Metropolitan Settingl

GENERAL CHARACTERISTICS

Boston is the cultural and economic "hub" of New England. The Boston area's academic institutions and research-oriented industries support—and are supported by—a large group of well-trained specialists. This group provides a resource of technically skilled persons whose specialties are either directly relevant or readily adaptable to many of the complex issues raised by transportation planning.

At the same time the Boston area is comprised of numerous cities and towns having strong, long-established, and separate identities. Even within individual cities and towns, close-knit community and neighborhood districts—often with a strong ethnic character—provide a basis for organized public involvement in planning efforts. By their very nature, however, the existence of these strong social and political units tends to work against the development of regionally based constituencies and viewpoints.

Boston also is the capital of a small and highly politicized State. This factor tends to augment the "visibility" of controversial transportation planning issues in the State in general, and in Boston in particular.

Geographically, Boston (like all of New England) is distant from the Nation's economic markets and is relatively poor in terms of exploitable natural resources. Although Logan Airport handles a large segment of international air traffic, maritime commerce suffers from competition with more advantageously located east-coast ports such as New York and Baltimore.

The Boston metropolitan area is physically defined by the ocean and three concentric rings of development. The inner ring, with a radius of 5 to 5% miles from downtown Boston, comprises the dense urbanized core, and includes Boston, Brookline, Cambridge, Somerville, Medford, Everett, Chelsea, Revere, and Winthrop. The second ring, extending some 11 miles from Boston and roughly congruent with circumferential Route 128, includes a lower-density suburbanized belt of cities and towns, with nodal concentration around traditional town centers. The third ring, lying around Routes 128 and 1-495, is a predominantly open but suburbanizing portion of the Boston area.

Over the past 20 years, changes in type and location of employment in Boston have affected transportation needs. Employment has shifted dramatically from a manufacturing base to a predominance of jobs in service industries. Simultaneously, the past two decades produced a fairly slow but steady movement of jobs from the core area (the city and inner suburbs) to the suburban part of the region.

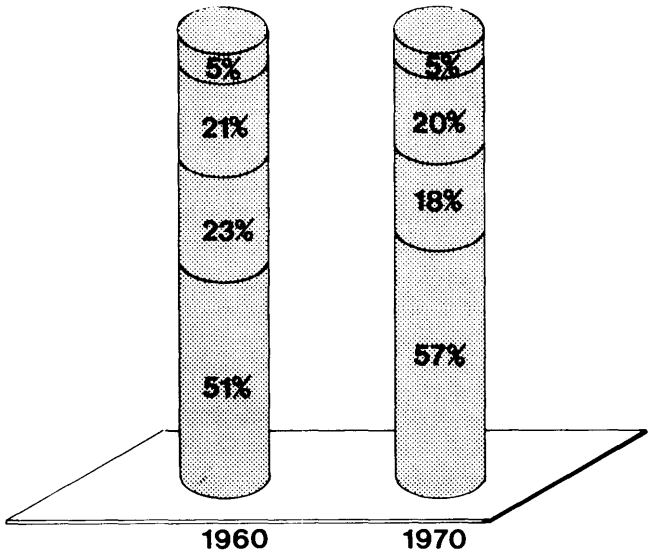
In absolute terms, the shift in employment has not greatly affected the distribution of work trips between the City of Boston and its suburban ring; between 1960 and 1970 trips originating and ending outside the city grew little more than 10 percent (see Figure 2). Nevertheless, the shift in employment has created the need for a transportation system that can serve relatively low-density employment concentrations because the new jobs tend to be widely dispersed; only about a third have been in clustered locations like industrial parks or commercial-office complexes.

The types of jobs that have tended to move to the suburbs employ minority workers; the city lost an estimated 80,000 minority jobs in manufacturing between 1950 and 1958, while the suburbs gained 12,000. Since minority workers tend to use public transit to get to work, these shifts indicate increased dependence upon bus or auto in areas with relatively low-density employment concentrations.

The pattern of population growth and dispersal reflects the change in location of employment centers. From 1960 to 1970 the population of the City of Boston fell 8.1 percent, and population density declined at a similar rate. Meanwhile, both population and density of the suburban ring grew by 11.3 percent (see Figure 3).

[1] See Figure 1, pages 12 and 13

WORK TRIP DISTRIBUTION



WORK TRIP MODE

