise, Atlantans in 1968 did not oppose the transit system because it threatened disruption.

Merely providing better opportunity for public participation -- even after citizens have learned through experience, as in San Francisco, that transit systems can bring undesirable changes to neighborhoods -- does not guarantee that a broad range of citizens

will participate significantly in system planning. Experience in Washington, Atlanta, San Francisco, and Denver shows a marked increase in number of participants and level of participation once corridors have been defined and citizen groups are organized according to neighborhoods that will be affected. This fact points Up a general inadequacy of the transit system planning process as it has been performed in many of the cases, which is its tendency to make system-level decisions before any attention is placed on corridor-level issues.

Even at the corridor level, however, structuring a good program for citizen participation does not assure that all interest groups will participate, or that those who do participate will never withdraw their support from the compromise transit program that is negotiated in the study process. Time brings change to the balance of interests in any community. Groups that may have kept out of the process -- due to other, more pressing concerns at the time, or due to culturally based reluctance to participate in a process involving on the whole an educated and articulate group of people -- may be motivated to take action -by subsequently occurring events.

Another issue brought to light by the metropolitan experience points to one of the pitfalls inherent in the concept of citizen participation. The purpose of encouraging citizen involvement is to be able to understand the range of public values and objectives that bear on the project being planned. The planning process can provide the forum for discerning the trade-offs between objectives that conflict and for reaching a consensus between decisionmakers and the public over how to balance these trade-offs. It is important, therefore, to avoid allowing the interests of any one group of citizens to dominate decisionmaking unfairly.

In summary, building community participation into transit planning consumes time, and if the process is poorly managed, it can waste time. On the other hand, it is a vitally important task. Community participation should be regarded as a procedure for collecting necessary data -- the values and opinions of the constituency the plan is being made to serve.

CHAPTER 4

TECHNICAL PLANNING PROCESS

In each of the metropolitan areas examined by the study, the rapid transit proposals put before the public rested upon a complex process of technical planning and design work. This 'technical planning process," performed by professionals, plays an important role in decisionmaking. It provides the information that the responsible public officials draw upon in making plans and decisions. There is a constant interplay between decision-makers and planning professionals during a planning study, so that the resulting plans and recommendations are the joint products of the two groups. For the purposes of this assessment, the distinction between them is drawn as clearly as possible. The influence that decisionmakers exert in shaping transit plans was discussed in the previous chapter; the effect of the adequacy of the technical planning work itself is discussed here.

The quality of the proposals presented to decisionmakers in the nine case cities was largely influenced by the comprehensiveness (or lack thereof) of the scope of the proposals. This comprehensiveness varies tremendously from city to city, reflecting a number of factors, including the state-of-the-art of the technical planning process at the time of the study; changing images of mass transit and its impact; changing Federal guidelines and requirements, coupled with the availability of technical study funds; and the amount of local pressure applied in support of a given transit alternative.

Many of the proposals for modern fixed-guideway transit systems originated in the early 1950s. At that time, heavy rail rapid transit of conventional technology (except for the use of advanced train control technology) was basically the only form of major transit system under consideration. This form of transit was aimed primarily at saving the ailing downtowns of major metropolitan areas and providing an alternative to major new radial freeway construction.

Increasingly the tendency has been to consider several alternative types of technology for mass transit systems including light rail, personal rapid transit (PRT) and group rapid transit (GRT), and several types of bus systems ranging from extensive networks of busways to low-capital improvements on existing street systems. The range of objectives and impacts of concern for transit system planners has also been increasing rapidly. Typical concerns now include not only the revitalization of downtown but also service to suburban centers and neighborhoods, mobility of

nondrivers, reduction of air pollution, and conservation of energy.

Technical aspects of the transit planning process have undergone corresponding similar increases in complexity over the last 25 years. Early transit studies usually relied upon data and techniques developed in connection with highway studies to justify the need and determine the corridors of a rail system. Recent studies have used data and techniques developed more specifically for the-evaluation of several alternative transit systems.

Federal guidelines and requirements have become more demanding over this period. They have begun to exert a profound effect on the conduct of the technical work, although to date they have been distinctly unsuccessful in implementing the long-held Federal policy of integrating transit, highway, and land-use planning in a single, interrelated process. Nevertheless, these requirements already have become too great a burden in the eyes of many metropolitan officials, and some metropolitan officials have expressed strong resistance to the recent efforts of UMTA to substantially increase the planning requirements.

Throughout the past 25 years the influence of the proponents of one transit system or another also has had a great effect on the technical work. Many studies, especially early ones, were designed to justify an already favored type of system and thus were biased in one manner or another. In some cities where no one transit system was the clear favorite, the technical process has produced much more impartial information concerning the merits of alternative transit proposals.

These themes highlight the lessons learned in the metropolitan cases, and this chapter will describe them more extensively. Following a general discussion of the basic elements of the technical planning process and the Federal policies and guidelines that have shaped it, the relevant experience in the nine metropolitan cases will be reported. The chapter ends with a concluding discussion of the significant findings and their implications for UMTA's recently proposed transit investment policy.

GENERAL GUIDELINES FOR METROPOLITAN ASSESSMENT

The technical transit planning work in the nine case study metropolitan areas was assessed according to a number of general guidelines. These guidelines were developed to conform to the state-of-the-art of technical planning and the requirements of Federal agencies. This section describes the general context of the technical planning process, as it is currently understood. Next, it outlines the Federal role in local planning efforts. Finally, the general guidelines derived from this information are set forth.

Basic Elements of the Technical Planning Process

Transportation planning generally is performed within the context of the comprehensive planning process. The comprehensive planning process strives to encompass the aggregate of urban area goals and plans involving all of the elements of the urban environment: land use, transportation, other major public works, the regional economy, conservation of open space and other aspects of the physical environment, housing and community facilities, and often is extended to encompass various elements of social welfare planning. Since none of these factors is static during the seven- to 20-year planning period for large-scale rapid transit systems, it is generally recognized that work programs for transportation systems planning and their urban context must be continuously integrated during all phases.

The process of planning a major new transit system is often termed "system planning" to distinguish the process which leads up to a formal commitment to a new system, or major component thereof, from the more detailed type of transit planning associated with implementation and operation of an existing transit system. System planning has several objectives:

- The determination of transit needs within the region of its communities;
- The selection of modes and routes;
- preliminary engineering and architectural design;
- Multiyear programming of construction; and
- Identification of related general corridor and station area development opportunities.

The implementation phase of the planning process follows after system selection and programming decisions have been made. It generally includes final design and construction and is not of primary concern in this assessment. However, certain elements of both implementation and transit operations decisionmaking need to become involved in the system planning process. For example, large system plans are almost certain to require significant changes during the process of making final system design and construction decisions. Likewise system planning must concern itself, at least at a general level, with intermodal coordination -- through transfer arrangements and levels of service and capacity -- as well as with the system's ability to meet the changing transit requirements of the region within the limits of a variety of practical operating considerations.

Within the system planning phase, there are six basic work steps. Although these steps imply discrete stages in the system planning process, they are in fact closely interconnected. Step 1 is determination of transit goals; Step 2, data collection, analysis, and model building; Step 3, development of alternative systems; and Step 4, evaluation of alternatives. The completion of these tasks leads to Step 5, the system selection decision. This decision is closely related to Step 6, which involves programming and initial design of the selected system.

Step 1: Determination of transit goals. The goals to be achieved by the proposed new transit system provide the basis for the evaluation of alternative transit systems and should strongly influence the entire transit planning process. Goals include not only transportation objectives, but also land use, social, and economic objectives. They should be developed through a participatory process and should provide for identification of groups most affected by options to be studied.

Step 2: Data collection, analysis, and model building. The availability of data for transportation planning purposes had increased dramatically by the mid-1960s as a result of the highway and comprehensive metropolitan planning processes that were established in most metropolitan areas during that period. Prior to that period early system planning studies, such as those for San Francisco's BART and the Chicago Area Transportation Study. (CATS) , both of which were initiated in 1955, had to assemble their own land use data, conduct traffic surveys and make forecasts of travel on the test networks, all within the framework of the system planning process.

Today much of the data base being used in comprehensive planning, particularly the origin-destination data, dates from that period. In contrast to the massive data collection programs of the major metropolitan highway programs, more recent transit and highway system planning has relied on data from published sources such as the census or on small sample surveys. In addition, local and regional planning agencies have provided data on existing and future land use and related subjects.

The availability of this comprehensive data base on urban travel during the 1960s made possible an enormously improve understanding of the complex relationships involved in trip generation, travel patterns, choice of modes, and their relation to such factors as land use, travel- time, and various aspects of travel costs. A host of forecasting models for every aspect of planning has been developed to a fairly high level of sophistication. The fact that these models are sophisticated does not necessarily imply that resulting forecasts are assured of accuracy, of course, since this depends on several, factors:

The validity of the assumptions made as inputs to the forecasts. These typically include forecasts of land use (the geographic distribution of population and employment) and measures of performance and cost of traveling on each link of the transit system and the competing highway system (such as fares, times for each portion of the trips, parking costs, fuel costs, and tolls) . If these input assumptions are in error, the forecasts of ridership can be expected to be in error as well.

The accuracy with which current behavioral relationships are measured and incorporated in the model. Predicting transit ridership involves several basic forecasting steps. Measurements of trip generation and trip distribution yield an estimated total number of future daily and peak hour trips. Using these numbers, modal split forecasts predict the proportion of future travelers who will use transit instead of auto.

Simply stated, the key statistical measurement in modal split looks at the average proportion of travelers between any two points who use transit instead of auto, assuming a given set of comparative travel time and cost conditions for a given purpose of travel (work versus other) or time of day (peak versus off-peak) . The models used for forecasting the modal split can take a variety of specific mathematical forms, but a common, simple form is a set of "diversion curves" that relate modal split (percent who go by transit) to. comparative times and costs, with different curves for different trip purposes or times of day, and perhaps for different income classes of the travelers.

Generally speaking, the ability to measure these relationships improved during the 1960s as experience was passed from one study to another. A degree of standardization of procedures occurred largely as a result of Federal Highway Administration efforts, thus providing comparability and improvement in the confidence with which these measurements were made. This is much less true, however, regarding transit and modal split relationships. Major transit planning studies generally came along later, were fewer in number, and tended to be more peculiar to the local, technological, institutional, and political circumstances than the major highway studies. They were often less oriented to objective technical assessment of market potential and were performed comparatively independently because, unlike FHWA, UMTA did not provide a strong technical coordinating role.

One of the remaining relationships that has not yet been assessed, but is of major importance in transit system planning, is the effect of various amenity aspects of new transit technologies on patronage -- i.e. how much additional transit travel can be expected (either in new trips or diversion from autos) due to such factors as air conditioning, smoother riding qualities, reduced noise, reduced crowding, and more pleasant design of the stations and vehicle interiors. The models that have been developed for transit forecasting provide a framework for incorporation of such factors once the necessary empirical investigations are done, but until recently there was little opportunity to carry out those investigations because of the lack of transit facilities and services that possessed these amenities. Research of this type will be performed under the BART Impact Study.

The stability of all of these relationships over time. There is relatively little evidence regarding the long term stability of these relationships because the comprehensive data bases required to measure these relationships have been assembled only once for major original system planning efforts in most metropolitan areas, and most of these data collection efforts occurred during a relatively short period in the late 1950s and early 1960s. There is a limited amount of evidence from the Washington, D. C., area, where repeat surveys were conducted, that some of these behavioral relationships are fairly stable over a medium-range time period even under rapidly changing conditions -- growth in population, affluence, auto use and suburbanization, decline in transit use, and other factors. However, no empirical knowledge exists as to how stable they will be under the different of changes that are taking place today.

Step 3: Development of alternative systems. The development of alternative systems to meet transit needs is the heart of the creative design process. It involves an effort to search for different strategies to combine existing transit and other elements of the transportation system with a wide range of potential improvements including elements of existing, evolutionary, and new technologies. These can be combined in a variety of geographic configurations and levels of service. The systems should be developed to provide transit services for all major functions and needs of the area and all segments of the transit market, including CBD- and non-CBD-oriented travel, peak and off-peak, regional line-haul and community level short-haul travel, commuters, nondriving groups, and others. The process of developing these alternatives should be guided by the transit goals, by interaction with interested participants, and by feedback from the evaluation process.

Step4: Evaluation of alternatives. The evaluation of alternative urban transportation systems is becoming much more complex in response to four trends or pressures. First, the surge of public concern for human equality and environmental enhancement during the 1960s led to the consideration of nontransportation goals addressing social, economic, environmental, and urban design considerations. Second, some of the same pressures, institutionalized in the National Environmental Policy Act, gave rise to a need to give serious consideration to several system alternatives rather than simply justifying one alternative. Third, the desirability for an interactive transportation planning process was recognized, as described. Fourth, UMTA's efforts to require cost effectiveness analyses also influenced the approach to alternatives evaluation.

The evaluation process previously had been seen as a one-time comprehensive assessment of all alternatives considered, leading directly to system selection. For several reasons, this approach is being replaced by a two- or three-phased evaluation process. For one thing, most project budgets cannot afford to fully develop and evaluate all feasible alternatives. An initial evaluation effort might be performed in very little depth to "screen out" options that are far too costly or disruptive, or fail to meet minimal standards of service, or other criteria. This effort might be simply designed to narrow down the large range of possible alternatives and to aid in packaging various components of the existing system with components of new systems or service improvements. Decisions to adopt and move forward with early implementation of a selected component might possibly be made at this early stage if it were found that a clear consensus was reached.

This might be followed by the major comprehensive round of system development and evaluation, wherein all evaluation criteria would be applied to the alternative systems in depth, followed by an effort to select a preferred system. However, this period will almost always fail to obtain consensus in any major system planning effort involving diverse interests and alternatives. Thus it is usually desirable to program a conflict resolution period that may involve development of compromise systems, packaging of components in different combinations, efforts to set priorities among competing components of a system, and the like. The evaluation work at this stage may concentrate on very Particular impacts (and their amelioration) that have given rise to greatest concern among participants.

A resolution of conflict process is a phase of planning that always occurs in any complex planning process involving diverse interests. However, it is unfortunately almost never anticipated in planning work programs. Because this is so the resolution of conflict almost always takes place under the worst type of conditions: deadlines are not met, staff resources are not available to assist in developing compromise plans or performing special analyses, and opportunities are missing to continue the interaction that is required in order to resolve the conflict. These activities should be recognized as essential parts of system planning work programs.

Step 5: Selection of the system. The technical transit planning process cannot be designed to present a definitive answer as to what transit system is best for an area. The technical process should provide information on the forecast success of transit alternatives in achieving goals. This estimated performance as well as other pertinent data should be used by the decisionmakers in their selection of alternatives. Therefore, the major responsibility of the technical planning process is to ensure that all those who should have an opportunity to participate in decisionmaking are adequately informed of such data.

Step 6: Programming and initial design. Most transit planning has a producing a single, regionwide, long-range plan. Little or no attention was paid to several important program planning questions. planners have done little analysis of how best to proceed in reaching the end stage of implementation, which components to build first, and how to coordinate early components with existing transit and other systems. Their plans have tended to be inflexible instead of preserving options both to deal with conceivable, if not predictable, future problems and for taking advantage of future technological developments. Neither have they considered how implementation might be staged over time.

Analysis of all of these program planning considerations should be an important and continuing part of system planning. Indeed there is growing recognition among leaders in the transit field for system planning to take on this type of emphasis. UMTA's new draft policy regulations require "incremental" planning with an emphasis on setting priorities, considering mixed-mode systems, and establishing multiyear improvement programs. Despite this recognition of the direction that system planning must move, however, actual accomplishments are few.

Federal Planning Guidelines and Requirements.

Federal legal and administrative guidelines influence the content and practice of technical planning. Metropolitan areas seeking financial assistance from UMTA for both technical study grants, under Section 9, and capital development grants, under Section 3, must comply with a variety of administrative requirements and procedures. The bulk of these are prescribed

by administrative guidelines rather than by Federal legislation. However, Federal legislation has strongly influenced the planning process, and most administrative regulations have roots in legislative directives.

The UMTA administrative guidelines are derived from statutory provisions set forth in Section 4 of the Urban Mass Transportation Act. They are embodied largely in the agency's External Operating Manual. More specifically, the UMTA Planning Requirements Guide sets out an extensive listing of factors to be covered in both urban comprehensive planning and transportation planning. These requirements are primarily concerned with the scope of concerns to be dealt. with in the planning process and with the qualifications of the public agencies that sponsor the work. The Guide defines required elements for comprehensive planning and transportation planning, describes how the two processes must interrelate, and outlines the format and content of a transit development program. It explains requirements for preparing grant applications. The Guide does not describe or require technical procedures for accomplishing any of the planning elements.

Like the Guide and the External Operating Manual, the recently published joint UMTA-FHWA regulations for urban transportation planning are limited to descriptions of the required plans. [1]/ The new regulations require metropolitan planners to prepare (.1) a long-range general transportation plan, including a separate plan for improvements in management of the existing transportation system; (2) an annually updated list of specific projects, called the transportation improvement program (Tip), to implement portions of the long-range plan; and (3) a multiyear planning prospectus supplemented by annual unified planning work programs.

Federal environmental laws also have shaped the technical planning process. The most significant statutory requirement is contained in Section 14 of the Urban Mass Transportation Act. This section requires a detailed assessment of the significant social, physical, and economic effects of a proposed UMTA project that includes development of alternatives to the proposal. The assessment process must provide ample opportunity for public participation. Section 14 was added by the Urban Mass Transportation Assistance Act of 1970 apparently in response to the National Environmental Policy Act of 1969 (NEPA) and the Department of Transportation Act of 1966. It expands the legislative intent of Section 4(f) of the Department of Transportation Act. which was intended for the protection of significant publicly-owned land of a public park, recreational

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1/ UMTA-FHWA "Planning Assistance and Standards: Urban Transportation Planning," op. cit.

are a, wildlife and waterfowl refuge, or historical sites. Following the NEPA language, Section 14 requires the Secretary to find that "no feasible and prudent alternative" exists to a project where any adverse effect results.

The effect of the environmental requirements is to call for a transportation system planning approach that embodies thorough consideration of alternatives. These requirements are similar to the approach described in the earlier discussion of the elements of the technical planning process. However, when the new regulations were promulgated, they were applied to already selected systems. This resulted in delays probably well beyond the intent of the NEPA legislation.

UMTA recently took steps toward defining more clearly a general approach for developing and evaluating alternatives. The agency promulgated a draft policy statement that requires each community to determine which alternative transit improvement "best serves the area's needs, taking into account. the social, economic, environmental, and urban development goals."[1]/

UMTA's new policy calls for transit alternatives to be developed in packages of combinations of transit modes, each appropriate to the service requirements of a specific corridor. Improvements must be considered that employ effective management and operation of existing transportation systems as well . as construction of new facilities. The plan should be implemented in increments, based on analysis of projected 5- to 10-year transportation needs, with priority given to the area's more immediate needs. The evaluation of the alternatives must indicate which one is the most cost-effective plan for meeting the area's goals. It must provide full opportunity for public involvement from the early stages of the process.

UMTA proposes to base the extent of Federal commitment on "the cost of the initial increment of the plan which provides for the transportation needs of the community in a cost-effective manner." The locality could opt to apply the Federal grant toward a more costly alternative so long as the coverage of transportation service is essentially the same.

The approach UMTA adopts in administering the new guidelines is critically important to their ability to improve the quality of urban transportation planning -- and the quality of urban transportation as well.

Guidelines for Metropolitan Evaluation

The metropolitan cases were selected to represent diverse planning issues that arise in different types of situations.

1/ UMTA, "Proposed Policy for Major Urban Mass Transportation Investments," op. cit.

These situations ranged from decisions regarding reconstruction or extension of long-standing public rail transit operations; to decisions regarding the planning and evaluation of new rail or new technology systems or the rejection of such systems; and, finally, to decisions involving the implementation of entirely new rail systems.

, Although a variety of technical planning activities were underway in each case. four categories of crtically important planning activities were defined for purposes of the assessment. A set of guidelines was formulated for evaluating how these steps were carried out. The four categories are not all-inclusive and that they are meant only to provide a framework for focusing the assessment on key elements of the planning and decisionmaking process. The categories and their corresponding assessment guidelines are discussed below:

Broad, explicit goals and objectives should guide technical planning and decisionmaking. The technical process has been examined to determine the explicitness of the goals and objectives, the extent to which they were employed as criteria in-evaluating alternative systems, who participated in goal setting, and the relationship of goals to other regional objectives, insofar as these have been defined in the comprehensive metropolitan planning program. In addition, the goals and objectives should reflect the interests of all major constituencies and types of travel needs. They should also encourage a multimodal transportation strategy appropriate to the area and not be merely designed to lead the evaluation process toward a predetermined solution.

A range of realistic alternative solutions should be developed. The rationale for their development has been examined to evaluate their technical relationship to the projected transit market, the relationship to areawide goals, and the degree to which the alternatives were determined by narrowly defined political considerations, as distinct from political decisions based on solid technical evaluation of how the alternatives affect, or serve the objectives of, various constituencies . Assumptions that were made for each alternative have been examined to determine if they are unnecessarily restrictive or costly for the efficient functioning of the proposed system and thus if they had a significant negative influence on the results of the evaluation.

The evaluation of alternatives should be thorough and fair. The investigation considered both the effectiveness of evaluation techniques and the validity or reasonableness of the , data, particularly the forecasts, used for testing the alternatives. The range of factors used in the evaluation and the

weight attached to important considerations such as cost effectiveness and the achievement of defined goals and objectives also have been examined. A critical question was the extent to which balanced consideration was given to the full range of goals and objectives as opposed to excessive concern with a particular class of them, such as those that are quantifiable, those relating only to system users, or those relating only to particular land development interests. Similarly, the evaluation should consider the effects on all major interests. It should make technical information available to decisionmakers and the public and provide sufficient opportunities for the results of the evaluation to be reviewed by all interests. These comments should be given appropriate consideration in the course of planning.

A practical and flexible plan of implementation should be developed. The Implementation plans have been examined to determine the influence exerted by availability (or lack of availability) of Federal financing as well as the effect of local finance requirements on decisionmaking. The ability of the plan to respond to changing circumstances and permit staging of implementation also have been considered.

One factor that has been considered throughout is the participation of the public in each of these phases. Public participation is discussed in greater detail in the decisionmaking chapter and is only briefly mentioned here as it relates directly to the technical process.

METROPOLITAN EXPERIENCE

This section evaluates the technical procedures that planners in the nine case metropolitan areas followed in developing transit plans. The information is subdivided into categories corresponding to the guidelines used in assessing the metropolitan experience and described in the preceding section.

The assessment of technical planning processes looked at the following study activities in the nine metropolitan cases:

- The Boston assessment focused on the Boston Transportation Planning Review, carried out between 1971 and 1973. This study was established to reevaluate major highway proposals.

- Recent planning for Chicago transit improvements has called for extensions to existing commuter rail lines into suburban counties, expansion of regional bus service, and additions to the central city-focused rapid transit system, including proposals to depress the elevated loop and add new "distributor" links. The loop and distributor subway proposals have been evolving since 1965. The first plan was published in 1968. It was updated in 1971 and subsequently subjected to an environmental impact analysis, completed in 1973, that reaffirmed the same scheme. In June 1974 these proposals -- and other subway, commuter rail, and bus improvements -- were included in the 1995 Transportation System Plan.

- planning for San Francisco's rail system was grounded in a 1947 joint Army-Navy study of alternative bay crossings. In 1956 the Bay Area Rapid Transit Commission prepared a preliminary engineering study for a rapid rail transit system. In 1961 principal technical studies were completed that led to a plan for a five-county Bay Area Rapid Transit system. In 1962 the system was trimmed to three counties, and a bond issue to build it won approval in referendum. In recent years, technical studies have been undertaken to plan BART extensions.

- Seattle's major transit plans were proposed in 1967, 1970, and 1972. The 1967 plan, published by the Puget Sound Governmental Conference, called for a 47-mile, four-leg rapid rail system focused on the CBD. Voters rejected the proposal in 1968. Two years later the same plan, bolstered by evaluation and discard of several bus alternatives, was again presented to voters and defeated. In 1972 a new study produced a short-term bus improvement program that won approval in referendum that fall.

- Like Seattle, Los Angeles took rail transit proposals to the polls twice, in 1968 and 1974, and both times the proposals were turned down. Several plans were produced prior to 1968, but the system placed before voters was based most directly on an engineering study begun in 1967. Planning for the recently rejected system began in 1972. A plan for a 116-mile system was published in July 1973 and was followed by another round of alternatives analysis leading to a proposal for a 145-mile rapid rail system, published in March 1974. This plan was defeated in a referendum vote in November 1974, and subsequently a new system planning effort was begun.

- Washington, D.C. , initiated transit system planning with the 1959 Mass Transportation Survey, which made preliminary proposals for a 33-mile rail transit system and a network of new highways. Between 1960 and 1962 a new study team, using new data and incorporating preliminary engineering, produced a new plan that recommended an 83-mile rail transit system and reduced the highway mileage proposed earlier. Subsequently, transit planning and highway planning took separate courses. The 1962 transit plan was trimmed to a 25-mile "bobtail" system for the District of Columbia only and was approved for construction in 1965. A new technical study process began in 1967 to extend the system to the suburbs; it produced the 98-mile regional system that was approved for construction in 1968.

- Atlanta's early technical plans were developed in 1960-1962. In June 1961, the regional comprehensive planning body called for a 60-mile rapid rail system. Preliminary engineering studies resulted in a plan for a 66-mile rail system which was published in 1962. in 1967 an update of this plan recommended a 54-mile rail system, which was cut back to 40.3 miles and presented to voters in 1968. The plan was rejected. Earlier in 1968 an alternatives analysis was begun that led in 1969 to a draft recommendation for a busway system. By 1971 the busway system had been rejected, and a modification of the earlier rail plan -- coupled with a program for short-term bus improvements and a fare reduction -- was approved that year in referendum.

- Denver began transit system planning in 1971, and in 1972 a first phase plan was published that laid forth a concept for future land-use configuration and a complementary regional transportation concept. It was the goal-setting phase of a transit planning process that recommended in 1973 a 98-mile personal rapid transit system. Voters that year approved a sales tax measure to finance an early action bus improvement program, further study of the PRT proposal, and, ultimately, construction. At UMTA's request, Denver proceeded with an alternatives evaluation study and, in April 1975, recommended an 80--milc automated rapid transit system (a considerable modification of the earlier PRT concept) supplemented by express bus.

- The Twin Cities Metropolitan Planning Commission (the regional transit authority) began a series of long-range planning studies in 1968-1969. In 1970 conventional rail rapid transit was recommended to serve as the backbone of a regional system. A subsequent study evaluated alternatives and proposed a 37-mile rail system. Meanwhile, the Metropolitan Council (the regional comprehensive planning agency) produced a plan calling for exclusive busways; and private organizations were promoting study of advanced technology systems. The state legislature stepped in to arbitrate and requested both regional agencies to cooperate in planning an automated small-vehicle system. The resulting plan, published in January 1975, recommended a 16-passenger group rapid transit concept to replace conventional rapid transit as the region's backbone system. No system selection decision has been made as yet.

Goals and Objectives

Generally speaking, the technical approach to goal setting in the case metropolitan areas has corresponded to the historical period during which the planning was initiated. Thus, goals articulated during the 1950s and early 1960s were more narrowly focused than the goals developed since the late 1960s. Between that period and the present, two main factors have led to a broader range of goals for transit plans: growing popular concern for equal opportunity and environmental protection, and a more participatory approach to goal setting. Only in recently initiated studies have goals been translated into evaluation criteria for use during the course of the planning process. And although every case shared the goal of reducing forecasted automobile . traffic, none represented a truly multimodal planning approach.

These points are amplified in the discussions that follow. In each discussion, summary examples are cited from relevant metropolitan cases.

Early plans . During the 1950s and early 1960s transit was viewed as a means for dealing with several of the most serious urban problems perceived at the time. Transit promoters and others expected major new systems to (1) revitalize the ailing central cores of older metropolitan areas, (2) reduce auto congestion and the need for new highways serving commuters, and (3) help counter the trend toward suburban sprawl. The land use focus of these goals rightly indicates that in most cases early transit proposals were shaped by a close relationship between land use goals and transit goals (and their respective planners) .

At this time, although goals were often established as a first step in developing a comprehensive plan, a formal goal-setting procedure was not usually incorporated into the transit planning process. Thus, areas that initiated transit plans during this period usually did not solicit public input into goal setting.

With these factors at work, the goals for transit programs begun in the 1950s and early 1960s tended to imply a particular type of system. Indeed, two of the three plans started by the case cities during this period were undertaken with the clear assumption that their product would be a rapid rail transit system.

Atlanta. Atlanta initiated transit planning out of a desire to reduce highway congestion, channel regional growth, and enhance the center city, although these goals were not explicitly laid out as such, and were not employed directly in evaluating transit alternatives in the early plans. (The first early transit plan, Atlanta Region Comprehensive Plan: Rapid Atlanta, 1961, or Plan and Program for the Atlanta Metropolitan Region, 1962.) Both plans were expected to propose rapid rail systems at the outset, and both did.

San Francisco. As early as during the 1941-1947 Joint Army Navy Board Study, San Francisco planners viewed rail transit as a potential substitute for additional bridges across the bay and as a means for preserving San Francisco from the effects of additional automobile traffic. This work was followed by a series of studies specifically addressing the need for rail rapid transit.

Washington, D. C. In Washington, D. C., the earliest transit study pursued a more broadly framed goal than in the other two cases. This goal, nonetheless characteristic of the period, was to accommodate the future transportation needs of an expanding population. In the 1959 report of the Mass Transportation Survey, transit was not predetermined to be included in the plan. However, the 1959 survey was completed during a period of growing public concern about the unwanted effects of highways on neighborhoods and parks. Critics thought it called for too many highways and too little transit. That report, prepared by the National Capital Transportation Agency, spelled out the need for an improved transportation system to enhance the welfare of the District of Columbia, enable the orderly growth and development of the national capital region, and preserve the beauty and dignity of the nation's capital, although these goals were not employed in the planning process.

Recent plans. During the 1960s and 1970s, the scope of national concerns expanded to include a range of new issues that made their way into statements of goals for transit systems. One of the issues was reflected in campaigns for providing equal opportu- . nity -- to ethnic minorities, the poor, the elderly, and the handicapped. Another issue, spawned by urban growth and particularly the increased use of the automobile, was created by the threat of environmental degradation as measured principally by air pollution, energy consumption, and suburban sprawl. In devising ways to deal with suburban development and the paralleling increase in suburban-oriented work trips, public attention began to focus on the desirability of encouraging nodal growth with clustered land uses.

New transit goals responding to these issues called for maximum mobility for transit dependents; reduction in auto use to improve air quality, conserve energy, and control growth; and new attention to suburban-oriented transit service. Land-use-oriented goals usually were borrowed from regional land-use plans, a step that reflected a high degree of apparent coordination during this period -- as earlier -- between transportation and regional planners.

Until about 1970, most of the goals were developed by planners with the aid of public officials. Since then, citizens have played an increasingly direct role in the development of goals. This formal establishment of a gOal-Setting process was accompanied by the development of evaluation criteria, based on the goals, to assist in the planning process.

Examples from the case metropolitan areas that illustrate most or all of these changes are:

Seattle. Seattle's 1967 transit plan adopted the goals of the regional land use plan without structuring a participatory goal-setting process. After rail plans were defeated twice at the polls, Seattle planners modified their approach. The bus transit plan subsequently developed (and approved) encouraged public participation in formulating goals through a series of public meetings. A wide-ranging set of four goals was listed: (1) improved mobility for the general population and especially for the transit dependent; (2) furthering the region's environmental and development policies; (3) a flexible transit system in which routes could be added and changed with ease to meet changing demand; (4) providing channels for citizen participation during both planning and operations phases. These goals reflect the trend toward placing priority on serving suburban locations, and they were used to select a system that provided express bus service to four "high volume service areas" (including three non-CBD areas) . (The rejected alternative concentrated service to the CBD.)

Denver. Denver's goal-setting procedures embodied all the characteristics of recent planning efforts. General transit goals were developed in parallel with land use goals in the first phase of the transit planning process, which was completed in 1972. These goals included: (1) directing growth into designated areas; (2) providing access to employment and activity centers; and (3) supporting national energy programs. The regional land use plan, which grew out of the same goal-setting process as Denver's transit 'plan, called for encouraging growth in 12 suburban nodes in addition to the CBD.

These goals were expanded during Denver's recent (1975) analysis of alternatives to the PRT-type system proposed in 1973. Community values expressed during public meetings and incorporated as goals included mobility issues, minimization of disruption, environmental enhancement, esthetic concerns, and cost minimization. Many of these goals were later used in evaluating alternatives, although the one most important goal -- shaping growth to conform to the land-use plan -- was not effectively applied.

Minneapolis - St. Paul. The Twin Cities 1968-1969 long-range transit study established a comprehensive set of goals using inputs from major local agencies and citizens. The goals included: (1) ease of movement throughout the area; (2) provision of a variety of transit modes to meet needs of different people; and (3) achievement of "a higher quality of life." Evaluation criteria were derived from these goals for application to each study alternative.

Boston, The 1971-1973 Boston Transportation Planning Review incorporated a broadly participatory goal-setting process that led to a comprehensive set of formal objectives intended to guide the refinement of proposals for transit improvements. Although the citizen participation procedures in Boston are typical of recent trends, Boston is atypical in its CBD orientation. One of MBTA's current principal goals calls for emphasizing improved access to existing areas of dense development, particularly the downtown.

Discussion. Due to the interest in limiting suburban sprawl and channeling growth into activity centers, one might have-expected a greater degree of focus on neighborhood-level service. However, all of the transit studies examined gave priority to regional needs, and most did not attempt to consider intra-neighborhood types of service.

Each of the nine cases has held the goal of reducing automobile use as an important purpose for developing a transit system. One might expect this goal to have led to multimodal planning -- simultaneous study of transit and highway alternatives to serve a single set of travel demand projections. However, none of the cities pursued multimodal planning in the strictest sense.

- Highway-oriented transportation plans in Atlanta and Seattle included transit proposals, but these were rejected in favor of the recommendations of transit-oriented studies.

- Washington, D.C., began transit planning with a study -- the 1959 Mass Transportation Survey -- that was multimodal in concept. However, highway planning responsibilities were eventually claimed by the region's highway agencies. "

- A number of cases, including Washington, Atlanta, San Francisco, and Seattle, proposed joint use of planned highway facilities for transit and automobiles.

- Boston offers the best example of metropolitan wide coordination of transit and highway planning. The BTPR's sketch-planning process evaluated both highway and transit alternatives. However, the transit options were not studied to the same level of detail as the highway options.

In summary, the use of goals as an evaluation tool is a recent development and has occurred only when active citizen participation has been a part of the planning process. In spite of goals for coordinated transportation systems, transit plans are usually developed independent of highway planning.

Development of Alternatives

Like goals, the concept of alternatives has evolved over the decades of transit planning in the nine cases. Planning begun prior to the late 1960s typically did not develop as broad an array of alternatives as occurred in more recently initiated plans.

Early studies. The early transit studies in San Francisco and Atlanta and the 1962 study in Washington, D.C., viewed transit fundamentally as an alternative to the automobile. At the time, rapid rail transit was popularly considered the only transit option. Typically, a rail system was compared to an all-highway system; in a few studies comparisons were made also to an all-bus system.

A major impetus behind the early tendency to polarize the transportation options into expressway versus extensive rapid rail was provided by the highway-oriented transportation studies conducted in most large urban areas during the 1950s and the 1960s. These studies included CATS [1]/, BATS [2]/, AATS [3]/, PSRTS [4]/, and DMATS [5]/. They usually constituted their region's first effort at areawide urban transportation planning. These studies typically forecast rapid urban growth and called for an expanded highway construction program to cope with the increased travel demand. In this way they alerted regional planners and the public to the growing urgency of the need to provide an alternative to the automobile.

Seattle, Denver. The 1967 Seattle study and the 1973 Denver study presented transit-oriented alternatives to the PSRTS and DMATS studies, respectively. The transit studies developed land-use as well as transportation alternatives to the earlier plans. The highway studies assumed trend growth patterns -- sprawl -- while the transit plans called for containment of growth in designated nodes. It 'is interesting that the population and economic growth predicted in the transit studies reflects the same optimistic growth forecasts as the highway-oriented plans. These forecasts, especially the predictions for the CBD, tended to build a case for large-capacity transit systems.

Later studies. Later studies looked at alternatives to heavy rail systems. The growth in low-density suburban areas, which could not easily be served by conventional rail modes, was a major factor influencing the-examination of such alternatives as-bus, PRT, and light rail. The range varied greatly among the case metropolitan areas, from two to over one hundred. Most of the studies compared two fixed guideway alternatives with a low-capital alternative and an improved version of the existing bus system. Examples of the quality and breadth of alternatives are listed here. The Twin Cities boasts the most complete range; several cases display unrealistically expensive or otherwise inadequate choices of alternatives; while most of the cases fall somewhere in between.

1/ Chicago Area Transportation Study.

2/ Bay Area Transportation Study.

3/ Atlanta Area Transportation Study.

4/ Puget Sound Regional Transportation Study.

5/ Denver Metropolitan Area Transportation Study.

Seattle. In the 1970 Seattle plan four alternatives were tested, including (1) buses in mixed traffic, (2) buses with metered freeways, (3) busways, and (4) rail and bus. The plan assumed growth forecasts that were optimistic, especially in light of the recession that Seattle was experiencing at the time. (More recent studies have projected greatly reduced growth.) The first two alternatives were eliminated because they could not carry the traffic that would be generated by the forecasted growth. The busway alternative required a double-deck tunnel in the downtown to handle the load. The tunnel cost helped raise the total cost for the busway system to $350 million more than the cost of the rail-bus alternative. Therefore, the bus-rail alternative was selected, but it met defeat in referendum later that year.

Denver. The 1973 Denver study evaluated four alternatives: (1) all bus (2) all fixed guideway, (3) PRT with bus, and (4) rail with bus. The PRT alternative used advanced technology that had not been demonstrated in operation at the time (and that still has not been tested)- It was demand-responsive, with 7.5-second headways, and made few intermediate stops. The system easily outperformed the conventional alternatives.

Twin Cities. The 1969 Twin Cities study developed a range of alternatives that represent both hiqh- and low-capital systems. From a field of over 100 alternatives, the selection was narrowed to include (1) intermediate capacity rapid rail transit, (2) rapid rail with extended station spacing, (3) buses in mixed traffic, (4) commuter railroads, (5) busways without downtown subways, (6) busways with downtown subways, and (7) buses with metered freeways. Although this array is relatively comprehensive, it omits any automated system. A later study examined automated systems and compared their performances against the 1969 results.

Los Angeles. The Southern California Rapid Transit District in Los Angeles was mandated by the state legislature to develop a regional “mass rapid transit system." SCRTD interpreted the phrase narrowly to imply a rapid rail system. In its 1972-1973 study, SCRTD did not consider a full range of bus alternatives until pressured to do so by UMTA

Discussion. In summary, most examples of impartial and comprehensive selection of alternatives have occurred in cases where no one transit system is the local favorite. Cases in which rapid rail transit was assumed to be the solution predominate among system planning efforts that began during the 1950s and 1960s.

A major reason for much of the narrowness of early transit planning was the mere lack of knowledge among U.S. professionals of what options were available and what their capabilities were. The contrast between the record in this country and European accomplishments during the 1950s and 1960s is notable in this regard. We grew unsophisticated as a result of long public neglect.

Evaluation of Alternatives

Alternatives evaluation is designed to produce sufficient technical information for decisionmakers to be able to understand the advantages and disadvantages of alternative transit systems. The product is used to guide decisionmaking but not to determine the decision; other factors, such as political considerations, come into play in selecting a system from among alternatives. However, it is important that these external factors not bias the technical evaluation. This discussion focuses on the content of the technical procedures in each case.

The conduct of alternatives evaluation has changed over time, responding to advances in the state of the art and to new Federal requirements. Thus, cases that began system planning 10 years or more ago built fewer factors into the process than occurred in more recent studies. The current UMTA emphasis on determining relative cost-effectiveness of alternative systems has already influenced the evaluation process in one case (Denver) .

Although the type and range of factors used in evaluation has changed over time, the quality of the process has not necessarily improved. Studies initiated recently as well as earlier ones illustrate both poor and commendable approaches to alternatives analysis.

The discussion that follows examines first the changing character of the technical procedures for alternatives evaluation. The quality of the process in the case cities is described next.

Importance of economic factors. The relative importance of economic factors in the comparison of alternatives has varied greatly over the approximately two decades of transit planning in the case metropolitan areas. Early studies for the San Francisco, Atlanta, and Washington, D.C. systems relied chiefly on benefit-cost analysis to justify the selected rail systems. Following this period and up to a year ago, most systems were evaluated on the basis of a wide range of environmental and social factors as well as economic considerations, which were no longer of primary importance. However, since UMTA began requesting a determination of cost-effectiveness , economic factors are once again assuming greater importance in alternatives analysis.

The following examples describe the changing approaches within the metropolitan cases to alternatives analysis.

Chicago. The Chicago CATS (1958) , like most other studies of its type, used only a limited n-umber of factors to evaluate the transit proposals. Most of them were expressed in monetary terms. They included costs of capital, interest, and annual operations; benefits of time savings to existing transit riders; and accident reduction.

Washington, D.C. The 1968 study that led to selection of the Washington, D.C., adopted rail system justified the recommended system with a benefit-cost analysis that quantified benefits due to time savings by transit and auto users, auto insurance and operating cost reduction, conservation of land for better use, reduction in job tardiness and early departure, reduction in dismissal for inclement weather, elimination of second and third cars, and reduction in employer-provided parking facilities.

Boston. The Boston Transportation Planning Review (1971-1973) provides a good example of an alternatives evaluation using a variety of factors that reemphasize economic considerations. Each alternative was evaluated by factors grouped in 10 categories: (1) capital costs; (2) transportation service; (3) housing relocation needs; (4) effect on regional economic patterns, (5) community economic impact; (6) impacts on landscape, open space, and historic resources; (7) impact on air quality; (8) noise levels created; (9) effect on community quality; (10) impacts on natural ecosystems.

Denver. The 1975 Denver plan represents the first attempt to build community goals into the process of identifying a cost-effective transit alternative. The evaluation used a wide range of considerations, many reflecting community goals, to evaluate alternatives. A low-capital alternative was rejected because it could not achieve community goals, and the most cost-effective of the remaining high-capital alternatives was selected.

Quality of the analysis. The quality of the alternatives analysis varied greatly from study to study, and not necessarily with respect to time. Even if the changes in the state-of-the-art over time are considered, examples of inadequate procedures can be found among recently initiated studies as well as those begun early, and vice versa. A good technical evaluation should measure the comparative capacities Of the alternatives to meet goals established by the community in question. If the evaluation process is biased, decisionmakers are given incomplete information and they may not be able to identify all of the potential problems inherent in the various alternatives or to identify the steps necessary to overcome these problems. In many cases, the technical work was used

to justify an already selected (or strongly favored) alternative.

Washington, D.C. The first transit plan in Washington, D.C., grew out of a regional transportation study that addressed both highway and transit needs. This study, the Mass Transportation Survey of 1959, laid the groundwork for future transit planning although its transit proposals were not directly represented in the system that was eventually adopted. The study began with no preconceived solution and conducted a thorough and fair evaluation of alternatives.

Boston. The BTPR process, initiated in 1971, is an example of a comprehensive analysis, as has been explained. However, as the study began, there was strong political support for the decision that was ultimately made not to build the highways under study, and the prevalence of this antihighway attitude tended to distort the otherwise well-structured evaluation process. If the BTPR process had placed more emphasis on the development of transit alternatives, rather than concentrating on the elimination of highways, some of the subsequent delays in selecting particular transit alternatives within each corridor tight have been lessened.

San Francisco. BART planners assumed from the beginning that their plan would be a "heavy rail" system. If their evaluation of the proposed BART system had been more careful, it should have identified the proposed automatic train control system as a potential source of problems because it was a technology still under development.

Atlanta. Atlanta's early plans in 1961 and 1962 did not formally test alternative transit systems. The Metropolitan Atlanta Transit Study Commission briefly investigated improved bus service concepts and the use of commuter rail but discarded these without rigorous analysis. The first serious look at alternative concepts occurred with the Voorhees study that began shortly before the defeat of Atlanta's first transit proposal at the polls in 1968.

Denver. The analysis of alternatives published by Denver's Regional Transit District in 1975 demonstrates a recent case in which questions have been raised about the validity and reliability of the assumptions and procedures used. To the extent that the process did not provide complete, accurate information about a full range of feasible alternatives, it illustrates the difficulty in accomplishing this ideal in a metropolitan area where, with few exceptions, there was solid support from public officials and private citizens for a specific transit system. Few forces were pushing for a thorough analysis of alternative transit improvements in Denver when, to meet a requirement imposed by UMTA, the ART study was begun. In the view of most Denver residents, the time for alternatives analysis had passed.

Discussion. One of the limitations on the range of alternatives developed in a number of cases was exerted by the engineering consultants hired to do the planning work. Engineering consultants were selected for their previous experience in transit rather than for their ability to conceive or evaluate alternative technologies. Their mission and their approach was more "design" than development and evaluation of alternatives.

Engineering consultants who were hired to do transit system planning could look forward to being hired for larger, more lucrative engineering design contracts, particularly if the system selected was one in which they had extensive previous experience. Engineering design contracts were generally written so that there was no incentive to develop a lower cost transit system. Many contracts were written so that the fee increased as the system cost increased, thus tending to create an incentive to design conventional heavy rail of highest performance standards and complete grade separation.

One of the most important lessons learned from the metropolitan experience concerns the ability of a predetermined solution to distort the technical planning work. Throughout the past 25 years the influence of the proponents of one transit system or another has had a great effect on the degree of objectivity of the technical work. Many studies, especially early ones, were designed to justify an already favored type of system and thus were biased in one manner or another. This bias can also be seen in some of the system evaluations that were performed at UMTA's insistence after a basic system planning effort had been completed. In some cities where no one transit system was the clear favorite, the technical process has produced much more impartial information concerning the merits of alternative transit proposals.

In addition, the level of public involvement has been shown to have an important effect on the technical work. The inclusion of a formal, participatory goal-setting process as a step in technical process is likely to lead to the use of the goals in the evaluation of alternatives. The findings show that

evaluating options for entire transit-only systems in many situations may be less effective than conducting a large portion of the work program on a subregional basis. The Boston Transportation Planning Review (BTPR) provides an example of this approach.

For the BTPR, the area under study was broken down into several sectors or corridors that were relatively independent of each other but that each contained highly interrelated transportation elements (existing facilities and services, controversial expressways, and proposed transit facilities and services). Within each subregional area various options were conceived, refined, and evaluated. Typically, these options included a diverse array of public transportation improvement possibilities, such as rejuvenation of commuter rail service, extension or relocation of rail rapid transit, conventional local surface transit service improvements, establishment of new cross-town routes and special services for the transit dependent. Considerable emphasis was placed on short-term improvements as well as long-range capital improvements, the timing of implementation, funding sources, associated changes required in operating policies in legislation or in institutional arrangements in order to carry out each promising element of the options.

The process allowed early decisions to eliminate from further consideration or to approve for implementation certain elements for which a clear consensus was formed. This weeding-out step resulted in a narrowing of the number of options, plus a redefinition of some of them, that would be subjected to further study. The BTPR also merits attention for having set aside periods of time for the critical work that was expected to be needed to help resolve the conflicts that inevitably develop in the course of planning.

Implementation Plan

In addition to generating information to help the system selection decision, planners must create a detailed plan to guide implementation. The success of an implementation plan depends largely on three factors. First, a secure source of construction funds must be obtained. Second, a flexible implementation schedule must be drawn up that can respond to changing regional and local circumstances. Third, means must be developed for directing and controlling transit-related effects, particularly development impacts.

Financing. The metropolitan experience in creating the financing portions of implementation plans shows a clear pattern of historical development. Other aspects of the experience in planning for implementation have been more anomalous.

Financing plans have been an integral part of new system proposals in every city studied. Since UMTA began funding capital programs in 1966, planners in all of the case cities assumed they could tap UMTA for its share and concentrated instead on generating the local share. Five of the cases had to win voter approval for their financing plans. [1]/ Transit plans in three Of the cases (Atlanta, Los Angeles, and Seattle) were defeated at least once; and only three cases have approved fixed guideway transit systems (Atlanta, Denver, San Francisco) . The experience of these five cities in attempts to gain public support show an evolution in both the financing measures used and the nature of the transit plan they are intended to support.

One of the more obvious changes in financial planning has been the nature of the local taxing mechanism proposed. Bond issues supported by property or sales taxes have been the principal methods suggested for financing new systems. Property taxes were recommended by early studies. However, after initial success in San Francisco, property taxes were defeated in Seattle and Atlanta. Sales taxes were substituted and led to voter approval in Atlanta and Denver -- but to defeat twice in Los Angeles.

Changes also have occurred in the nature of the transit plan itself. One of the factors common to the most recent successful fixed guideway transit financing referendums -- in Atlanta (1971) and Denver (1973) -- was the inclusion of short-term bus transit improvements to accompany the long-term transit plan. Immediate transit improvements were not associated with most of the previous financing referend

Another recent trend is incorporating a provision for operating assistance to support existing service as part of the financing plan for a new system. Early proposals had assumed new transit systems would be able to offset at least part of the construction costs with operating surpluses.

Case examples representing a range of approaches to and successes with different financing proposals are summarized below:

1/ These five cases are Atlanta, Denver, Los Angeles, San Francisco, and Seattle. Only a few participating jurisdictions in the Washington region had to vote approval of the financing plan; Boston and Chicago can plan on existing authority; and the Twin Cities has not yet selected a system or financing plan.

Seattle. In 1968 and 1970 Seattle voters rejected bond issues backed by property taxes to finance construction of a new rail system. In 1972, however, voters approved the use of auto excise tax money to support a short-range bus transit plan.

Atlanta. In 1968, Atlanta voters rejected a rail transit system to be financed by property taxes. However in 1971 Fulton and DeKalb county residents approved a sales tax increase to finance a similar rail system and cover bus operating deficits. Part of the financing plan assumed a reduction to 15 cents in the transit fare and increased bus service. An unexpected drain was placed on the new tax fund due to high operating deficits. Even though the state legislature acted to restrict the portion that can be spent on operating deficits, paying for the remainder of the short-term bus improvements and the first segment of the rail system will require careful budgetary management.

Denver. In 1973 Denver area voters approved a sales tax for the operation and construction of a regional transit system. The financing plan was closely associated with an extensive short-range bus improvement plan and implied the construction of a PRT system.

Los Angeles. In 1968 Los Angeles area voters rejected a sales tax-based financing plan for an extensive rail system. Again in 1974 Los Angeles voters rejected a sales tax plan that would have financed an extensive (although ill-defined) new system and the operation of a large short-term bus improvement program.

Washington, D. C. In 1968 WMATA approved a rapid rail system for Washington, D. C., to be financed by local government contributions, revenue bonds guaranteed by the Federal and local governments, and a Federal contribution to pay two-thirds of the total cost. The financing plan was approved by local jurisdictions, which legally committed themselves to contributing a share of the initial estimated costs of the system. Cost escalation has plagued WMATA since then. The source of funds to cover increased construction costs has not been determined at this time.

Staging of construction. The second element of an implementation plan concerns the staging of construction. All of the major transit programs proposed to schedule implementation over time, and to this end staging plans were designed. However, the new UMTA guideline for building in increments casts the concept in a different light. 1/ Traditional construction stages directly follow one after another. According to UMTA, the incremental approach means placing fixed-guideway systems initially only in high density transit corridors, and waiting to build in other corridors until demand develops. Thus existing or near-term needs would be served, while additional service would be held back until future growth had generated enough demand to justify a transit system. Meanwhile, other transit modes could serve the corridor. Inherent in this kind of implementation plan is the flexibility to respond to future growth.

Examples of proposed staged implementation of new systems along these lines are limited, and all are UMTA inspired.

Denver. RTD has prepared an 80-mile Automated Rapid Transit Plan for the Denver area. The initial segment is to be only 28 miles long with additional segments to be constructed as transit demand warrants and as local citizens and governments take actions favoring their construction. RTD's position reflects UMTA's implementation guideline. It also responds to the existence of neighborhood opposition to several potential future segments, although not to the initial segment.

Los Angeles. A March 1974 report in Los Angeles proposed several options for building the initial segment of the proposed system. These options ranged from an initial 33-mile segment to be constructed in six years to an initial 124-mile segment that would require eight years. The proposal, called the "building block" approach, responded to UMTA suggestions. However, all of the building blocks were rejected in favor of building the entire 145-mile system (which met defeat in public referendum later that year).

Atlanta. UMTA has pledged funding for only a segment of the proposed Atlanta system and has made no commitment to support the entire system. By controlling the amount and timing of Federal money committed to the Atlanta system, UMTA will be able to initiate a policy of staged implementation.

1/ UMTA, "Proposed Policy for Major Urban Mass Transportation Investments," op. cit.

Shaping urban growth. The final concern of an implementation plan involves procedures for controlling and shaping development impacts. None of the cases has faced this matter squarely. Transit is typically expected, in effect, to influence future land use in a beneficial manner on its own power through the market place.

Transit's role in shaping development in the pre-automobile age is undisputed. However, at this time the effect of transit on shaping future development patterns has not been proven to be significant. None of the cases has demonstrated convincingly that its proposed transit system could have sufficient influence on land use development to achieve land use benefits. In the case of BART, there is widespread belief, backed by little evidence to date, that the intensification of growth in San Francisco's CBD is due in part to BART. However, there is growing disenchantment over this trend even though it was widely viewed as an objective in the 1945-to-1962 planning period.

In order to achieve potential land use benefits, other governmental actions (such as zoning restrictions and incentives, sewer service -limitation, and auto restraints) must be combined with the provision of transit service. Some localities in the Atlanta, Washington, and San Francisco metropolitan areas have taken steps to encourage high density development around rapid transit stations. But to date none of the cases has adopted or proposed to adopt a package of effective governmental actions to assist a new transit system in creating preferred land use patterns for the entire region.

The following examples cover a representative set of experiences:

Atlanta. In Atlanta the rail system conceived by the '1 planning organization during the 1960s was part of an overall metropolitan growth plan, but no practical means of shaping the land uses accompanied it. In March 1968, before the first referendum, a study entitled Impacts of Rapid Transit on Metropolitan Atlanta was done for the Atlanta Region Metropolitan Planning Commission (MPC's successor). It covered land use impacts, effect on community facilities, social impacts and relocation. It also laid out methods for coordinating urban renewal and transit station development. The report was not carried out to the letter, but the Metropolitan Atlanta Regional Transit Authority (MARTA), the Atlanta Regional Commission, and the City of Atlanta are doing station area impact studies which are designed to plan and control the development around the station areas.

Los Angeles. In Los Angeles, the Southern California Rapid Transit District's plans paid little attention to the Southern California Association of Government's regional land use concept during most of the planning period. Recently SCRTD has shown some recognition of the relationship, but there has been no evidence of any mechanisms to implement SCAG's plans as part of the transit implementation program. CACORT (a blue-ribbon community involvement process) raised the issue of joint development at transit station areas because it had not been built into SCRTD's Phase 111 plan.

Boston. In Boston, the Massachusetts Bay Transportation Authority (MBTA) and the Metropolitan Area planning council (MAPC) have produced generally compatible plans and proposals over the years, reflecting the traditional interlocking relationship between these two agencies. At the project scale, the experience in the Boston area has been mixed. Quincy Center is a good example of joint development that has been implemented pursuant to state legislation with the aid and encouragement of local officials. Developers have responded and a major public parking facility at the station is well utilized. At Wellington Station, by contrast, the MBTA designed a railyard/maintenance facility in the heart of an otherwise excellent, publicly owned development site.

San Francisco. In the San Francisco Bay Area, despite the excellent work in developing a regional land use concept plan as part of the original BART system planning, the implementation of the plan has been characterized by a number of missed opportunities for joint development, one major clash (with Berkeley), and several lesser ones. Significant instances of coordinated development ultimately have been achieved (e.g. at Embarcadero Station, along Market Street, and in downtown Oakland) and subsequent corridor extension studies have been well coordinated with local planning.

Discussion. In summary, successful implementation plans depend on workable financing plans, construction schedules, and development controls. Most recent successful financing referendums have been closely tied to short-term transit improvements. The necessity of achieving areawide support at the polls has encouraged the development of large systems that are to be implemented in one long-term construction effort. Staging of system implementation has been largely in response to UMTA policy. Although all of the new transit systems claim significant land use benefits, none of the systems has been presented as part of a package of governmental actions that would assure achievement of these land use goals.

CHAPTER 5

FINANCING FOR PUBLIC TRANSPORTATION

The influence of financing mechanisms on transit decisionmaking is profound and cuts across the two major categories of investigation (institutional context and technical planning work) in this assessment. For this reason, discussions of financing issues appear in several places in the report. This chapter was written to consider the subject in the depth it deserves.

The chapter focuses on the impact of the Federal program for transit support. The amount of funds that has been available, the purposes for which their use has been authorized, and the means by which they have been allocated all have contributed to shaping the transit planning and decisionmaking process on the regional and local level. The availability of aid from the state and the mechanisms for raising local funds also have had important influences and will be discussed.

One of the central issues has involved UMTA's attempts to develop a fair allocation procedure for distributing funds. As of 1974 a portion of the transit program has been allocated by formula, a set amount to each metropolitan area. However, the bulk of the money is "discretionary;" that is, it is distributed to applicants at the discretion of the UMTA administrator.

Fair distribution has been a concern at least since 1970. In order to gain broad support for the new UMTA bill being debated (and later approved) that year, a limitation on the amount that could be spent within any state was proposed at 12 1/2% of the total funds obligated. [1]/ This provision offset concern that the New York metropolitan area or a handful of the largest rail systems would be granted most of the funds. [2]/

The debate intensified with passage of the 1973 Federal-aid Highway Act. Perhaps the greatest immediate importance of this act was to virtually guarantee strong competition among urban areas for the available funds by substantially increasing the leverage of a local matching dollar. Until this time UMTA had been able to provide all funds for projects that met the rather moderate grant duplication requirements .

1/ It became Section 12 of the 1964 Act. Later legislation permitted an additional 2 ½% under certain conditions.

2/ Federal Transit Subsidies, the Urban Mass Transportation Assistance Program, George W. Hilton, the American Enterprise Institute for Public Policy Research, June, 1974, p. 8.

During the past two-years, UMTA-has been examining an- approach for allocating its now-scarce funds that would involve establishing criteria to be used in judging the relative merits of grant applications. The recently. published policy for transit investments is the first published product of its investigations. [1]/ Although the policy sets forth conditions that applicants must meet before they will be eligible for Federal assistance, it stops short of proposing criteria for apportioning a limited amount of money to several equally deserving applicants.

The need for stable, predictable funding levels and related issues are discussed in greater detail in later sections of this chapter. The next section describes the general guidelines that were established to guide the metropolitan case assessments; it is followed by a discussion of the metropolitan experience and, finally, by a summary of conclusions and lessons learned.

GENERAL GUIDELINES FOR METROPOLITAN ASSESSMENT

The financing issues affecting the nine case cities were identified with the aid of a number of general guidelines for assessment. These guidelines were based on interpretation of Federal policy as stated in the law, interpretation of common state and local objectives, and an evaluation of the evolution and current status of transit finance. A summary of the Federal financing program is followed by a description of the guidelines.

Federal Transit Financing Programs

The purpose of this section is to summarize the financing mechanisms used to implement the Federal urban mass transportation program. Chapter 2 provides a detailed account of the evolution of the program.

Capital assistance. The first Federal capital aid for transit was provided in the form of capital loans through the Housing Act of 1961. The Urban Mass Transportation Act of 1964 (PL 88-365) authorized the first Federal matching grants for local transit capital improvements. Typically these funds have paid for public takeover of private transit companies, for acquisition of new bus or rail transit rolling stock, and for construction of new transit systems and supporting facilities.

1/ UMTA, "Proposed Policy for Major Urban Mass Transportation Investments," op. cit.

Until 1973, the Federal share of capital grants was two-thirds of the total project cost. In 1973, the ratio was changed to 4-1, with the Federal Government providing 80% of the total.

Funding levels in the capital assistance program have increased since the initial legislation was passed. From 1965 to 1967, $375 million was made available. Amendments in 1966, 1968, and 1969 raised the authorizations by $790 million and extended them through fiscal year 1971. In 1970, Congress amended the Urban Mass Transportation Act again, this time authorizing $3.1 billion for a long-range capital program. Table 6 shows the total Federal transit support to all transit systems in the nine case areas between 1962 and May, 1975

The Federal-Aid Highway Act of 1973 provided $3.1 billion in new authority for transit capital grants, along with the option to use $800 million of highway urban systems money and to exchange allocations for unbuilt urban interstate highway segments for transit projects. In 1974, $4.825 billion new authority was provided by the National Mass Transportation Assistance Act. In addition, that act authorized $3.975 billion for a new formula grant program whose allocations could be used both for capital programs and to pay operating costs. The capital grant program is administered on a discretionary basis.

Technical assistance. The first Federal aid specifically earmarked for transit technical studies, which were defined to include system engineering and design, was authorized by the UMTA amendments of 1966 (PL-562). Since 1961, transit planning had been one of the half-dozen urban planning activities supported under the "Section 701" housing program. The 1966 legislation, however, shifted transit planning to UMTA, and further authorizations for the technical studies have been provided in all subsequent UMTA legislation. Technical studies grants have been administered on a discretionary basis.

Guidelines for Metropolitan Evaluation

In order to guide the assessment, a set of guidelines was formulated. These guidelines reflect Federal, state, and local policy as well as informed professional judgment. [1]/ These guidelines provide a framework for focusing the assessment on key financing issues.

1/ One of the major sources for these guidelines was a set of "Criteria for a Desirable Financing Mechanism," contained in A Study of Urban Mass Transportation Needs and Financing, U.S. DOT, July 1974, p. VI-42.

TABLE 6: FEDERAL ASSISTANCE TO NINE SMSA'S FROM F.Y. 1962 - MAY 31, 1975

Amount (1,000s of Dollars

	Capital Grants		Capital Loans		Interstate Transfers		Technical Studies		TOTALS	
	Federal Share	Federal & Local Share	Federal Share	Federal & Local Share	Federal Share	Federal & Local Share	Federal Share	Federal & Local Share	TOTAL FEDERAL SHARE	TOTAL COSTS OF FEDERALLY AIDED PROJECTS
Atlanta	239,089	621,360	0	0	0	0	9,066	14,401	248,155	635,761
Boston	322,852	650,620	19,500	19,500	33,040	41,300	4,965	7,108	380,357	718,528
Chicago	351,660	612,237	7,500	7,500	0	0	11,663	16,992	370,823	636,729
Denver	20,737	34,504	0	0	0	0	2,017	3,807	22,754	38,311
Los Angeles	78,530	110,717	0	0	0	0	6,440	9,560	84,970	120,277
San Francisco	469,137	931,279	0	0	0	0	7,839	15,916	476,976	947,195
Seattle	56,700	139,137	0	0	0	0	3,562	6,521	60,262	145,658
Twin Cities	30,647	45,682	0	0	0	0	2,666	6,512	33,313	52,194
Washington, D.C.1/	79,958	118,525	57,000	58,900	0	0	6,020	10,014	142,978	187,439

1/ Does not include capital grants and loans earmarked for the Metro rail system, because these funds have been provided directly by Congress and not by UMTA.

Source: Urban Mass Transportation Administration

A Standard Metropolitan Statistical Area (SMSA) includes a center city (or cities), usually with a population of at least 50,000 plus adjacent counties or other political divisions that are economically and socially integrated with the central area.

The four guidelines for assessing the financial questions are:

Financing policy should support national, regional, and local goals. Financing mechanisms should allow development of transit systems that advance current Federal policy for preserving existing transit systems and revitalizing them to provide efficient, economic, and convenient transportation; for providing moderate fare service to increase the mobility of transit-dependent persons; and for attracting new riders regardless of their social or economic status or the purpose of travel. At the same time, the financing arrangements should allow equal responsiveness to local and regional goals for influencing and supporting desired development patterns, improving environmental conditions, and other objectives.

Financing mechanisms should provide a stable and predictable source of funds. This stability should extend to sources of funds to pay operating costs as well as capital needs, and to Federal financing policy as well as to means for raising the local matching share.

Financing mechanisms should encourage a balance between short-term and long-range planning and an unbiased choice of mode technology The financing approach should not force rigid commitment to a fixed long-range plan but should allow attention to near-term improvements and an incremental approach to development. They should provide equal access to support for operating needs and low-capital improvements as for conventional capital-intensive systems. They should encourage development of local short-haul, community-level transit service as well as line-haul systems. The financing mechanisms should avoid stimulating competition among grant applicants.

Financing mechanisms should avoid creating unnecessary administrative delays. Policies for administering transit funds should be developed that streamline the grant application review process and minimize the need for bureaucrats to make technological decisions.

METROPOLITAN EXPERIENCE

This section summarizes the impact of the procedures that were available to finance transit programs in the nine case metropolitan areas. The information is subdivided into categories corresponding to the guidelines used in assessing the metropolitan experience and described in the preceding section.

Ability to support National, Regional, and Local Goals

National goals. The policies and arrangements for distributing Federal transit funds have had (or possess the potential to have) different degrees of success in meeting national objectives for preserving and revitalizing existing transit systems, minimizing fares to benefit the transit-dependent, and attracting new riders. However, the absence of operational criteria for measuring "success" makes judgment about these matters difficult.

The objective of revitalizing existing systems to provide more efficient, economical, and convenient service and the objective of attracting additional riders are generally recognized in planning reports at the Federal (and local) levels. However, there are no guidelines for how to evaluate alternative plans or technologies at the local level, or how to allocate funds at the Federal level in ways that will meet those objectives.

Although the Federal transit program has recognized the mobility problems of disadvantaged groups for a number of years, keeping moderate fares for the benefit of lower-income groups did not become an explicit legislative goal until 1974. The National Mass Transportation Assistance Act provides (for the first time) Federal operating assistance, which will help localities subsidize low fares, and it requires localities to set fares for elderly and handicapped at one-half of regular levels during nonpeak hours. [1]/ Until this time funds had been available for capital investment only, and every effort (including raising fares) had to be made to maximize farebox revenues. This situation tended to put lower-income groups at a disadvantage. [2]/

However, the new act does not guarantee maximum relief. Under the new funding program about three-fourths of the funding is still committed to capital investment, and there are no explicit criteria or incentives for keeping fares at a moderate level. Continuing inflation, particularly in labor

1/ Section 103(a) of the National Mass Transportation Assistance Act of 1974 (P.L. 93-503), which was added to the UMTA Act of 1966 as Section 5m.

2/ During the period 1949 to 1970, transit fares rose at a rate that was 3% per year faster than the consumer price index, according to A Study of Urban Mass Transportation Needs and Financing, op. cit., p. I-9. Hilton (op. Cit., pp. 55 56 and III) present several arguments and some evidence for how the UMTA program has tended to inflate costs of transit services.

costs, can be expected to cause renewed pressures for increases in transit fares unless policies on fare increases are restrained to a greater extent than at present.

Local and regional goals. Financing mechanisms for both Federal and local shares significantly limit the ability of local governments to use transit as a means for achieving land use and development objectives. UMTA's main contribution in this regard has been to channel transit system planning funds through the regional planning agencies. This step indeed has led to "coordination" on the local level between transit system planning and regional comprehensive planning. But this kind of coordination has not been adequate to assure that development will occur where planners want it to occur, in the vicinity of transit stations or corridors.

One of the main causes of this problem is the type of funding mechanism used to raise the local share. Typically, the local share is provided by bond issues or specially earmarked taxes, for which public approval must be gained in a referendum. In order to show the voters what they are being asked to buy, the plan put before them usually is well defined in terms of routes, grade, and station location. Costs are estimated on the basis of the specific system plan, allowing for inflation and contingencies. However, due in part to the desire to keep costs as low as possible -- and maximize the chance for voter approval -- the estimates do not provide for many of the costly activities that are necessary to take full advantage of development opportunities, if they exist.

For example, one of the major lessons of the BART experiment, and one that has not been exphasized in most of the reviews of the history of BART, is that the long-term large-scale bond issue financing of a highly specific rail transit system tended to create strong incentives for the implementing agency to miss opportunities for coordinated development planning because of the necessity to adhere to a predetermined tight budget and time schedule.

Thus, the plans approved in referenda typically do not provide for assembly of land in vicinity of stations; design work other than for stations and transit facilities; or development of detailed land use plans for sites around stations. Neither do they deal with formation of development mechanisms for sites (such as special districts, other development finance mechanisms, quasi-public development corporations) , the need to work with communities to evaluate and select from among different design configurations, or the desirability of negotiating with local governments to work out arrangements for development of associated community facilities.

Needless to say, the plans also fail to take into account the time delays that would be required to undertake these activities. Because the need for such activities is not generally recognized until after funding is fixed, the transit agency and its consultants tend to find themselves pressured into a crash program to design and build in an inflexible manner with minimal coordination with local government and potential developers.

Another cause of the inadequate coordination between transit and land use planning is the lack of statutory authority that might allow either transit agencies or metropolitan planning agencies to control where development should or should not occur. This issue, which is less directly related to financing mechanisms, is also discussed in earlier chapters.

Stable and Predictable Sources of Funding

An effective transit program level requires a steady and predictable flow of funds for planning, capital development and operating purposes. However, the experience since World War II in the transit field indicates that funds have frequently not been available when or in the amounts needed. Inadequacies in both the Federal program and the financing mechanisms available at the local level have contributed to this problem.

Federal funding policy. A number of transit agencies in the case metropolitan areas have been faced with changing UMTA policies and uncertain levels of funding. Without some degree of certainty about the amount of funds and when they will be available, localities have a difficult time planning transit systems, gaining local public financial support for them, and realistically staging their development.

The charge is commonly made in conversations that UMTA went around the country promoting the planning of big systems

and promising that they would be funded without providing any realistic appraisal of what the long-term fair share for any metropolitan area might be. Regardless of the merits of this charge, in recent years UMTA has backed off from previous support in several areas and called for more studies, prior to commiting support for construction.

The complaint that UMTA has been causing unnecessary re-study is reinforced by a fear on the part of some local officials that UMTA has developed an overly negative and unjustified attitude toward rail rapid transit. This fear has been based in part on the fact that UMTA has backed away from commitments to new fixed guideway systems in Los Angeles, Denver and elsewhere, and because of the tone of many reports, speeches, and private conversations, particularly during 1974.

Although UMTA may have had legitimate grounds for this kind of action in certain cases [1]/ some major local transit officials feel that UMTA's shift has been too great and may be damaging to public transportation as a whole. They urge UMTA to implement the new planning requirements embodying the shift in policy in such a way that they do not delay local support.

Seattle. Several persons interviewed in the Seattle area felt that the lack of any specific level of Federal commitment to assist in financing the proposed rail plan was a significant reason for lack of support in the bond issues that failed in 1968 and 1970.

1/ It is not suprising to many that UMTA has had a shift in its thinking regarding rail transit. The attitude toward rail transit that existed in UMTA and within the transportation planning community as a whole a few years ago was overwhelmingly positive. Since then, inflation in the costs of systems under development has been dramatic. The costs of some proposed new systems have been so great that they have threatened to swamp UMTA's budget. Several studies completed over the last few years also have influenced UMTA's policy. Some studies have tended to call into question the cost-effectiveness of conventional rail rapid transit (as compared with other medium capacity transit systems) under a wide variety of conditions commonly encountered in major urban corridors where such systems have been planned. Other studies have shown that some rail system investments tend to result in a negative income redistribution -- i.e. that upper-middle income suburbanites tend to receive more net benefit than others from some of these projects.

Los Angeles. The fact that UMTA administrator Frank Herringer had made statements in Los Angeles questioning the justification for the extensive rail system plan is cited as a factor underming support at the polls in 1974. Similarly, uncertainty over Federal support was a factor in the 1968 plan's defeat. Prior to the last vote, UMTA made it clear publicly that it would not commit itself to fund the full system. This announcement probably helped encourage other critics of the 1974 plan and sent SCRTD back to the drawing board.

Denver. In Denver, local officials believed that UMTA was supportive of PRT and a large capital-intensive system in general. This provided confidence to go to the voters in September 1973 and win approval of financing for both a short-range bus improvement program and a long-range fixed-guideway system. Subsequently, confidence was set back by UMTA's unwillingness to consider supporting the plan until more analysis of alternatives had been completed.

Washington, D.C. In the Washington, D.C., area, there has been much confusion over the Federal responsibilities regarding the financing of cost increases in the approved 98-mile rail system. The resolution depends on the outcome of a political process that bears no real relationship to any measure of the area's needs or its fair share of a national program.

Boston. In Boston, UMTA has called for study of additional alternatives in the southwest corridor and for additional impact analyses in the northwest corridor, while local and state officials feel they have built the required support for these projects and have satisfied all Federal requirements under a reasonable interpretation of the law and regulations. They argue that both of these and perhaps other projects have received sufficient study under previous planning studies funded by UMTA, and that therefore the projects should move forward to implementation without further delay.

Atlanta. Atlanta has reported a similar experience. Local planners feel inordinate delays have been caused by procedures in the environmental impact statement process. Furthermore, UMTA has committed itself to finance only the initial 13 miles of the rail system under current financing authority, although Atlanta and Georgia state officials insist that former DOT Secretary John Volpe had pledged full Federal aid for the entire system.

Local share. Another major attribute of the funding stability issue involves the availability of local matching funds. Some metropolitan areas have been required to obtain the approval of 60% of the electorate on bond issues in order to provide large-scale funding for new rail systems. These include

Seattle (1968 and 1970), Los Angeles (1968), and San Francisco (1962). The last-named case may be the only example where a metropolitan-level vote with this much support (61%) has been obtained. (This vote occurred under the most favorable circumstances in many important respects.)

Stability of funds required to plan and program effectively has been best achieved when the localities do not have to rely primarily on local taxing powers and particularly on the property tax. One means for avoiding these requirements is to provide greater levels of state support. The examples of state financing mechanisms cited below vary widely as to the proportion of transit costs covered:

California. In California, part of the state sales tax on gasoline is being used for transit development purposes in several urban areas under one of the most important pieces of state legislation in the transit field in recent years.

In addition, the state has given San Francisco's BART the authority to use bridge toll facility funds for the BART transbay tube. The area still has had to rely primarily on local taxes, however, for the vast majority of BART's construction. Additional examples of diversion of bridge tolls to transit are Philadelphia (PATCO) and New York (PATH), where interstate compact agreements established port authorities for this purpose.

Maryland. In Maryland, state gas taxes and other fees are earmarked for a general purpose transportation fund, which is being used to finance part of the Maryland portion of the Washington, D.C., system as well as the entire local matching share of the Phase I Baltimore rail system.

Massachusetts. In Massachusetts, both debt service and, more recently, general operating deficits have been subsidized by the state's general fund. However, the operating deficits subsidy is currently on an annual basis, which detracts from the funding stability objective.

Minnesota. In Minnesota, the state legislature has been asked by the governor to enact a two-year, $9 million appropriation for transit operating subsidies statewide in which a total of $6 million over the two-year period would be used by the Twin Cities Metropolitan Transit Commission. In addition the governor has proposed a $100 million bond issue to be backed by state general revenue bonds for initial construction of the selected fixed-guideway system. Evidence for the legislature's acknowledgment Of the need for direct state assistance in the Twin Cities area is provided by its direct involvement in the ongoing transit alternatives study and the serious consideration it is giving to the governor's proposals.

Discussion. In general only state and Federal governments have the power to levy taxes that meet several of the criteria necessary for sound transit financing. Localities tend to have authority over only such revenue sources as property taxes, sales taxes, and various licensing fees. These sources are often inadequate for major transit development purposes for a variety of reasons including their regressive character; lack of public acceptance; prior commitment of the tax to its limit for other purposes; and the limited amounts that can be obtained from the sources in question.

The Federal-aid highway program has always been considered a prime example of a successful program from a standpoint of stability of funding. The earmarking of fuel and other taxes to a trust fund at the Federal level over a long period is a major part of this success of course, but the long-term commitment of gasoline taxes, licensing fees, and other highway user taxes to the program at the state level is also a major part of its effectiveness. The success of the highway program leads one to the conclusion that funding stability would be enhanced if more states could be persuaded to provide a tax base for support of transit in urban areas.

Long-Range, Regional Planning Versus Short-Term, Local Responsiveness

Whereas long range planning is essential to achieving a rational and effective transportation system, some aspects of the current Federal funding mechanism may have encouraged too early a commitment to a fixed plan. In many metropolitan areas uncertainty about levels of UMTA funding, and the need to secure local funding through regional referenda on bond issues have forced transit authorities to commit themselves to long-range plans for overly extensive regional systems. Part of this tendency has to do with the necessity of providing the same technology and service to all the voters in the region and part of it has to do with trying to make sure that the locality gets its "fair share" of Federal funds. UMTA's discretionary grant approval process may foster this kind of competition.

Overly extensive plans. As has been noted, bond issue finance mechanisms in metropolitan areas have tended to force a rigid commitment of the transit development agency to a fixed long-range plan. In general, any metropolitan-level vote tends to overextend the commitment to a long-term plan.

San Francisco. In the case of San Francisco, commitments to extend the BART system in several directions beyond the limits of the system authorized in the 1962 election were made during the campaign and are still having a substantial effect on the planning-process.

Seattle, Los Angeles. In these and other metropolitan areas, political considerations and the need to get a victory at the polls resulted in transit plans that had greater track mileage than would probably be justified by any rational investment criteria. (The most recent vote in Los Angeles, however, may not have forced a commitment to such a very rigidly fixed system as most previous referenda, partly because it was not a bond issue.)

Often the problem is that referenda must occur on a countywide basis. If the county boundaries form a rational relationship with possible configurations of a regional transit system, then a local option as to joining or staying out of participation in a bond issue may be a sound basis for adoption of a long-range plan. This can be argued in the San Francisco region in the case of the decision by Marin and San Mateo counties to stay out of the original BART bond referendum; and also in the case of the decision by Cobb and Gwinnett counties in the Atlanta area not to participate in MARTA.

The Los Angeles example can be used to illustrate a fairly typical process that occurs in putting together a financing plan for a referendum. Although it is hard to pin down precise causes, it appears that a logrolling effort led SCRTD to opt for a very extensive system. The real support for the system was in the City of Los Angeles; and the fact that it was extended farther out into the county caused its defeat. The role that the County Board of Supervisors and municipal officials in the rest of the county played is not entirely clear, but it can be surmised that they negotiated for a more extensive system. The process became a vicious circle in which the more SCRTD had to extend the system into suburban areas to get the officials' support, the more it had to depend on potentially nonsupportive voters.

Distortion in the choice of technology. The mere lack of widespread knowledge and understanding regarding the variety of different transit technologies available and the ways in which each can best be used within a given metropolitan area also has tended to encourage commitment to a single regional rail technology and hence a fixed long-term plan. [1] / When a nation grows very unsophisticated in a field as a result of long neglect, a danger arises that such long-term single-minded

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1/ The awareness of the variety of options that exist has been aided by preferential bus experiments, the development of light rail transit and personal rapid transit systems, and by innovative mixing of different technologies in Toronto and in many European cities. (See Vukan Vuchic, "Rail Transit: Characteristics, Innovations and Trends," paper presented at 1975 Transportation Research Board Annual Meeting in Washington, D.C.)

planning will become the norm in an all-out effort to catch up and get ahead (not unlike the commitment to the interstate highway system after more than a decade of neglect of the highway system) .

There can be little doubt that the availability of Federal funds for capital improvements only has created a bias in local decisionmaking in favor of heavy rail rapid transit systems or other fully grade-separated fixed-guideway systems. The availability of secure, long-term funding for highways has created a similar bias toward highways over transit, although the funding flexibility provisions in the 1973 Federal-aid Highway Act may help right the balance.

Very few examples exist of serious efforts to search for ways in which transit systems with lower capital costs (e.g. light rail transit, conventional bus or trolley or partially grade-separated bus systems) might suffice when transit planning agencies believed that funding might be obtainable for the more costly option. In addition, transit planners have tended to prefer capital-intensive rapid rail to commuter rail, which involves primarily operating expenses, partly because of the unavailability of operating assistance.

The main reason lower-cost options were ignored in the past was a belief (without much supporting factual evidence) that the more capital-intensive systems have lower operating costs per passenger. This assumption generally has held true for comparisons of conventional bus and rail transit systems, when each system had roughly comparable and fairly high load factors, because rail systems need fewer operators per passenger. However, when passenger volumes are moderate, and under certain other conditions, bus systems can have lower operating costs. In a similar vein, newer technology systems have been expected to reduce operating costs due to automation, but the need for higher maintenance costs and higher salaried staff are likely to offset or even exceed these reductions under a wide range of circumstances.

The tendency of the program to bias the choice of technology can be expected to change significantly in the near future with (1) the availability of about a quarter of the Federal UMTA funds for operating subsidies, (2) growing awareness that less capital-intensive transit systems can have lower operating costs per passenger under a wide variety of conditions, and (3) growing awareness that operating subsidy requirements are probably going to become more of a limiting factor than capital costs in determining how much transit service a metropolitan area can, and wants to, support.

Local versus regional needs. One of the related concerns that has begun to develop, particularly in the San Francisco and Los Angeles areas, is that the focus on metropolitanwide transit issues tends to work toward the disadvantage of local or community transit service. The Federal program has strongly emphasized regional-level planning in recent years, and this, in tandem with the bias toward capital intensive systems, has resulted in focusing attention on the trunk system serving major long-haul commuter movements. Only in Minneapolis-St. Paul and perhaps one other metropolitan area (Cleveland) has there been a major effort as part of an areawide transit study to develop plans for satisfying local, short-haul, community-level transit service oriented to the transit-dependent population. [1]/

There seems to be increasing awareness of the pitfalls of premature commitment to extensive long-term plans and a trend toward an emphasis on short-range programming. UMTA is now encouraging an "incremental" approach in its proposed transit investment policy. The incremental philosophy was strongly articulated and adopted in the Boston Transportation Planning Review in 1970, which itself was influenced by reaction to excessively rigid long-term planning. Los Angeles took steps to shift to a more incremental approach after the 1974 election loss.

By no means are all welcoming the change of focus. Many major transit authorities are still growing in power and independence and are oriented primarily to long-term regional planning. There has been a fairly common tendency for regional transit operators in large, all-bus system areas to downplay short-term improvements in favor of more appealing long-range fixed-guideway system planning. [2]/

Thus, even as the program changes under the 1974 law, and as new UMTA guidelines requiring analysis of alternative types of systems are implemented, there is still the danger that this analysis will continue to focus on regional, long-haul, trunk-line transit service. This is true partly because it is the primary type of transit service for which there are theoretically large potential diversions from automobiles, and finally because it is the type of service for which there is a potential choice of transit technology.

1/ Alan M. Voorhees & Associates, Inc., Ten-Year Transit Development Program, Five-County Transit Study, Cleveland Metropolitan Area, August, 1974; and System Design Concepts, Inc., Community-Oriented Transit Services for the Transit-Dependent Population. Cleveland Metropolitan Area, February, 1974.

~/ Boston Transportation Planning Review Study Design, Prepared by System Design Concepts, Inc. for Boston Transportation Planning Review Steering Committee and Governor Francis Sargeant, 1970.

Competition for grant applications. The national program's discretionary grant approval process has had the effect of encouraging many metropolitan areas to compete with each other in preparing and submitting plans for larger rail systems in order to obtain "their share" of the funds. This competition tends to build a metropolitan commitment to a very expensive and fixed long-term plan. The 1973 increase in the Federal share from two-thirds to 80% increased the incentive for this type of competition.

Not surprisingly, competition for UMTA grants has grown as the size of the program increased, as the first rounds of major planning studies were completed and metropolitan areas began trying to implement plans. Consequently, the political pressures on UMTA have grown at a time when most people in the field, including UMTA staff, are increasingly convinced that grant decisions should respond to rational criteria based on relative metropolitan needs.

Discussion. The need to strike a balance between long-term regional scale, capital-intensive systems and shorter-term, less costly improvements, perhaps for subregional areas, is clear. For there is danger in both extremes. Long-range planning should continue to shape transit development, but more attention should be devoted to near-term improvements, integration with local transportation and land development planning, staging of development, and the maintaining of flexibility for future decisions, including potential technological developments.

In achieving this objective, it will be necessary to avoid shifting policy too much in the direction of short-term responsiveness to local needs or the result will be that either (a) nothing gets accomplished, or (b) that limited resources are squandered on ineffective improvements spread all over the map. Some rational planning criteria must guide programming of improvements to a greater extent than they have in the past in the expanded UMTA program or either of these extremes is likely to prevail in any given metropolitan area, depending on the local political, institutional, and financial circumstances.

In the end, new financing arrangements have a great potential to achieve the proper balance as well as diminish competition for Federal funds. Movement in the direction of stability of funding under some type of allocation formula would tend to avoid some of the problems that have tipped the scales to favor long-range plans.

Administrative Delays

The staff of almost all of the transit planning and operating agencies surveyed complain about the amount of time that it takes UMTA to approve grants contracts or amendments.

Technological judgments. As the funding is now structured, the amount of funds allocated to a metropolitan area is heavily dependent on the choice of technology for trunk line systems, and UMTA staff have been placed in the position of making the judgments as to which type of technology is "best". This requirements may have the effect of forcing UMTA to require, and to overemphasize, narrowly defined cost-effectiveness analysis as the basis for allocations for funds. UMTA staff thus is put in the position of making technological assessments in every major corridor of every metropolitan area.

The problem of program administration seems to have several aspects:

- UMTA is too centralized; field officials don't have enough authorization to act; many decisions take too long because they have to go back to Washington, D.C.

- The staff is small relative to the size of the program; the paperwork often exceeds the capacity of the staff to handle it. If UMTA is to assess relatively minor local transportation planning matters, as it seeks to do under current administrative procedures for the discretionary grant program, the staffing level is inadequate.

- The program is still basically managed on project-by-project basis rather than on a continuing program basis, although UMTA has moved in the latter direction. This approach necessitates close attention to relatively minor program decisions and thus increases the work load for the UMTA staff.

- Complaints are made that UMTA follows an equally rigorous administrative process to grant requests (e.g. routine bus purchases and small planning studies) as it does for applications for major new systems.

Denver. Within a matter of days after the Denver Regional Transportation District (RTD) was officially established, a capital grant application was submitted by RTD to UMTA for an early action bus program (purchase of 93 buses). Almost one year later UMTA finally approved the request without any public explanation of the reasons for the long delay. In another instances, RTD requested an UMTA technical study grant in April 1974, intending to begin the project in July 1974. Staff claim that as of spring 1975, Denver had received no word from UMTA about the request made almost one year earlier. On one occasion, an RTD inquiry to the UMTA Washington office concerning this request reportedly resulted in identifying a problem with the request that was solved within a matter of minutes over the telephone.

Emergency needs. The UMTA program generally is perceived as having been successful in responding to the emergency needs of communities to save failing private systems. [1]/ However, one cause of unnecessary delay in responding to emergency needs in some small metropolitan areas is that requirements for areawide planning written into the law are oriented to larger metropolitan areas. An amendment could be enacted to make it possible for UMTA to waive these requirements in emergency circumstances. There is no important reason to delay aid to a small metropolitan area that has a failing private operator in situations where no previous need has existed to develop areawide transit plans and programs.

In summary, UMTA's discretionary grant program and the procedures under which it has been administered, have combined to hamper the transit planning process in a number of ways. Mechanisms typically used to provide the local share also have tended to distort decisionmaking.

1/ Hilton noted, as has been mentioned, that 49 cities had systems preserved between 1965 and 1973. Hilton notes that unfortunately UMTA has no estimate of the amount of funds used for these public takeovers (Hilton, op. cit., p. 53).

PART III

NATIONAL POLICY FOR MASS TRANSIT

Part III

NATIONAL POLICY FOR MASS TRANSIT

The assessment of community planning for mass transit identified a number of factors that have interfered with sound planning. Up to this point, the report has examined the way these factors have operated on the metropolitan level. The role of Federal policy has been reported only insofar as it influenced the metropolitan experience.

This part of the report considers how policy changes at the national level might remove some of the obstacles to a sound transit planning process. It is not an evaluation or assessment of the Federal program per se, because that would have required far more attention to the legislative process in Congress and the process of administration within the executive branch than has been possible in this study. Instead, this part of the report summarizes the issues that were raised in the metropolitan cases--and potential remedies for them--as they appear from a national perspective.

One aspect of Federal policy is treated in relatively greater depth here. The goals, or formal objectives, of Federal policy potentially can exert a powerful influence on the metropolitan planning process. This potential, which to date has not been effectively employed, is examined in both the following chapters.

Chapter 6 summarizes the major national issues confronting transit planning, discussing their implications for public policy, and describes Federal policy dealing with national goals and objectives. Chapter 7 discusses alternative courses for changing public policy to address the issues and encourage improvements in the transit planning process. Chapter 8 provides a brief summary of the study's major findings.

CHAPTER 6

MAJOR NATIONAL POLICY ISSUES

The nine metropolitan areas subjected to assessment in this study conducted major transit system planning studies at various times over the past 25 years. Changes in the Federal program, in professional planning theory, and in the general climate of public concern during this period led to numerous differences in the ways these nine metropolitan areas performed their planning efforts.

Because each metropolitan area faced unique circumstances, no single planning effort provides a model worthy of emulating in its entirety. However, the cumulative experience in the nine cases points to a number of significant issues that should be addressed by public policy to provide a context in which communities can plan transit systems best suited to their needs. These issues have been described in Part II of this report. They are summarized in this chapter under the three chapter headings used in Part II: institutional context, technical planning process, and financing.

The description of the issues under each heading is introduced by a brief account of the Federal policy that has been in effect while these issues have arisen. The issues themselves are grouped in categories corresponding to the guidelines used in assessing the metropolitan experience. The issues all derive from observations in the nine metropolitan study areas, as the examples cited in Part II indicate. Following each group of issues is a discussion of how Federal policy might address them.

At the conclusion of the sections describing the issues is a discussion of one major issue for Federal policy that underlies all of them, which is the need for developing criteria that can be used to measure progress toward national transit goals.

INSTITUTIONAL ISSUES

In spite of efforts by the Federal Government to create a structure for effective, coordinated regional planning, the context for transit decisionmaking in all the metropolitan areas examined falls short of this mark. Several major issues for national policy remain unresolved.

Since the early 1960s the Federal Government has been encouraging local governments in urban regions to cooperate in planning for the future development of their metropolitan areas. Within the past 15 years several Federal agencies have introduced requirements calling for existing or newly created organizations to take on regionwide planning responsibilities. The regulations were intended to help coordinate among a proliferating number of Federal programs aimed at urban development of various types and to help counter a trend toward fragmentation of local governments that was accelerating with the growth of suburban population and employment during the 1950s.

In advance of the Federal requirements, during the 1950s, local governments in many urban areas began forming metropolitan-scale organizations to undertake land use and comprehensive planning. The activities of these planning agencies and, later, those of regional councils of government were supported by a succession of Congressional acts during the 1960s, primarily the several housing acts. The plans attempted to cover a full range of urban concerns, at least in broad terms, including land use/zoning, water supply/sewerage, and aspects of transportation. With rare exceptions, the comprehensive planning agency was not responsible for putting any part of the plan into effect.

"Meanwhile, in many areas, Federal requirements led to creation of other organizations to deal with specific elements of areawide plans. Following enactment of the Federal-Aid Highway Act of 1962, regional "3-C" agencies were set up to assure that highway planning was part of a "continuing, comprehensive transportation planning process. . . carried on cooperatively by state and local governments. In many areas, as local governments purchased failing private transit operations, new public agencies were created to plan for and operate mass transit.

By the end of the 1960s, an institutional structure characterized in many cases by overlapping responsibilities, wasteful competition, and poor coordination had grown up. To a large extent, this fragmentation resulted from the proliferation of Federal programs with separate policies and separate administration. These separate programs provided differing amounts of funds, from different sources, and at different intervals of time, to agencies at the state, regional, and local levels of government.

In 1969, the Office of Management and Budget issued Circular A-95 ~/ in an attempt to clarify the relationships between the regional agencies responsible for Federal programs.' This regulation called for designating the region's comprehensive planning agency to take on the responsibility for reviewing whether area projects proposed for Federal capital assistance were consistent with the region's comprehensive plan. The governing boards of these "A-95" agencies had to be comprised of local elected officials or of other officials appointed by elected officials. The plans reviewed were to be made with extensive citizen input.

In 1974, responding to the mandate of the Federal-Aid Highway Act of 1973, the U.S. Department of Transportation moved to strengthen the links between transportation planning (including transit planning) and other regional planning efforts.

~/ Circular A-95 was the final regulation for implementing directives contained in the Demonstration Cities and Metropolitan Development Act of 1966.

A new regulation, published in final form in September 1975, 1/ required designation of a Metropolitan Planning Organization In each area to take charge of assembling the requests for Federal highway and transit assistance into one application, and to distribute the Federal grants when they were made. Wherever possible, the A-95 agency was to be designated the Metropolitan Planning organization to encourage coordination between transportation] planning and land use planning.

Although the Federal Government has attempted in these ways to put regional transportation and land use planning on a sound basis, its efforts have not had great success. The major Federal policy issues rooted in these institutional inadequacies are grouped under three categories corresponding to the guidelines for assessment of the institutional context: forum for decision-making, accountability of decisionmakers, and public involvement.

Forum for Decisionmaking

Although on paper the organizational structure of the decisionmaking forum in each metropolitan area is well defined, assessment findings show that in practice decisionmaking authority and responsibility is fragmented among a great number of local, regional. and state agencies of government. The separate responsibilities of each of the levels of government are not clearly enough defined for any one agency to have decisive authority either for setting policy or for obtaining financing and other commitments necessary to implement a plan. Experience shows this kind of fragmentation may lead to the following types of problems:

- Inability to set priorities and distribute resources. In the absence of a single lead agency with power to set and implement policy, competition often develops over the power to set priorities among the transit improvement projects proposed for a region. The pressure of competition can lead to development of extensive transit plans. While such plans may offer something for everyone, they tend to be financially inefficient and to ignore community- or neighborhood-level needs (as these needs might be measured by a well-structured rational set of criteria).

1/ Federal Highway Administration and Urban Mass Transportation Administration, Department of Transportation, "Planning Assistance and Standards: Urban Transportation Planning," Federal Register, Vol 40, No. 181, September 17, 1975, pp. 42976-42984.

- Underemphasis on use of highways for transit. Institutional fragmentation also leads to lack of effective integration among planning for different transportation modes. Both transit agencies and highway/street agencies avoid planning for improvements they do not have the authority to put into effect. only rarely do institutions with responsibility for highway and street planning and management also have responsibility for transit planning and operations. Due to this situation, important opportunities have been lost for improving transit service through highway management techniques.

- Ineffective integration of transit planning and land use planning. The fragmentation of decisionmaking responsibilities also affects the degree to which transit plans can be integrated with land use plans. At present, municipal and county governments jealously guard their authority over zoning and other development controls, and there is no coordinated, comprehensive development planning on a regionwide basis. In the absence of strong regional land use planning, the burden of coordinating transit and land use planning has fallen to the agency responsible for transit planning. It is unrealistic to expect a transit agency to control land use, and no transit agency has effectively done so.

Implications for public policy. The experience in the nine case metropolitan areas indicates that Federal policy to date has been unsuccessful in improving the adequacy of the institutional arrangements for metropolitan transit decisionmaking.

The assessment findings provide no indication that Metropolitan planning organizations will be more successful than previous Federal attempts to consolidate the institutional context for transit decisionmaking. The effort to create MPOs ignores the fundamental reality that numerous agencies with separate legal authority and responsibility, and separate financing, are already in existence. Any agency such as an MPO that is superimposed on the existing structure must have legal authority and responsibility for these programs and a secure source of financing to implement them (or, through use of financing incentives, to elicit cooperation among agencies that do have implementation powers) .

Experience in the metropolitan areas shows several different approaches that hold potential for eventually becoming effective transit decisionmaking forums. Increased participation at the

state level looks promising in some cases where states have traditionally been deeply involved in metropolitan affairs; in at least one case (Minneapolis-St. Paul) a multipurpose regional organization is making headway; in still other cases, single purpose transit agencies appear to be more appropriate to provide the forum. No single type of decisionmaking forum would appear likely to succeed in every metropolitan area, due to the wide variety of governmental structures that exist in different areas.

Based on a review of the variety of decisionmaking arrangements in the nine metropolitan areas, four alternative models have been developed for how decisionmaking authority might be effectively distributed. The decisionmaking forums in the nine metropolitan areas have been evolving in these four directions, although none have achieved the ideal conditions represented by the four models.

The four alternative models identify the division of decisionmaking responsibilities among (1) the metropolitan planning agency, (2) the state, (3) the metropolitan transit operating agency, and (4) city and county governments. Within each alternative scheme, an agency at one of these levels of government would be delegated the lead decisionmaking role, and the other three would be given appropriate supporting roles. Each scheme would provide the principal agency with the necessary authority and financing powers to carry out its transit responsibilities effectively.

In each of the alternative approaches, the agencies would be assigned primary or shared responsibility for nine basic decisionmaking tasks:

- Comprehensive planning
- Long-range regional transportation planning
- Areawide transit planning
- Transit programming and budgeting
- Highway programming and budgeting
- Transit project planning

. Transit financing

- Final design, implementation, operation and maintenance

, Development plan implementation and land use controls

(The scope of each of these tasks and the current agencies responsible for them were outlined in Chapter 3.)

Under each alternative, the lead agency would be exclusively responsible for transit programming and budgeting, although the other agencies could contribute advice. Responsibility for the remaining tasks would be divided among the agencies or shared in such a way that the lead agency always had principal, or at least shared, decisionmaking authority for highway programming/budgeting, areawide transit planning, and transit financing. Table 7 shows the assignment of responsibilities more specifically.

Following is a summary of the circumstances under which each of the four models would be appropriate and the general extent of the effectiveness of each in providing a strong base for transit planning:

- Alternative 1: Strong Local Government Role. A local government may be appropriate to take the role of lead transit decisionmaker in regions with a strong central city or county government that holds jurisdiction over most of the region's population. This alternative offers the advantage of potential close liaison between transit policy and traffic management/parking policy, the latter of which usually is the prerogative of local governments. In addition, most local governments also have ultimate authority over land use policy and urban development controls, and thus this alternative provides the opportunity for better coordinated transportation/land use policy. The local government would not be able to raise sufficient financing for its transit projects and would have to rely on the state. It would need to share responsibility for certain regionwide projects, such as comprehensive planning and multimodal transportation planning, with regional agencies.

- Alternative 2: Strong Metropolitan Transit Authority. In cases in which the metropolitan transit authority has a representative and politically accountable board and a good track record for project implementation, it

is a candidate for the role of lead decisionmaker. The advantages of putting the transit authority in the lead role are twofold: (1) it can make policy decisions from the perspective of extensive practical knowledge and experience, and (2) it receives the bulk of transit financial resources -- operating revenues. It would have to depend on the state for additional financing. Because of its single-purpose scope, it would not be able on its own to improve transit/highway and transportation/land use coordination, except perhaps in a limited way in the immediate vicinity of transit stations and corridors.

- Alternative 3: Strong State Role. In states with strong urban representation and a state department of transportation with genuinely multimodal structure, the state might assume the lead decisionmaker function. The traditional involvement of many states in regional highway planning and programming provides a precedent for expanding state participation in multimodal regional transportation planning and, in turn, transit programming. The access to state revenue sources would be another advantage. The state role, however, would not significantly improve land use,transportation coordination, because few states have assumed any responsibilities for local or regional land use.

- Alternative 4: Strong Metropolitan Planning Agency Role. Placing the metropolitan planning agency in the role of lead decisionmaker would offer the best opportunity for genuinely coordinating both transit/highway decisionmaking and transportation/land use decisionmaking. For years Federal policy has aimed at strengthening the role of metropolitan planning agencies, although with limited success, since only where metropolitan Planning agencies have been given additional responsibilities by state governments do they have sufficient local authority and credibility for leading transit decisionmakinq.

Whereas the lead agency in each model occupies a different tier of government, each approach requires more effective distribution and coordination of responsibilities among the various governmental levels. In each model, metropolitan planning agencies would ensure that transit plans are coordinated with areawide comprehensive planning and regional transportation planning. The state would become more actively involved by way of providing financial assistance and coordination with the highway program. Metropolitan transit authorities would ensure that proposed capital and operating projects are feasible and would coordinate them with current operations. Local governments would coordinate local land use programs and traffic management programs

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with the planning process. Under each model, variations in the relative strengths of the three levels of government could occur.

Each of the models would clarify the respective decision-making responsibilities of the various organizations involved. Each thus would relieve the competition and conflict that were found to characterize transit decisionmaking in metropolitan areas and would allow the lead agency to set priorities among available funds and see that available funds are used most economically. However, the models differ in the extent to which they could improve coordination between highway and transit planning and implementation, on the one hand, and transportation and land use planning on the other hand.

Depending upon the type of agency that might assume the lead role, differing degrees of integration between highway and transit planning and implementation would be made possible. Joint administration of the Federal transit and highway programs would be required to permit a multimodal approach at every level of decisionmaking.

With respect to integration of transit and land use, fundamental changes in the powers of metropolitan planning agencies would be necessary before integrated regional land use/transit programs are likely to be implemented. More modest additions to the authorities and responsibilities (and financing resources of transit planning institutions could lead to joint transit/land use strategies in the immediate vicinity of transit stations and corridors.

The Federal Government cannot impose any one of these model structures for a transit decisionmaking forum on a metropolitan area in the absence of legal changes in the statutory authorities, responsibilities, and funding capabilities of the existing institutions that might be necessary at the state and local levels. To encourage evolution of the regional decisionmaking arrangements in the direction of one of the four models, the Federal Government alternatively could:

- Make establishing a lead agency with adequate statutory power, responsibility, and financing, a precondition for receiving Federal transit support; or devise financing incentives that provide additional assistance to regions with adequately structured decisionmaking forums;
- Develop a policy of providing greatly increased aid to transit in order to greatly increase transit use, and channel that aid directly to transit operators, who would be responsible for programming its use and thus would be more likely to take on lead decisionmaking responsibilities Use of transit funds could be broadened to include land in

vicinity of stations and corridors, and as long as they also had sufficient formal authority, transit agencies could have a greater impact on shaping future land use and development.

- Merge the Federal highway and transit programs at all levels of government. This could expand the involvement of the state in metropolitan transit planning and might encourage more states to take lead decisionmaking roles.

- Expand Federal support for regional land use and development, making the Federal transportation program a line item in a comprehensive community development program. This could provide metropolitan planning agencies with the financing necessary to implement plans; and if statutory authority were provided through state and local action, these planning agencies could assume the lead transit decisionmaking role.

These alternative potential Federal policy initiatives will be explored more fully in Chapter 7.

Accountability of Decisionmakers

Federal requirements have called for adequate representation of local governmental officials on the boards of agencies receiving transit planning funds, and recent regulations have extended this requirement to cover Metropolitan Planning Organizations. However, Federal policy has been ineffecitve in dealing with a range of limitations on accountability that have been experienced in metropolitan transit planning:

. Closed-door compromising between decisionmakers. Boards dominated by representatives of special-purpose agencies, rather than-delegates from **local governments,** tend to trade favors in exchange for support. When this negotiation process takes place out of public view, the decisionmakers cannot be held accountable.

- Domination by consultants. The planning of San Francisco's BART and more recent experiences in Other metropolitan areas raised questions about the appropriate role of consultants vis-a-vis transit planning agencies. If decisions are made by the consultant, while board members give rubber stamp approval, accountability is reduced. Experience in

the case cities indicates that engineering consultants (1) may be biased toward a particular technology because they are experienced in it, and (2) may have a vested interest in producing a plan they would be qualified to design and construct.

- Imbalances in representation. The metropolitan experience shows there is public interest in structuring boards to be genuinely representative of their constituencies. One reflection of this interest is the demand in several regions to balance suburban and city representation on the board. In general, the case studies indicate that the most accountable decisionmakers are those who are closest to the elective review recess. The move to directly elect the board members of San Francisco's Bay Area Rapid Transit District was another kind of effort to create a more representative board. (However, although direct election may prove to increase the accountability of the BARTD board, in general there is a risk that directly elected board members will be responsive to special interests and not to their public constituencies.)

- Overly parochial concerns of decisionmakers. A problem related to the question of fair representation involves the difficulty of structuring a decisionmaking process to take a broad, regional perspective rather than pursue a variety of narrowly defined parochial interests. Negotiations between board members to make sure each gets his constituency's "fair share" of transit improvements can lead to extensive plans that serve everyone while perhaps failing to focus improvements where they are needed. This problem is directly related to the means used to finance transit plans, and resolving it is as much a question of financing policy as institutional policy.

- Need for legislative oversight at the state level. Experience shows establishment of legislative oversight committees at the state level can provide an important degree of accountability, but only a few state legislatures have taken this initiative. Legislative oversight is appropriate where states created or are helping finance the agency in question. (In cases where the state legislature is not actively involved in supporting a metropolitan transit program, transit opponents potentially could use the oversight function as a platform for obstructing progress in transit development; although the opposite situation is also possible, and the oversight committee might be used as a platform by reformers.)

Implications for public policy. Formal provisions to allow public accountability of decisionmakers are the result of statutory action at the state and local levels. A number of different means could be used, as long as the decisionmakers are close to the

elective review process. Given the complex character of the difficulties that- must be faced in structuring an accountable decisionmaking process, the main issue for Federal policy is that no information about the effects of different approaches has been available.

If key transit decisions are being made at the state level, the decisionmakers could be high-level gubernatorial appointees, and thus the governor could be held accountable in direct election. If local governments take on a key decisionmaking role, the tie to the electoral process could be equally direct, through the mayor or elected city or county council. If, on the other hand, the decisionmaking organization is a regional transit operator or planning agency, its policy board could be comprised of local elected or appointed officials whose term in public office is determined by a public vote.

Distributing the number of representatives on the one man, one vote principle would create a board that is more truly representative of-a region's interests than if each jurisdiction, regardless of population, were represented equally.

Transit agencies have sought planning assistance from consultants primarily due to the general lack of trained and experienced personnel that might be hired permanently. In recent years, however, planning and construction experience in San Francisco, Washington, D.C., and Atlanta have added somewhat to the nation's reservoir of transit planning professionals. Staffing transit planning agencies with sufficient independent technical expertise to review and direct consultant activity might be a step toward reducing opportunities for consultants to dominate. Similarly, transit agency personnel skilled in day-to-day transit operations should be encouraged to oversee consultants who are unlikely to be knowledgeable about critically important transit operations and management considerations. Where appropriate, state legislative review committees could provide an additional check on the decisionmaking process on behalf of the public.

In the end, the inability of Federal policy to lead an adequate decisionmaking forum is at the heart of the accountability issue. The key to an accountable decisionmaking process is for the decisionmaking agencies to have clear authority to carry out their responsibilities. The Federal Government could encourage accountability in the course of encouraging establishment of a more clearly defined forum for decisionmaking in the ways described earlier in this chapter.

By attempting to focus decisionmaking in the Metropolitan Planning organization and making certain that it has an accountable board, the Federal Government is not squarely addressing the accountability issues and, in fact, may be compounding them. If the public believes decisions are made in one forum when they really are reached outside that forum, the entire decisionmaking process tends to occur out of public view and thus is less accountable than it would be if the public at least knew where decisions were being reached.

Citizen Involvement

Since the mid-1960s, Federal requirements have called for giving the public the opportunity to be heard in the transit planning process. However, even though public officials increasingly have come to regard public participation as an integral part of the planning and design process, only a few programs -- such as Boston Transportation Planning Review, Denver's development of its transportation land use concept in 1972, and the BART extension studies -- have been structured to solicit citizen participation from the beginning. Several factors have helped keep planners from taking adequate approaches to citizen participation:

- preelection of transit technology. Metropolitan experience indicates that decisionmakers who favor a particular type of technology or transit system configuration from the beginning of planning are unlikely to design citizen participation programs that are successful in identifying and resolving disagreements and conflict among members of the affected community. If citizen participation programs are regarded as public relations campaigns, there is a danger that public commitment will be made to a particular technology without full consideration of all its potential impacts.

- Unawareness of potential ill-effects of transit. Experience shows a tendency for the public to assume, as transit planning begins, that transit systems , unlike proposed highways, pose no potential serious threats to their neighborhoods. The assumption can help keep down the level of participation and range of issues debated until late in the planning process, after construction has begun and more citizens become aware the project is real. Unless the public is given adequate information from the beginning about all the potentially positive and negative side effects associated with construction and operation of a transit system, planners increase the likelihood that opposition will be voiced later on in the process, when delay and restudy is more costly. Processes that consider issues on a subregional basis rather than systemwide are likely to attract a greater number of participants.

- Risks incumbent in citizen participation efforts. Planners may be reluctant to encourage citizen participation because the programs are time consuming and costly, and if the interests of a small group are allowed to dominate, they can bias decisionmaking.

Implications for public policy. Citizen participation programs are a means for collecting data about public values and needs that are essential for making sound transportation plans. The

main issue for Federal policy is that although Federal guidelines require citizen participation, they do not provide adequate guidance for how and when to conduct a-citizen participation program.

There is no one way to conduct a successful citizen participation program, and Federal guidelines cannot be expected to spell out a magic formula for approaching citizen participation in a way that will either achieve a high level of participation or ensure that the resulting plan will be accepted by the public. However, Federal guidelines could be made more explicit with respect to the points during the planning process when citizens might most effectively participate. Planners could be required to provide the opportunity for input from citizens or to allow public review at these points in the process, which are discussed in the next section.

Federal guidelines also could clarify the purpose of citizen participation programs. Effective programs regard the information collected in the course of citizen participation efforts to be an essential aid for decisionmakers, but the participation program itself is not a substitute for decision-making.

TECHNICAL PLANNING PROCESS ISSUES

Since the UMTA program was begun following the Urban Mass Transportation Act of 1964, Federal requirements have attempted to guide the conduct of the technical planning process. Whereas early requirements were limited to identifying the products of the technical planning effort, Section 4f of the 1966 Department of Transportation Act, much augmented by the National Environmental Policy Act of 1969 and the Urban Mass Transportation Assistance Act amendments of 1970, led to requirement of more specific guidance for conduct of the planning work. They mandated consideration of a full range of alternatives in the course of technical planning, identification of the advantages and disadvantages of each, and provision of the opportunity for public involvement in the technical process.

The Federal-Aid Highway Act of 1973, followed by the National Mass Transportation Assistance Act of 1974, [1]/ laid the groundwork for integrating technical planning of highways and transit by placing the Federal programs for the two modes under the same statutory requirement for coordinated urban transportation planning. (This requirement had been articulated first for urban highway planning, back in the Federal-Aid Highway Act of 1962.)

The "Proposed Policy for Major Urban Mass Transportation Investments" published by UMTA in August 1975 (and incorporated in DOT Secretary Coleman's September 1975 "Statement of National

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1/ And set forth in the Septpmber 17, 1975, regulation, "Planning Assistance and Standards: Urban Transportation Planning," op. cit.

Transportation Policy") takes a step toward clarifying how alternatives analysis should be performed. Metropolitan experience demonstrates the need for such clarification and direction to resolve a number of issues impeding conduct of a sound transit planning process.

The national policy issues involving the technical planning process are grouped under four categories corresponding to those used for the guidelines for assessment: goals, development of alternatives, evaluation of alternatives, and implementation.

Goals

The growing popular concern for equal opportunity and environmental protection, combined with demand for public participation in planning, has influenced the technical planning process. The need for development of a broad range of goals that can be translated into criteria and used to evaluate alternatives is now widely recognized. This need is reflected (albeit not expressly) in Federal requirements for public involvement. However, two major factors have constrained the use of goals for this purpose:

- Lack of public involvement. As discussed in the previous section, experience shows that planning programs begun with a predetermined outcome tend to employ inadequate means for citizen participation. This situation rarely leads to an open, participatory transit planning process in which a broad range of alternatives is evaluated against criteria based on public goals.

- Difficulty of developing criteria from broadly formulated goals. Although it is now accepted practice to construct a broad set of goals to guide planning, planners do not agree on how to develop criteria based on these goals. Some goals easily lend themselves to qualification, but many social, environmental, and aesthetic objectives present difficulties. One aspect of the problem is that there is little definitive information about the relationship between transit and certain social objectives, such as land use.

The main issue for Federal policy concerns the need for more guidance on how to structure goal-setting and on the use of measurable criteria in evaluation. Federal requirements stop short of explaining how to go about developing specific objectives and measurable criteria, just as they fail to provide sufficient guidance for conduct of citizen participation programs as a whole. In fact, perhaps by oversight, the proposed UMTA policy for major urban mass transportation investments fails to say that the public should have the opportunity to participate in goal and criteria formulation or in reviewing the extent to which alternatives achieve these goals and criteria.

Development of Alternatives

Documentation of the advantages and disadvantages of a wide range of feasible options is essential to meet Federal requirements calling for-analysis of alternatives. In the metropolitan areas studied, four factors hindered adequate development of alternatives:

- Lack of broad experience with transit technologies. As many of the recent transit planning activities got underway, transit planning and development had been ignored for so many years that there was no body of technological information to draw on in doing the planning. planners in the United States were unaware of technological options that were being investigated and employed in Europe. As a result, much attention focused on conventional, heavy technology transit.

- Preconceived plans. Partly due to the lack of information noted above, and partly due to the difficulty of amassing the political support necessary to launch transit planning, many transit plans were begun with one system clearly the favorite. In these cases, the other alternatives developed tended to serve as straw men.

- Automobile orientation of the public. The rise in auto ownership, and the paralleling, rise in, trips in the suburbs -- where transit traditionally is lacking -- have increased public dependence on the automobile. Under these circumstances, little public support for using portions of the highway network for bus transit can be-expected. This has been one reason why transit alternatives that would operate on existing highways have not been fully considered. (However, growing interest in improving substandard air quality and, especially, the 1973-74 gasoline shortage recently have increased the political feasibility of such options.)

- Separate highway/transit programs. On the other hand, as discussed in the previous section, there is little incentive for developing the transit options that require management or joint use of highways in the absence of effective coordination between agencies with power to implement highway improvements and agencies with authority over transit.

- Influence of self-interested consultants, One limitation on the range of alternatives developed in some cities may have been exerted by the engineering consultants hired to do the planning work. Their mission

and approach was more to design a given system than to develop and evaluate alternatives. Engineering consultants who were hired to do transit system planning could look forward to being hired for larger, more lucrative engineering design contracts, particularly if the system selected were one in which they had extensive previous experience.

Implications for public policy. Most of these problems can be and have already been influenced by Federal policy. Federal research and development programs, as well as private research, have resulted in a relatively comprehensive body of information documenting the performance of alternative technologies. In addition, the proposed UMTA policy specifically calls for greater attention to low-capital alternatives, making this a prerequisite for receiving Federal aid. Finally, the proposed policy's requirement for analysis of the appropriateness of different technologies to serve the varying needs in each part of the region in effect rules out the possibility of beginning the planning process with a preconceived solution.

The proposed policy may not be able to achieve these purposes, however, for several reasons. First, its success is dependent to a large extent on the ability of. UMTA's small, centralized staff to review the local planning process to determine whether adequate consideration has been given to a full range of feasible alternatives. The staff may not have sufficient manpower and technological expertise to carry out these responsibilities without causing harmful delays. (These problems are discussed in the following section on financing issues.)

Second, many of the factors leading to development of preconceived, single-technology plans involve the kind of financing available to transit decisionmakers, and the proposed policy does not affect financing policy. (The specific issues are discussed in the next section.)

Finally, in calling for improved management of existing systems, although the proposed new policy places much higher priority on using existing highways and streets for bus service, it is not backed by promises of Federal support. The provisions of the proposed new policy do not provide the necessary financial incentives for improving coordination between transit and state or local highway programs. Unless Federal transit and highway programs are integrated, it will be difficult and perhaps impossible to put highway-oriented solutions into operation widely.

Evaluation of Alternatives

The purpose of the evaluation process is to give decisionmakers sufficient information about the advantages and disadvantages of options so that selection can be made in full awareness of the consequences of the decision. Several issues have arisen regarding the effectiveness of alternatives analysis in achieving that objective:

* Reliability of forecasts of transit ridership. In transit planning, the data and methodologies used to forecast future transit ridership should provide accurate, reliable information about the circumstances under which travelers will choose transit instead of the automobile, and one type of transit service instead of another. Generally speaking, the ability to measure the relationship between the respective travel times, costs, and use of automobiles and transit has improved since the 1960s, but there is relatively little evidence concerning the long term stability of these relationships. Moreover, the effect of the attractiveness and comfort of new transit technology on patronage is not adequately taken into account in conventional patronage models, which give primary consideration to relative savings in travel time. (Indeed, there are as yet no established methodologies for measuring the influence of such amenity factors.)

* Range of factors to be used in evaluation. To meet a broad range of local and national goals, an equally broad range of factors must be used in the evaluation process. As described under the discussion of 'goals" issues above, some goals are more difficult to frame in a way that is meaningful for use in evaluating alternatives. In this regard, the proposed UMTA policy is ambiguous.

- Need for analysis of local options in addition to regional options. Experience in Boston, San Francisco, and other metropolitan areas indicates the advantages of approaching alternatives analysis on a subregional basis. The findings of the assessment show that metropolitan areas have concentrated on long-range plans too exclusively, and thus often tended to (a) ignore community level or neighborhood needs and (b) ignore demographic trends of the past 20 years in which the greatest growth in travel occurred in suburb-to-suburb trips.

- Need for programming a period for resolution of conflict. The metropolitan experience shows the desirability of including sufficient time, technical staff, and other resources into the planning process in anticipation of the conflicts of opinion that inevitably occur in a complex planning process, and the need to resolve these conflicts. The most effective alternatives evaluation process is iterative: public reviews are scheduled periodically over the course of the analysis, and if more investigation of a particular alternative is desired, or if a new alternative is suggested, the evaluation process is recycled.

Implications for public policy. The main shortcoming of Federal policy to date with respect to alternatives analysis has been its failure to give specific guidance for how to conduct the evaluation. The proposed UMTA policy answers this deficiency by calling for application of cost-effectiveness criteria to alternatives and by requiring analysis of subregional components of transit Systems. Thus, the new policy offers a potential remedy for the issues that have been cited involving evaluation criteria and balance between local and regional options. However, the effectiveness of the policy in alleviating these problems is not assured.

The proposed UMTA policy calls for analysis of the relative cost-effectiveness of transit alternatives, and UMTA proposes to limit the extent of Federal aid to 80% of the most cost-effective alternative. The results of a cost-effectiveness analysis provide useful information about the relative costs of alternative ways to meet the same objectives. Depending upon the way it is defined and administered, however, the UMTA policy may have two undesirable consequences.

Both potential dangers stem from the failure of the policy to define the factors to be built into the cost-effectiveness analysis. First, because the policy does not clearly state whether local social and environmental goals are to be included in the cost-effectiveness evaluation or merely "taken into account," the policy may lead to excessive focus on low-cost improvements to be implemented in the short range, to the detriment of longer range goals. In addition, because the policy does not explicitly recognize the importance of operating costs in the evaluation of alternatives, the true cost-effectiveness of the various alternatives may not be determined.

The policy's emphasis on subregional analysis is potentially an important step toward structuring a planning process that will be able to meet community-level needs as well as the needs of the region as a whole. However, to be most effective, it would have to be coupled with initiatives to clarify decision-making responsibilities and alter the mechanisms for raising the local share of transit financing.

Additional Federal activities might be taken to address the other issues affecting the conduct of the analysis of alternatives. For example, planning guidelines could describe the need to program time and resources for conflict resolution into the process, or a fixed percentage of planning grants

could be earmarked for this purpose. Finally, Federally sponsored research into the question of improving the reliability of patronage forecasts, and specifically the effect of amenity factors, could benefit transit planning.

Implementation

In addition to generating information to guide decision-making, planners must create a program and schedule for putting a plan into effect. Most transit planning examined in the assessment has had the goal of producing a single, regionwide, long-range plan. Little or no attention was paid to several important program planning questions.

planners have done little analysis of the optimal schedule for staging of construction: which parts of the plan to implement first, and how to coordinate with existing transportation systems. Their plans have tended to be inflexible instead of preserving options both to respond to potential future problems and to take advantage of future technological developments.

Another shortcoming of many plans has been their inability to direct and control transit-related effects, particularly land development impacts. The emphasis on fixed, long-range plans has tended to minimize attention to short-range improvements, despite evidence that such short-term plans are popular. Instead of constructing systems in small, independent increments, planners have conceived of plans as requiring one long-term construction effect.

Failure to stage construction in increments also creates the possibility that constructed fragments of the system will be left isolated if steep cost escalation or other factors force a halt to construction. Constraints that have hindered development of optionally effective and flexible programs for implementation include:

- Inadequacies of financing mechanisms. As will be discussed in the next section, financing mechanisms have tended to encourage packaging of transit proposals into extensive, one-time construction projects rather than subdividing them into increments,

- Inadequate decisionmaking forum. As was discussed in the institutional section, the fragmentation of the decisionmaking forum and the absence of a single lead agency with appropriate authority and responsibility has discouraged the setting of priorities for implementing proposed transit improvements.

- Political pressures. In the context of the constraints imposed by financing mechanisms and the weakness of decisionmaking agencies, political pressures for giving equal service to everyone in the region have encouraged simultaneous construction of as much of the proposed plan as possible.

Implications for public policy. Federal policy has influenced the development of flexible implementation schedules by allowing these constraints to remain in effect. Ultimately, to allow successful staging of construction, they would need to be removed.

The proposed UMTA policy attempts to address the issues by requiring development of plans that can be implemented in stages. Although metropolitan experience bears out the need for incremental staging, the policy could have the undesirable effect of focusing too much on the near-term, thus eliminating opportunities for making investments that will pay off only in the long run. In addition, it runs the risk of encouraging metropolitan areas to concentrate the area's requests for transit improvement in too narrow an area.

TRANSIT FINANCING ISSUES

Issues involving transit financing policy are closely interconnected with issues that have arisen within both the other two categories of investigation. Institutions must have access to sources of financing to be effective in implementing plans, while the technical planning process must Produce plans that are financially feasible. The sources of funds and the conditions under which they are made available have created significant problems for metropolitan transit planners and decisionmakers.

The current Federal program for transit support has evolved over a period of nearly 15 years, expanding from a limited capital loan program begun in 1961. The present program makes $11 billion available over a six-year period to support a range of research, planning, capital improvement, and operating activities. About $8 billion of that sum is administered on a discretionary basis, while a $4 million sum is allocated on a formula basis for optional capital or operating purposes.

A wide variety of mechanisms for financing is used on the local level. Bond issues supported by locally levied taxes have been perhaps the most common method of local transit support for large new systems. Some states have earmarked state tax receipts for transit in urban areas.

Characteristics of the Federal and local financing programs have limited the transit planning and decisionmaking process in a number of ways. The issues raised by the assessment of politian experience are grouped in categories corresponding to four basic guidelines for assessment: ability of the financing devices to achieve national, regional, and local goals; to provide stable and predictable sources of funding; to encourage a balance between long-range, regional, single-technology planning and short-term responsiveness to local needs; and to avoid unnecessary administrative delays at the Federal level.

Achieving National, Regional, and Local Goals

The basic purpose for public programs of transit support, as will be discussed in the concluding portion of this chapter, is to meet the various goals of public policy. Whereas in a general sense transit financing has been successful in meeting a range of national and local goals, four issues have arisen:

- Insufficiency of current funding levels. The national goal of increasing transit ridership has led to an increase in transit service and, in turn, to soaring operating costs. The National Mass Transportation Assistance Act of 1974 (section 5) provided-funds for operating support, but the effects of inflation, combined with the escalating rate of growth in operating costs, have left many transit operators with greater deficits now than before the operating assistance was made available. These increases in operating deficits, as well as the costs of proposed improvements, have created new pressure for expanding the amount of Federal support for transit, and for increasing the flexibility in the uses to which the funds can be put.

- Lack of financing incentives. No financing incentives are provided for achieving certain national goals such as the goal of optimizing the use of highway and street space for transit.

- Narrow-purpose funding. Some goals, particularly local and regional goals involving coordinated development of transit systems and surrounding land uses, cannot be met because transit systems are narrowly defined. In part to keep the price tag low, estimates presented to voters in regional referenda do not provide for many of the costs of infrastructure necessary to achieve optimal land use in the vicinity of transit stations and corridors.

- Separate funding of highways and transit. Separate funding and administration of transit and highway programs at all levels of government has tended to prevent (and will continue to prevent) use of highways to provide transit capacity, even though this is an objective of national policy.

Implications for public policy. Several kinds of policy initiatives would be able to address these issues.

The increasing need for operating assistance could be addressed if a greater portion of the Federal transit program were made available for operating assistance as well as capital aid. If the current funding levels are insufficient to continue

improving the nation's urban transit, or even to keep current levels of service in operation, the Federal Government should consider increasing the amount that is available, while assuring that funds are used most efficiently. If UMTA's new requirement for determining the cost-effectiveness of alternative proposed transit improvements is administered appropriately, as was discussed in the previous section, it should encourage identification of the most cost-efficient way to meet particular combinations of transit goals. To raise the level of total available funds, a policy decision could be made to (1) increase the levels of authorization in the transit program, (2) increase the amount of Federal highway money that is made available for transit, or (3) put the highway and transit programs on a jointly funded basis.

The latter approach would allow the most effective planning and implementation of transit improvements that use highways. Expanding the existing transfer provisions for using Federal highway money to support transit may have undesirable consequences. Currently, metropolitan areas may use funds from the Federal-Aid Urban Systems (FAUS) portion of the highway program for either transit or highway projects. Also, under the interstate transfer provisions, they have the option to exchange funds earmarked for certain interstate highway segments for transit funds. Generally speaking, there is evidence that the decision to use the interstate transfer provision results not only from lack of adequate transit funds, but also from the desire to retain the large sums of Federal aid involved even when it becomes obvious that a interstate segment should not be built. This kind of pressure has provided the incentive for hasty decisionmaking based on inadequate technical planning support.

If the highway and transit programs were put on a joint funding basis, complementary highway and transit programs could be undertaken, thereby reducing inefficiencies in the overall urban transportation system and resulting in more transit service per dollar spent. The need for this kind of economy is becoming increasingly necessary inasmuch as in recent years the total amount of financing available for urban transportation as a whole has been decreasing in real dollar terms.

The issues related to goals also point to the fact that the Federal Government has not successfully taken advantage of the opportunity to use financial aid to achieve specific national purposes. The significance of this opportunity is discussed in the concluding section of this chapter.

Stability and Predictability of Funding

The 1974 National Mass Transportation Assistance Act

permitted local decisionmakers to program section 5 funds over a three-year period with reasonable assurance that they would receive the authorized amounts because they are based on a statutory formula. Because most Federal transit funds are administered on a discretionary project-by-project basis, however, there is no assurance of the amount a local area will receive year by year. (The recent UMTA pledge of $600 million to Atlanta over the duration of the currently authorized program is one of the few exceptions to this situation.)

The short term of the Federal financial commitment to individual metropolitan areas has combined with changes in UMTA policy and the lack of secure financing on the local level to keep local decisionmakers from being able to determine in advance the amount of funding support that will be available to them. This problem has led to:

- Loss of local support. Lack of firm Federal commitment to a specific level of funding has undermined popular support for transit in several metropolitan areas, particularly at the time of referenda on raising the local share of the costs of implementing a plan.

- Repetitions and delays in planning. Several metropolitan transit officials have complained that UMTA unfairly imposed new planning requirements late in the planning process, causing (or threatening to cause) delays.

- Pressure for state aid. Stability of funds required to plan and program effectively has been best achieved when localities do not have to rely primarily on local taxing powers and particularly on the property tax. In general, only states have the power to levy taxes that can provide stable, reliable funding for the local share of transit improvements over time, and in recent years some states have acted to provide that aid.

Implications for public policy. The need to remove uncertainties about future funding availability suggests consideration of a more systematic, rational basis for distributing Federal transit funds among metropolitan areas. The two alternative courses are to continue to use the discretionary grant approach and tie the award of these grants to achievement of specific program objectives, or to allocate most or all of the funds by formula.

The alternative of having UMTA distribute funds by carefully formulated criteria has been the subject of a year-long investigation by UMTA staff for a set of criteria to guide investment decisions. Such criteria would differ from the proposed policy by allowing UMTA to judge directly whether a transit proposal is justified. To date, no conclusions have been reached. Each urban area has such highly individualized characteristics that it is difficult to devise general criteria that adequately take these differences into account.

Alternatively, a large portion of the funds could be allocated by formula, while some funds could be retained for discretionary distribution by the Secretary. Experience in the metropolitan areas indicates this would be a highly satisfactory approach. If most funds were allocated by formula, year-to-year funding levels would be stable, and decisionmakers would have sufficient advanced notice of future funding levels to allow sound planning and programming.

There are difficulties involved in devising and administering an equitable allocation formula. However, a more equitable formula could be devised if highway and transit funds are combined and distributed under one formula. This approach would allow larger metropolitan areas with relatively greater transit needs and relatively fewer highway needs to direct most of their allocated funds to the transit program, while smaller metropolitan areas, whose highway needs (and needs for transit that uses highways) are likely to be greater, could devote proportionally more of their allocated resources to highway purposes.

The portion of the funds that remain in the discretionary program could be distributed according to criteria for achieving Congressionally formulated goals and objectives. Keeping some kind of discretionary grant program is important to allow giving support to cities beginning major transit development programs. Under most formulas, especially if they are based on measures of existing transit service, cities like Atlanta would not receive the large amounts of capital assistance they would need to undertake major new construction efforts.

Long-range, Regional, Single-technology Planning Versus Short-term Responsiveness to Local Needs

Several aspects of Federal and local financing mechanisms have encouraged emphasis on planning to serve the long-range needs of an entire region, usually with a single technology, rather than specific, often more short-term needs of subareas of the region. This problem has been discussed in the previous two sections; the discussion here focuses on ways in which financing policy contributes to the imbalance:

- Competition for limited Federal funds. The national program's discretionary grant approval process has been one of the factors encouraging many metropolitan areas to compete with each other in preparing and submitting plans for larger fixed-guideway systems in order to obtain "their share" of the funds. This tends to build a metropolitan commitment to a very expensive and fixed long term plan. The 1973 increase in the Federal share from 66-2/3% to 80% increased the incentive for large systems because of lower local share requirements.

- Availability of financing for capital improvements only. There can be little doubt that the availability of Federal funds for capital improvements only has created a bias in local decisionmaking in favor of heavy rail

rapid transit systems or other fully grade-separated fixed-guideway systems. Such systems can only be justified if they attract high patronage. Since commuters provide the bulk of transit patronage, planners tend to extend heavy, fixed-guideway systems into the suburbs to maximize service to commuters (and thus maximize patronage).

- Need for regionwide voter support for local share. At the regional level, the need to gain approval in referenda for transit financing bonds or taxes also has led to fixed long-range plans for overly extensive, single-technology systems serving the entire region. A specific technological concept with broad voter recognition and appeal often was required in order for metropolitan leadership to generate sufficient interest to raise the necessary local and state funds to initiate a transit planning program, even with Federal funding. (Ironically, the decision to present an extensive regional system to voters in several cases resulted in defeat of the proposal because it was considered too expensive.)

Implications for public policy. Recent Federal policy initiatives have taken steps to deal with aspects of these issues. The earmarking of a portion of the UMTA program for operating assistance, at local option, removes some of the incentive to invest in capital-intensive systems, at least for smaller metropolitan areas, The fact that these funds are available on a formula distribution basis reduces somewhat the incentive to compete for a discretionary grant in those areas.

Increasing the portion of the Federal aid to be allocated by formula in the manner discussed in the previous section could extend these advantages to larger metropolitan-areas. There would be less of a Federal-level incentive to bypass local needs in order to develop a regionwide plan that might gain more total Federal aid.

Avoidance of Unnecessary Administrative Delays

Many transit planning and operating agencies have complained about the amount of time that it takes UMTA to approve grant contracts or amendments. Several aspects of the UMTA program contribute to this situation:

- Small, centralized UMTA staff. The staff is small in relation to the size of the program, a problem that is exacerbated by the fact that field officials must seek central office approval for most decisions.

- Project-by-project approach. The discretionary grant program has put UMTA in the position of having to judge which types of technology are "best" in metropolitan areas, which is a time-consuming responsibility.

- Equal level of attention to major and minor decisions. Complaints have been made that UMTA follows an equally rigorous process for routine bus purchases as for major new systems, although the availability of Section 5 formula grant money may be relieving this problem in some areas. UMTA has urged localities to use the formula money for routine purchases. In large metropolitan areas where most of the formula funds will be needed to support operations, however, the problem described will persist.

Implications for public policy. Placing a portion of the funds into the formula grant category has allowed UMTA to reduce the likelihood of creating unnecessary administrative delays. By calling for cost-effectiveness analysis on the local level, the proposed investment policy attempts to reduce the time and effort required for UMTA to review grant applications, but unless agreement is reached on explicitly defined cost-effectiveness criteria, the kind of analysis will vary from city to city, and UMTA still will be required to assess the technical aspects of local planning.

Two approaches might be taken to reduce delays in the grant review process. One alternative is to increase the size of the staff, both in the central office and in the field, and to delegate additional responsibilities to the field offices.

The more effective approach might be to put a greater portion of the UMTA program on a formula allocation basis. Funding would be continuous and there would be less need for time-consuming technological judgments in order to decide among grant applications.

THE ROLE OF NATIONAL GOALS

The previous sections of this chapter described a number of issues concerning the structure of the institutions involved in transit planning, the content of the technical planning process, and the mechanisms used to finance mass transit systems. These issues take on special importance today because of the growing support the Federal Government has given public transportation, and the ongoing debate about where to go from here.

At the root of any effort to resolve these problems is a broader issue involving the question of establishing national goals for public transportation. The purpose of such goals should be to provide specific direction for Federal financing policy, for regulations governing the responsibilities of decisionmaking institutions, and for requirements affecting the technical planning process. Although numerous statements of goals are contained in Federal legislation and administrative guidelines, critics of the current situation argue that these goals often are formulated in a way that is too general and broad to be useful.

In other words, existing goals offer no concrete answers to the central questions of how much public transportation the nation wants to buy, what purpose it should serve, and who should pay for it. These questions underlie a national debate over how we might go about a rational, systematic process of setting specific objectives and developing criteria to determine whether national policies and programs are accomplishing what they set out to do.

The participants in the debate do not contend that Federal policy for public transportation has not addressed itself to any goals, or that it has failed to recognize the broad array of purposes related to social and environmental concerns that public transportation can serve. In general, the Federal role in transportation has broadened from one that placed primary emphasis on the economic regulation of transportation activities to one that both promotes the development and improvement of the nation's transportation system and seeks to protect society against the potentially adverse impacts of transportation development.

Statements of current policy are found in several acts of Congress. The Declaration of Purpose (Sec. 2 (a)) of the Department of Transportation Act of 1966 states that national transportation programs should provide fast, safe, efficient, and convenient transportation at the lowest cost -- as long as they are not detrimental to the general welfare, the economic growth and stability of the nation and its security, and other national objectives, including those governing the utilization and conservation of the nation's resources.

The successive acts of Congress creating Federal support for mass transportation --- the Housing Act of 1961, the Mass Transportation Acts of 1964 and 1970, and the National Mass Transportation Assistance Act of 1974 -- in combination call for preserving and revitalizing existing mass transportation systems, increasing

mobility to lower-income people and transit dependents (including the handicapped) , attracting new riders, and using mass transit to influence and support desired development patterns and improved environmental conditions.

Current national transportation policy, as set forth most recently and comprehensively by the Secretary of Transportation in "A Statement of National Transportation Policy," incorporates these legislative goals:

> Federal policy for urban transportation should at once respond to locally determined transportation goals and serve such national objectives as the enhancement of our cities as vital commercial and cultural centers, control of air pollution, conservation of energy, access to transportation for all citizens and particularly the disadvantaged, facilitation of full employment and more rational use of land. [1]/

Recognizing that goals exist, the record of the debate suggests that they must be more sharply defined if policymakers are to be able to determine whether the aims of national policy are being achieved. Both the record of Congressional hearings on transportation policy and evidence gathered in the metropolitan areas examined by this study point to the need to clarify the goals, objectives, and criteria that are applied to public transportation.

During 1974, the Appropriation Committee's Subcommittee on Transportation of the U.S. House of Representatives held hearings on national transportation policy. [2]/ Other hearings, devoted to different transportation-related purposes, also aired discussion about national transportation policy, as did studies and publications outside the Federal Government. Although the various statements do not reflect agreement about the substance of particular goals and objectives that should be established, they do show the major concern that the nation should formulate more specific goals and objectives for what it wishes to achieve. The problem is not that no general goals exist, but that Congress has not directed UMTA to use goals and objectives as a firm basis for mobilizing, dispensing, and evaluating the use of Federal funds. Financial incentives could be offered for achieving specific objectives.

1/ A Statement of National Transportation Policy by the Secretary of Transportation, September 17, 1975.

2/ Department of Transportation and Related Agencies Appropriations for 1975, Hearings before a Subcommittee of the Committee on Appropriations, 93rd Congress, Second Session, 1975.

The problem is also reflected to varying degrees in the metropolitan areas examined by this study. While the general goals of increasing mobility, enhancing environmental quality, and shaping the pattern of land use remain overriding concerns of metropolitan transit planners, more questions have arisen regarding the best types of transit systems to reach these goals. Alternatives such as light rail or trolleys, PRT, busways, forms of paratransit, and conventional buses are being explored and more information sought on the relative merits of each.

For some, this questioning has -been spurred by UMTA's shifting policies. The main impact on metropolitan transit planning of the lack of clearly defined goals has been the difficulty of determining in advance how much Federal assistance will be provided, and what it will pay for. The problems related to this instability of funding were described in the financing section of this chapter.

As yet neither UMTA nor the several cities that are planning rapid transit systems have developed any one means for weighing the advantages and disadvantages of alternatives in order to come us with the one most suitable for their particular purposes. One reason this is so, and for why the local as well as the national debate runs on, is that it is difficult to reach agreement on specific criteria that can measure when goals for public transportation have been achieved. Each urban area has such highly individualized characteristics that it is difficult to devise general criteria that take these differences into account. Until such agreement is reached, it will be difficult indeed to pin down what UMTA's investment should achieve, and how, in turn, the local planning institutions and technical process should be structured.

Considerations for public policy. The practical issue in the debate about goals for public transportation may have less to do with whether goals and objectives can be set-and more to do with who should set them and who should have the power to carry out the programs to achieve them.

Setting specific national goals and objectives is not without precedent. Although they are simplistic examples, the interstate highway program and the space program are both cases in which Congress has set specific goals and established the institutional and financial means to achieve them. More

appropriate examples are the goals Congress has established for clean air and water. These have specific objectives for limiting pollution content in maximum amounts during specified periods and by certain dates. Criteria are being developed to measure effectiveness.

The purposes of public transportation may not be so susceptible to specification. But there are examples to be found. For instance, in the short term criteria could be based on increased accessibility of the population to transit. In the long term, criteria might be derived to build links between transit and patterns of urban growth. For example, urban areas could be required to prepare urban growth plans, backed by incentives and growth contours, in which transit service was provided to concentrations of housing and employment. Formulation of such criteria merits careful study because of the complexity of the relationships between land use and urban development.

The task of exploring whether goals and objectives should be set and, if so, what they might be, can be approached on either the national level or the local metropolitan level.

On the national level, a number of approaches might be taken. DOT and UMTA could be mandated to examine the question of goals, objectives, and criteria, and report to Congress by a certain date; a national commission could be established with the same mandate; or alternatively, a legislative commission could be empowered to explore the matter and, if required, prepare legislation for consideration by Congress. In any one of these cases the important task will-be to bring the matter to a legislative forum where the issues can be fully debated and decisions, made on the appropriate course of action. Responsibility for the task might also be left to local authorities. . In this case, the Federal government would have to make the requisite powers and funding available to the localities to carry out their programs.

Regardless of the approach taken, reaching an agreement on precise national or local goals and objectives poses difficult questions. But the kind of goals that are set will underlie whether more specific policies to shape transit institutions, planning, and financing will achieve their intended effects.

CHAPTER 7

OPTIONS FOR NATIONAL TRANSIT POLICY

The purpose of this chapter is to formulate alternative courses of action for resolving many of the issues named in the previous chapter. That chapter described measures that could be taken independently to address each of the major problems affecting community planning for mass transit. This chapter takes the next logical step. .

Complex interrelationships exist between many of the problems and their potential solutions. Attempts to remedy some of the issues also seem likely to affect -- positively or negatively -- *one* or more other issues. Conversely, some reform measures would have to be pursued jointly to be feasible. One particularly effective way to accommodate these interrelationships would be to employ a combination of measures designed to implement a particular national policy.

Within the framework of general guidelines derived from the findings of the nine case assessments, this section sets forth four broad policy options for improving mass transit programs that could be considered by the Congress. Each package of policies contains some of the policy initiatives described in the preceding chapter. The general relationship of those individual initiatives to the four policy packages is reviewed in the concluding section of this chapter.

The four policy options can be summarized as follows:

- Policy Option A -- Maintain the present mass transit policy and program. This policy requires no major changes in mass transit legislation and is independent of potential changes in policy regarding highways, energy, environment, and other areas of concern.

- Policy Option B -- Strengthen the national mass transportation program. This policy would give much higher priority to mass transit programs, but it would not be dependent upon restrictive policies concerning automobile use, energy conservation, and environmental protection.

- Policy Option C -- -Strengthen and create a policy-oriented balance among all forms of transportation, particularly in urban areas. This policy aims at establishing a multimodal approach to transportation and specifically addresses conservation of energy, environmental enhancement, and other considerations of national priority.

- Policy Option D -- Strengthen comprehensive community development programs, making multimodal planning and development an integral element of community development. This policy gives urban growth managers and land use planners the decisive role in determining the characteristics of the urban transportation system.

The range of policies is not exhaustive and they are not mutually exclusive. They represent different degrees of potential effectiveness in shaping the community transit planning process to conform to guidelines for financing approaches, institutional arrangements, and technical procedures developed during the course of the assessment.

Each policy is discussed in three parts. The first constitutes an overview description of the policy. The second is a more detailed discussion of its constituent parts, and the third is a summary assessment of the policy option.

POLICY OPTION A: Maintain the Present Mass Transit Policy and Program

Description

This policy option calls for taking steps to improve transit planning under the current UMTA program. Federal assistance would be provided under current legislative authority, although due to inflation, funding levels might decrease in real dollar terms. Currently evolving policies for allocation of the available funds -- involving new requirements for the conduct of technical planning and relationships between regional planning and operating agencies -- would be implemented. -

Policy A would aim to achieve the objectives of current national transportation policy as it relates to mass transportation.

Discussion

Goals and objectives. Even within the framework of the existing transit program, important steps could be taken to remedy some of the problems identified in the nine metropolitan areas studied. One of the most significant steps would be to clarify the program's goals.

The absense of clearly defined goals and objectives seriously weakens the present program and makes it difficult to devise a rational system for allocating Federal financial support for mass transportation. The lack of explicit Federally established objectives and measurement criteria has led to varying degress of confusion and other difficulties in almost all of the cities surveyed.

To reduce these difficulties% Federal administrative policy-makers could develop more explicit objectives and criteria to measure progress toward the achievement of Congressionally established policy. This would provide a sound base upon which to mobilize resources and evaluate the effectiveness of the expenditures.

Although UMTA has not established explicit objectives, the recently proposed policy for major urban mass transportation investments could provide the impetus for conducting further goal-setting and evaluation procedures. UMTA is calling for the recipients of capital grants to use cost-effectiveness techniques to evaluate alternative plans for achieving locally established objectives, and to develop plans that can be implemented in increments.

The overall effect of this approach could be beneficial, so long as the program is administered appropriately. The process of evaluation might lead localities and UMTA to develop far more explicit statements of goals, along with realistic criteria to measure how tile goals could be achieved. In the long run this latter course might be able to provide the basis for a more effective and efficient national policy for mass transit.

- Financial aspects. The major financing issue presented by Policy A concerns whether present authorizations will provide sufficient funds to carry out the transit program's 'objectives. The National Transportation Assistance Act of 1974 increased support for the mass transit program by authorizing $7.825 billion for capital expenditures over a six-year period from 1975 to 1980, and $3.975 billion for the same period for either operating cost subsidy or capital improvements at local discretion.

Maintaining the existing mass transit policy and program, however, will not significantly increase and might in fact decrease Federal assistance in constant dollar terms. While there is no specific cost-price index for transit capital facilities and rolling stock, other appropriate indices indicate that increases in Federal capital grant funds have not kept pace with inflation. In addition, the $300 million of Federal funds made available for the first time in fiscal year 1975 for operating deficits is less than the increase in total national operating deficits between 1974 and 1975. Thus, depending upon rates of inflation between 1975 and 1980, the programed increases in capital and operating assistance funds may decrease in constant dollar terms. Present policy makes no provision for establishing levels of funding and financial mechanisms commensurate with the objectives to be achieved.

The NMTA Act of 1974 improved the stability and continuity of the existing mass transit policy and program by adopting an allocation formula for portions of the authorized funds and by providing contract authority. Thus, local governments are assured of the exact amounts they will receive each year over the five-year period for the formula grant funds.

Existing policy and programs, however, continue the discretionary authority of UMTA to allocate capital grant funds, which detracts from the continuity and stability needed for large multi-year public improvement programs. Under the current discretionary program, incentives for long-term, regional systems will remain in effect.

One other financial issue cannot be addressed under present policy. Although the Federal-Aid Highway Act of 1973 has alleviated the pressure to achieve more flexibility in a local area's ability in the use of funds for either highways or transit, a considerable 'disparity still exists between the size of the sums available for the two modes of transportation. Especially if the UMTA program proves unable to meet the demand for aid to transit, unnecessary competition between the two modes will persist in the future.

Institutional aspects. The intent of current administrative policy is to promote closer coordination among regional planning agencies and transportation modal agencies. The experience in the metropolitan areas indicates further steps must be taken under Policy A if the goal of coordination is to be achieved.

Two recent Federal actions have tended to emphasize the role of the regional planning agency. The 1974 NMTA Act called for a comprehensive transportation planning process identical to the requirements of the Federal-aid highway program. Earlier, the 1973 Federal-Aid Highway Act led DOT to issue a new administrative requirement for designating a single Metropolitan Planning Organization to channel Federal capital grant funds to regional transit and highway organizations and prepare a joint transportation improvement program.

Whether the new MPOs will improve coordination is questionable in view of the considerable competition between regional and local agencies over responsibility for transit programming and priority setting functions. Most MPO designations have gone to regional comprehensive planning agencies, and most of these agencies are formed by mutual agreement among member local governments

and agencies. Most do not have statutory power to tax, finance, or administer programs. In contrast, most agencies with' responsibility for operating transit systems do not have the authority to plan, develop, and finance new, expanded, os rehabilitated systems.

Division of responsibility carries with it lack of accountability. Under the present policy and program, most of the metropolitan areas must seek biparty or multiparty approvals for planning, financing, and implementation. The Federal requirements providing for accountability through the MPO ignore the realities of the decisionmaking process.

Federal administrative policy and required process cannot convey to regional organizations a decisionmaking authority and responsibility they do not have by statute. However, the Federal program could be adapted to penalize regions that do not act on their own to structure an effective decisionmaking forum, and/or reward regions that do. The latter course would be politically more acceptable.

If, under Policy A, MPOs with insufficient statutory powers continue to be recognized, the current lack of effective integration between land use planning and transportation planning may be perpetuated, regardless of the formal coordination that might occur.

Technical planning considerations. The Urban Mass Transportation Administration's planning requirements until recently listed the types of studies and analyses that were involved in the planning process. They did not stipulate specific procedures or require that a detailed analysis and evaluation of alternative courses of action be the basis for transit system selection, funding, and implementation.

Over the past two years, UMTA's planning requirements have become more rigorous, particularly since the requirement for alternatives analysis and evaluation based on cost-effectiveness was published in recent months. The actual procedures for this new policy still are being developed.

The analysis of alternatives and evaluation of cost-effectiveness can bring more discipline to the planning process, providing evaluation takes into consideration a defined and measurable set of objectives that give evenhanded consideration to the tradeoffs involved in selecting one alternative over another. UMTA defines the evaluation to take into consideration a full range of goals and criteria.

UMTA also could amplify its guidelines for citizen participation under the current program and thus strengthen another aspect of the technical planning process. Finally, it could pursue the necessary research and development to improve forecasting methodology.

Summary Assessment

Maintaining present national mass transit policy and programs will continue developments of the last few years on a reasonably stable basis, but it will not provide for significant improvement and expansion of mass transit systems and services. Development of improved mass transit could be slowed if the rate of inflation is greater than the incremental increases in both capital and operating assistance funds. The state and local governments are not likely to provide the extra amount that would be needed; inflation hits them harder than it does the Federal Government because their revenue sources are more limited.

In addition to these shortcomings in the realm of financing, Policy A would have difficulty correcting other deficiencies in the current program. Confusion will continue if no clear definition is made of what mass transit is to accomplish, of how much and what kind should be purchased, and of who pays for it. State, regional, and local agencies would continue to compete for responsibility unless they acted on their own initiative in response to Federal incentives to bring order to these institutional conflicts.

Policy A does have the potential to improve the quality of the technical planning work. Rigourous analysis of alternatives and evaluation of different courses of action can and should be a part of any policy option.

POLICY OPTION B: Strengthen the National Mass Transit Program

Description

This policy would give priority to the development of the nation's mass transit system independent of other public policies. The policy would aim to mobilize financial resources and streamline institutional mechanisms and technical planning processes in order to expand the Federal mass transit program and provide increased transit facilities and services to the nation's urbanized areas.

In pursuit of Policy B, goals and objectives would be established that emphasize providing increasing service at lower cost to riders without giving significant weight to social, economic, and environmental goals. The Federal Government would provide the bulk of the increased capital and operating costs. The transit operating agency would have primary institutional responsibility on the state, regional, and local levels. Technical planning requirements would be somewhat simplified.

To assure the policy is implemented, UMTA and the regional or local agencies would be required to develop plans and timetables for incremental system and service improvements in order to achieve the objectives by a target date.

Discussion

Goals and Objectives. An essential strategy for strengthening and expandng mass transportation would be to establish a precise set of goals and objectives for transit improvement. Specific objectives would be established for increasing transit ridership by certain percentages depending upon trip purpose, time of day, and origins and destinations within the metropolitan area. Objectives would include specified levels of service.

The new goals would give priority to transit improvement over other national goals, such as those involving social welfare, community development, energy conservation, and environmental protection. In providing expanded service in combination with fare reductions, on the other hand, Policy B would tend to respond to current goals for providing mobility to the transit dependent (excluding the handicapped).

The establishment of such unitary objectives would focus attention on a readily comprehensible policy and, assuming broad public support, would assist in marshaling resources to carry out the program. Clear and simplified sets of objectives also would be susceptible to periodic measurement and evaluation to determine how resources should be allocated.

Financial aspects. To an extent that would depend on fare levels established and the extent of service improvements, the immediate financial effect of strengthening and expanding mass transportation would be an increase in operating deficits. Due to economic realities, the Federal Government would have to subsidize the increase.

Neither local, regional, nor state governments have the financial capacity to increase their support for transit. The case studies of the nine cities, as well as information readily available on other metropolitan areas, demonstrate that transit agencies and local governments have exhausted their own sources of revenue to support mass transit and increasingly have turned to the states for financial assistance. Most states also currently are facing severe financial difficulties because of economic conditions and are increasing taxes and curtailing services.

The amount of operating cost increase would depend upon the fare levels established. An indication of the effect can be taken from the experience of Atlanta, Georgia, when MARTA reduced fares

from 40 cents to 15 cents (and, at the same time, improved Service). The system experienced a 28% increase in ridership (along with a dramatic increase in operating costs) .

Analysis indicates that adoption of a 15-cent fare nationally would increase operating deficits about $1 billion based upon present transit capacity and levels of service. This increased ridership, however, would require increasing levels of service by approximately 15-20%.

The option of administering funds under a formula grant program would be open under this policy. The formula could incorporate incentives for achieving the policy's objectives and could permit greater flexibility between capital and operating expenditures.

Institutional aspects. Strengthening and expanding mass transportation in line with policy objectives of increasing ridership and subordinating social and community development goals would place primary institutional responsibility on the transit planning and operating agency at the state, regional, or local level. Strong financial incentives could be offered to encourage states and localities to provide the agency making programming and operations decisions with an assured source of revenue for the local share.

Giving the transit agency clearcut responsibility for planning, programming, setting priorities, and budgeting would overcome much of the confusion and conflict among regional and local agencies. It would retard the evolution of multimodal planning, however.

This would present an obstacle to achieving the policy's purpose. Significant increases in ridership and expanded levels of service would have some effect upon automotive traffic, but, more importantly, they would require modifications in traffic management in order to accommodate the increased number of transit vehicles for all transit systems except those having exclusive grade-separated rights-of-way.

By expanding the definition of facilities eligible for capital grants to include real estate in the vicinity of station sites and transit corridors, following the precedent set in the 1974 legislation,[1]/ Policy B could expand the opportunities for

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1/ National Mass Transportation Assistance Act. Public Law 93-503, Section 104(b); 49.USC 1602.

coordination between transportation investment and service, on the one hand, and land use planning, development, and management on the other hand. Except in this limited way, however, the policy would not be conducive to genuine integration between transit and land planning and development.

Technical planning considerations. In implementing Policy B, the policies that UMTA has developed for transit planning and decisionmaking would have to be altered somewhat, but no changes in procedures for analysis of alternatives and evaluation of cost-effectiveness necessarily would be required. The improvements discussed under Policy A could be applied also in Policy B.

The technical planning requirements would be somewhat simplified by reducing the importance of evaluation plans in light of social considerations and relationship to community development plans.

Summary Assessment.

The policy option to strengthen and expand mass transportation through fare reduction or elimination and expansion of service can significantly increase transit ridership. Private sector savings would tend to offset the high cost of public funds as drivers switch to transit.

The analyses contained in a companion volume of this study, Energy, the Economy and Mass Transit, clearly indicate that fare reduction and expanded service are the most productive of all transit *incentive* concepts examined. The adoption of this policy option would not result in significant savings in oil-based energy, but would have environmental benefits and would offer higher quality and less expensive transit service to the transit dependent.

placing the transit agency in control of decisionmaking would overcome much of the confusion and conflict among regional and local agencies. However, the policy would retard the evolution of multimodal planning and it would be unable to bring about a broad-scale integrated approach to transportation and land use planning.

The policy would require a number of legislative changes. The policy may be more likely to win acceptance than an approach involving constraints on auto use or sharing of highway revenues. On the other hand, it may have difficulty gaining support because it would bypass a number of public environmental goals.

Policy Option **C**: Strengthen and Create Policy-Oriented Balance Among All Forms of Transportation

Description

The policy option to strengthen and create a policy-oriented balance among all forms of transportation, particularly in urban areas, specifically is intended to create transit incentives and automobile disincentives. This policy alternative is intended to fundamentally shift the priority and emphasis away from public investment in facilities for private automobiles and instead place priority on expansion and improvement of mass transportation.

This policy option would require significant changes in Congressionally enacted policy relating to mass transit, highways, Federal taxation, and energy conservation.

The significant results which can be achieved by a deliberate policy of transit incentives and automobile disincentives are discussed in detail in another report in this study, Energy, the Economy and Mass Transit.

Discussion

Goals and objectives. The establishment of goals and objectives for this policy option would rely heavily upon national objectives for energy conservation and environmental enhancement. Specific objectives would be established for both transit and highway facility development and system operations, but their policy base would depend upon the allocation of energy for transportation as compared with other energy requirements.

The goals and objectives established as a matter of national policy would be given much more weight and priority than those established at the state, regional, or local level because they would be based upon the conservation and allocation of a scarce national resource.

Financial aspects. Federal transportation funds would be combined, a relatively greater portion would be devoted to transit, and auto disincentive programs would be established to generate additional revenue.

Placing the highway and transit programs on a joint funding basis would improve the efficiency and economy of Federal transportation spending. For one thing, joint use of facilities would be encouraged. Secondly, although increased emphasis on mass transportation would require significantly larger levels of Federal investment, for the reasons described in the discussion of Policy B, the total Federal assistance required under Policy C would be no greater than the sum of the exisitng transit and highway programs, plus the additional revenue from auto disincentive programs. The larger urban areas would require relatively less highway funding, partly because of the impact of auto disincentives.

The analyses in Energy, the Economy, and Mass Transit, 'indicate that increasing the cost of gasoline and levying a charge on commuter parking, particularly in the central business districts of metropolitan areas, are the two most effective means of creating disincentives to the use of private autos through pricing policy.

The policy-oriented development of a balanced transportation system would not have any significant effect upon the financial requirement for highway facilities in exurban and rural areas, where the provision of extensive mass transit *services* would be extremely costly and would not result in a significant diversion from private transportation.

The entire program could be administered on a formula allocation basis, with a relatively small discretionary fund to support large-scale transit development programs. Flexibility of spending between operating and capital costs could be permitted.

Institutional aspects. This policy option would encourage integration of transportation planning and facility development at all levels of government.

The Federal Government would play a stronger role in planning, programming, and budgeting than in any of the other policy options. The fundamental policy rationale is based upon energy conservation and allocation, and these decisions are best made at the Federal level.

The major shift in emphasis between public transportation and automobiles likewise would significantly shift the roles and responsibilities of highway and transit agencies at all levels of government. The policy encourages modal institutions at all levels of government to merge and assume multimodal responsibilities or at least. to develop more thoroughly integrated working relationships.

Channeling a large amount of Federal transportation aid to a local or state agency, accompanied by explicit criteria governing the purposes the funds are to achieve, would provide a strong incentive for the agency to set priorities among area highway and transit projects. In addition, more direct, financial incentives could be offered to encourage one agency to assume this kind of effective lead role.

Technical planning considerations. This policy option would respond to the same kinds of Improvements in the technical planning process described in the discussion of Policy A, although new methodologies might be necessitated.

Policy C would encourage greater emphasis on low-capital alternatives because decisionmakers would be able to implement them. Under the current program transit decisionmakers must negotiate with street and highway agencies to be able to put traffic management improvements into effect.

The policy would encourage the Federal Government to develop guidelines describing planning methodologies that provide information on the comparative advantages and disadvantages of investing in facilities for the automobile and transit systems. Decisionmakers will want to understand these tradeoffs as a guide for allocating resources among highway and transit projects. Because Policy C emphasizes energy and environmental goals, the methodologies for comparative analysis should be oriented to these factors.

Planning procedures and methodologies also should be designed to take into account the probably changes in land use and community development that inevitably would result from such significant changes in national transportation policy. With energy conservation as a dominant factor in community growth and development, historic patterns of residential and employment locations would be altered.

Summary Assessment

This option would carry out systematically as a matter of national policy the experience produced by the oil embargo in late 1973 and early 1974. It would not involve a sudden shift away from reliance on *petroleum* for transportation purposes, which would have disruptive consequences, but it would recognize the eventual limits of oil supply, and gradually shift to less energy-consuming modes of transportation.

Systematically and over a relatively short period of years, this policy option would essentially reverse the trend in urban transit versus private auto use. It would provide sources for the additional Federal financial aid to transit. It would permit an improved technical planning process. It would respond to popular interest in environmental enhancement and energy conservation.

The principal obstacle to its accomplishment is the difficulty of gaining political consensus for a program this sweeping in scope and effect. The approach would require significant change in Congressionally enacted policy relating to transit, highways, Federal taxation, and energy conservation, and it would significantly shift the roles and responsibilities of highway and transit agencies at all levels of government.

However, such broad changes are necessary for some of the critical issues in current transit planning to be addressed.

POLICY OPTION D: Strengthen Comprehensive Community Development Programs, Making Multimodal Planning and Development an Integral Element of Community Development

Description

This policy would make urban transportation subordinate to urban growth management and land use planning objectives. Transit would be considered a support service similar to water, sewers, or another element of the community infrastructure. This policy option and pJ.arming concept is the one practiced most frequently in many countries throughout the world and specifically in Europe.

The option would give priority to land use and community development goals oriented toward minimizing the need for transportation and limiting the length of the trips that would be necessary.

Institutional Aspects. Policy D would fundamentally alter the relationship between transportation agencies and land use planning and development. Transportation agencies would not make policy or decide upon plans for transportation facilities and services. Instead, they would play a technical support role in designing, constructing, and operating the transportation system, which would be selected as an integral part o-f a land use plan.

The unit or agency of government charged with the responsibility for growth planning, development, and management would make transportation decisions in the same way as it would make decisions about other utility support systems. A regional unit of government or agency would have the authority and responsibility to make decisions over aspects of land use that are regional in character.

Policy D would in effect encourage the creation of metropolitan governments. Land use planning agencies at the city or county level would be able to assume the general development planning and administration responsibilities necessitated under the policy, but this is unlikely except in single-county or city metropolitan areas with a tradition of strong leadership at those levels of government. In these cases, the coupling of the necessary statutory powers to the new comprehensive responsibilities of planning agencies could be expected to occur without issue. In other areas where a gradual transfer of planning (as distinguished from implementing) authority to regional bodies, including regional transportation agencies, has been occuring over the past two decades, the new responsibilities under Policy D logically would be taken on by the regional planning organization.

Responsibilities for comprehensive growth management at the regional level would require shifting of numerous statutory authorities from the local to the regional government. Although the Federal Government may not be able to accomplish this shift directly, the availability of Federal funding for such purposes would provide a strong inducement for states and local governments to make the necessary statutory changes.

Institutional changes also would occur at the Federal level. Federal transportation agencies, as well as other Federal agencies with specific program responsibilities, would assess comprehensive development plans in relation to national priorities. They would no longer carry out detailed oversight and step-by-step approval of the planning process.

Technical planning considerations. The technical planning requirements to support this policy option would not be significantly different from those widely in use today for transportation planning, as they might be modified and improved in the ways described for Policy A and Policy C.

A recent worldwide survey of transportation planning requirements revealed that most countries utilize planning methodologies and techniques originally developed in this country following World War II and subsequently improved and refined. In many nations, and specifically in European countries, these techniques are employed in a planning process that for years has considered transportation just one element of a comprehensive plan.

Summary Assessment

The policy option of considering transportation an integral and subordinate element of a comprehensive land use and development plan has considerable potential to overcome some of the problems of resource allocation, scattered land use patterns, energy waste, and inefficient transportation systems. The United States is one of the few highly developed countries that separates transportation planning to a major extent from general land use and development policies and plans.

Implementing the policy would be difficult due to the broad-reaching nature of the reforms and the fact that, historically, this country has not exercised much public control over land use. However, a base of political support for development controls and planning has been evolving in recent years and is reinforced by recent awareness of the desirability of reducing energy consumption.

UNPACKAGING THE POLICIES

The descriptions of the alternative combinations of policies highlight the changes in the Federal transit program that would be necessary to achieve particular national objectives. Most of these changes involve one or more of the policy initiatives described in Chapter 6, and the policy options thus offer remedies for the major issues identified during the course of this study. However, the policy options do not expressly discuss each of the individual policy initiatives described in Chapter 6, or explain when these initiatives could be pursued independently.

In general, Policy A describes all the initiatives that could be taken under the present program to resolve the issues described in Chapter 6. Policy B addresses additional issues requiring availability of additional transit money for resolution. Policy C answers the problems created by lack of joint administration of transit and highway programs, while Policy D addresses the need for integration of transit and land use planning.

This section looks at the question from another perspective. It briefly reviews the conditions under which the policy initiatives described in Chapter 6 would be feasible and fruitful. For convenience, the same heading categories are used: institutional policies, technical planning process policies, and financial policies.

Institutional Policies

The responsibilities of organizations involved in transit activities could be clarified, and a lead agency identified, under any of the options. In any case, appropriate action at the state or local level would be needed to provide the necessary shifts in statutory authority.

However, a Federal initiative would have greater impact under policies C and D, which would provide the example of a consolidated transportation agency at the Federal level and could offer a substantial sum of Federal money allocated under a formula with built-in incentives.

Integrated transit and highway decisionmaking would become possible only under policies C and D; and integrated land use and transportation decisionmaking could be achieved only under Policy D. In general, whereas under each option the lead agency could be any of the four alternatives cited in Chapter 6 (local government, transit operator, state agency, or metropolitan planning agency), the state agency alternative is most likely under Policy C, and the metropolitan planning agency alternative is unlikely to be a possibility except under Policy D. Inasmuch as policies C and D are more likely to lead to a strong lead agency and thus a rationalized decisionmaking forum, these options would bring the greatest gains in accountability.

Even at present, however, Federal guidelines could be modified to recognize the need for structuring decisionmaking processes--genuine decisionmaking processes, not just at the MPO level--to be close to the elective review process. Federal guidances could explain the various alternative measures to gain accountability! and their consequences, more carefully. Under any of the policy options, Federal guidelines could be provided outlining procedures that will provide the opportunity for citizen participation.

Technical Planning Process Policies

Improvements 'in the technical planning process would be possible under any of the policy options. Basically, UMTA needs to clarify how it will administer its proposed policy on major mass transportation investments in a way that meets the criticisms that have been made, and to augment these guidelines with more explicit descriptions for how to set goals and use measurable criteria in evaluation.

In a number of respects, the technical planning process could be significantly improved if highway and transit programs were merged at all levels of government, an advantage that would be provided under policy options C and D. This step would encourage more serious consideration of transit options that use highways. It also would permit analysis of transit-plus-highway alternatives, in contrast to transit-only alternatives! and open the door to a serious examination of whether integrated surface transportation programs meet particular national goals.

These improvements also would be possible under Policy D. This policy would provide the additional benefit of genuinely integrating land use and transportation planning.

Transit Financing Policies

The only policy initiatives in the financing category that could be pursued under the current program would entail modest use of financing incentives for obtaining existing Federal goals. Broader restructuring of the national goals and criteria for use in developing financing incentives (or in building incentives into an allocation formula) would be possible under policies B, C, and D.

Policies B, C, and D all would provide opportunities for increasing the funding levels for transit, increasing the flexibility between capital and operating purposes, and for allocating a greater portion of the funds by formula. These changes would address many of the financing issues described in Chapter 6.

However, a merging of the transit and highway program would be necessary to permit meeting national goals for using highways

to provide transit capacity, to allow development of a more equitable allocation formula, and, in general, to provide greater economic efficiency in Federal transportation spending.

In conclusion, a great many issues affecting the conduct of transportation planning could be addressed at the present time, under the current program, and without Congressional action. Most of these issues involve the technical process of transit planning--the steps taken by planners to generate the information needed by decisionmakers. However, to remedy the fundamental institutional and financial issues that influence how that technical information is used (and, to a certain extent, its content), basic changes must be brought about through *Congressional action and related* **initiatives at the state and local levels.**

CHAPTER 8

SUMMARY OF MAJOR FINDINGS

The assessment found three major categories of issues to affect the conduct of transit planning and decisionmaking sues related to the institutional' context, (2) those related to the technical planning process, and (3) those involving means used for financing transit.

Some of the most significant influences on transit planning are exerted by the organizations responsible for conducting the planning and making the decisions.

The technical planning process provides the information that public officials and their constituents draw upon in making plans and decisions.

Issues involving transit financing policy are closely interconnected With issues that have arisen within both the other two categories of investigation. Institutions must have access to sources of financing to be effective in implementing plans, while the technical planning process must produce plans that are financially feasible. The sources of funds and the conditions under which they are made available have created significant problems for metropolitan transit planners and decisionmakers.

Effects of the Institutional Context on Transit Decisionmaking

- Responsibility for transit planning and decisionmaking is fragmented among the many governmental agencies involved, particularly at the local and regional levels of government.
- One of the effects of fragmentation is to encourage competition for decisionmaking authority, and particularly for the power to set schedules and budgets for transit improvements. The pressures of competition tend to produbе overextensive plans that serve everyone in a region more of less equally, rather than smaller plans focused on parts of the region with specific transit problems.
- Special-purpose agencies charged with transit planning tend to have difficulty responding to local concerns if they begin with a mandate to construct a regional system. Agencies dominated by powerful. contractors are likely to be especially unresponsive to the public will.

- Institutional fragmentation also leads to lack of effective coordination between planning for different transportation modes, and between transportation planning and comprehensive planning. Thus important opportunities are lost for improving transit operations through highway management and for developing transportation systems to serve future development patterns.

- Efforts by the Federal Government to improve coordination by lodging transit decisionmaking power in multimodal Metropolitan Planning Organizations have not had notable success. Most Metropolitan Planning organizations are regional councils of government, which, although they are empowered to make regional comprehensive plans, do not have statutory authority or financing resources to put the plans into effect.

Effect of the Technical Planning Process on Transit Decisionmaking

- The proper function of technical planning is to provide the objective information that is needed to guide decisionmaking. One of the most important lessons learned from the metropolitan experience is that a predetermined solution tends to seriously diminish the objectivity of the technical planning work.

- Cities in which no one transit system was the clear favorite have produced more impartial analysis concerning the merits of alternative proposals.

- The several reasons for narrowness of early transit planning include the general ignorance of the range of technological options, the lack of UMTA support for planning, and pressure exerted by engineering consultants with previous experience in conventional transit (and with a vested interest in producing a plan they would be qualified to design and construct).

- Lacking the technical information that might have been provided by a continuing transit system planning process, political and business leaders tended to settle on the single technological alternative with which they were familiar and to make a commitment to it at the time that they promoted the initiation of transit system planning.

- The pressures for predetermining plans have worked against open, participatory transit planning that evaluates a broad range of alternatives against criteria based on public goals. Alternatives have been examined on a systemwide instead of subarea basis. Plans have tended to be inflexible instead of preserving options for dealing with future changes in technology or transportation needs.

- The data and methodologies used to forecast ridership help determine the outcome of the planning process. Nevertheless, the reliability of transit ridership forecasts over time has yet to be demonstrated.

- In a similar vein, no convincing evidence has been presented that the presence of a transit system per se influences land use in the absence of coordinated land use controls.

- Citizen participation programs are a means for correcting data about public values and needs that are essential for making good transportation plans. Although public officials increasingly regard public participation as an integral part of the planning and design process, well-structured participation programs have not been widely used. Federal requirements call for citizen participation but do not explain how to proceed.

* One of the difficulties in gaining public involvement, especially during the 1960s, was the commonly held assumption that rapid transit did not threaten to create unwanted impacts.

- On the negative side of the issue, citizen participation programs can lengthen the planning process, and, if the interests of any small group are allowed to dominate, they can bias decisionmaking.

- UMTA's proposed policy for its major urban mass transportation investments may go a long way toward resolving some of these issues, particularly the overemphasis on fixed, long-range plans. However, the policy's success is dependent large extend on the ability of UMTA's small, centralized staff to review whether the local planning process has a full range of feasible transit options. More importantly, the policy fails to address a number of major institutional and financing issues.

Effects of Financing Mechanisms on Transit Decisionmaking

- Financing issues cut across the other major categories of investigation.

- Soaring increases in operating expenses and the costs of proposed new systems have created new pressure for expanding the amount of Federal support for transit that is available, and for increasing the flexibility in the uses to which the funds can be put.

- Several aspects of Federal financing policy encouraged regional, long-range transit planning to the exclusion of short-range, more localized planning. Because of the early lack of UMTA support for continuing transit system planning, transit studies were initiated in many

metropolitan areas as a result of reaction to the construction of interstate highways. Heavy rail transit technology was seen as the obvious alternative for serving the long distance commuter with less disruption to neighborhoods. The availability of Federal funds for capital improvements only also has created a bias for extensive systems.

- Separate funding and administration of highway and transit programs at all levels of government, resulting in diverse objectives and lack of coordination, has prevented (and continues to prevent) the advancement of transit improvements that require changes in street/highway management policy.

- At the regional level, the need to gain approval in referenda for transit financing bonds or taxes has also led to long-range plans for overly extensive, single technology regional systems. A specific technological concept with broad voter recognition and appeal often was required in order for metropolitan leadership to generate sufficient interest to raise the necessary local and state funds to initiate a transit planning program, even with Federal funding. Ironically, the decision to present an extensive regional system to voters in several cases resulted in defeat of the proposal on the grounds that it was too expensive.

- Voters in a regional transit financing referendum like to see a very specific plan so they know what they are buying. In part to keep the price tag low, estimates do not provide for many of the costly activities -- land acquisition and the like -- necessary to take full advantage of development opportunities in the vicinity of transit stations or corridors.

At the root of any effort to resolve these issues is a broader issue involving the question of establishing national goals for public transportation. Existing goals offer no concrete answers to the central questions of how much public transportation the nation wants to buy, what purpose it should serve, and who should pay for it. These goals must be more sharply defined if they are to be used as a firm basis for mobilizing, dispensing, and evaluating the use of Federal funds. The kind of goals that are set will underlie whether more specific policies to shape transit institutions, planning, and financing will achieve their intended effects.

APPENDIX I

CHRONOLOGICAL SUMMARY OF
MAJOR FEDERAL LEGISLATION
AND
EXECUTIVE GUIDELINES
AFFECTING URBAN MASS TRANSPORTATION

Year	Name of Act or Regulation	General Significant for Mass Transit Planning
1961	Housing Act of 1961	0 Authorizes $25 million for 2/3 Federal-share transit demonstration projects and $43 million for capital loans. o Establishes transit planning as one of a half dozen eligible activities under the comprehensive urban planning program (Section 701) .
1962	Federal-aid Highway Act of 1962	o Requires continuing, comprehensive, and coordinated planning to integrate regional highway planning with transit and land-use planning.
1964	**Urban Mass Transportation Act (PL 88-365)**	o Authorizes **2/3 Federal-share capital grants** to states and local governments for mass transit projects; public or private operator. o Authorizes $375 million, 1965-1967. o Establishes strong labor-protective policy for Federally assisted transit projects. (Section 13)
1964	Civil Rights Act (PL 88-352)	o Provides for non-discrimination in all Federally assisted projects.
1965	Housing and Urban Development Act (PL 89-117)	o Authorizes 2/3 Federal-share planning grants to solve "metropolitan or regional problems." o Recipient is metropolitan planning agency with broad political representation. (Section 701,g.
1966	Department of Transportation Act (PL 89-670)	o Creates DOT; agency appropriation follows in 1969. 0 Provides for protection of historic, park, recreation and wildlife lands. (Section 4f.)
1966	Urban Mass Transportation Act amendments (PL 89-562)	o Increases 1968 and 1969 authorizations for capital program by $150 **million each** year. o Allows grants for states and localities for technical studies, provided they are part of a coordinated transportation system; and grants for job training and university research. (Sections 9, 10 and 11.)

56	Demonstration Cities and Metropolitan Development Act amendments (PL 89754)	o Requires grant review and comment by metropolitan planning agency composed of local elected officials. (Section 204; Superseded by Office of Management and Budget Circular No. A-95).
68	Housing and Urban Development Act amendments (PL 90-448)	o Increases 1970 authorization for capital grant by $190 million. o Amends definition of "mass transportation" to include special public transit services, not limited to fixed route services.
68	Federal-Aid Highway Act (PL 90-495)	0 Allows 50% Federal-share demonstration project grants for fringe parking in cities more than *50,000.*
68	Intergovernmental Cooperation **Act** (PL 90-577)	0 Requires consistency with official objectives of cooperative state, regional and local comprehensive plan, as prerequisite for Federal assistance. (Section 401,c.) o Requires notification to governors of Federal assistance to jurisdictions in their state.
968	Federal Reorganization Plan #2 (33 Fed. Reg. 6965)	o Transfers urban mass transportation <unctions from Secretary of HUD to Secretary of DOT and creates Urban Mass Transportation Administration (UMTA) within DOT.
969	Circular No. A-95 Office of Management and Budget	o Sets up detailed project notification and review system (PNRS) to act as an early warning system for state and regional agencies when an applicant first seeks Federal assistance.
969	Housing and Urban Development Act amendment (PL 91-152)	o Increases 1961 authorization for capital grants by $300 million.
969	National Environmental Policy Act (PL 91-19u)	o Requires that, with all Federally assisted projects, methods be drawn up by executive agencies for insuring that environmental considerations rank with economic and technical consideration given in the project approval process. o Requires environmental impact statement with project proposals, including assessment of impact of alternative courses of action. o Gives state, area, and local pollution-control agencies opportunity to comment.

1970	Urban Mass Transportation Assistance Act amendments (PL 91-453)	o Pledges Federal commitment of $10 billion over 12-year period. 0 Authorizes $3.1 billion for long-range capital program. 0 Limits given state to 12.5% of authorized grant funds= (Section 15.) 0 Initiates DOT study of operating subsidies. 0 Incorporates environmental protection requirements. (Section 14.) 0 Encourages projects for the elderly and physically handicapped. (Section 16.) 0 Requires local public hearing process prior to capital grant approval. (Section 3,d.) 0 Encourages industries affected by space winddown to compete for project grants.
1970	Federal-aid Highway Act amendment (PL 91-605)	0 Incorporates requirement for comprehensive transportation planning in cities with more than 50,000 population, in order to receive highway monies under Sec. 105 of the Act. (Section 3,c.) 0 Allows money from Highway Trust for mass transit fringe parking and preferential bus lane project Establishes Federal-share for these at 70% after July 1, 1973. 0 Provides grant for Washington, D.C., to provide accessibility to the handicapped.
1970	Uniform Relocation Assistance and Real Estate Acquisition Act (PL 91-646)	0 Requires replacement housing for persons displaced by any Federally assisted project. 0 Provides relocation grants up to $15,000 for homeowners and $4,000 subsidy to renters.
1970	Airport and Airway Development Act (PL 91-258)	0 Provides for establishment of national transportation policy in connection with development of airports.
1973	Federal-aid Highway Act (amendments) (PL 93-87)	0 Increases mass transit, long-term capital program to $6.1 billion with $3.0 billion new authority. 0 Increases Federal-share limit on capital grants from 2/3 to 80%. Lifts 2/3 limit on technical study grants.

1973	Federal-aid Highway Act amendments (continued)	o Authorizes $800 million of urban system funds from the Highway Trust for mass transit capital projects: bus projects in FY 75, rail projects in FY 76. 0 Authorizes use of interstate urban segment funds for transit projects, if Secretary of DOT is persuaded that the need for intraurban roads is not as acute as transit needs.
1973	Joint Communique, FHWA, UMTA, & FAA	o Encourages governors to designate a single agency in each metropolitan area as the Metropolitan Planning Organization to receive FHWA, UMTA, end when possible, FAA system planning funds.
1974	National Mass Transportation Assistance Act (PL 93-503)	o Increases mass transit long-range capital program to $10.925 billion -- $4.825 billion new authority. o Authorizes $3.975 billion for a new formula grant program and sets Federal-share for capital projects under this program at 80%, operating subsidy at 50%. These funds offer the first Federal operating subsidies for mass transit. (Section 5.) o Specifies state as sole allocator of formula grant monies in cities with fewer than 200,000 people; governor, local officials and public transit companies as co-allocators in cities with populations greater than 200,000. 0 Requires, under formula grant program, that elderly and handicapped persons be charged no more than half fare during off-peak hours. o Allows grants for establishment and organization of public or quasi-public transit corridor development corporations; generally encourages joint development between transit and other land uses. o Sets aside $20 million in FY 74 and again in FY 75 for study of no-fare transit systems; requires Secretary of DOT to report annually on his findings, beginning June 30, 1975.

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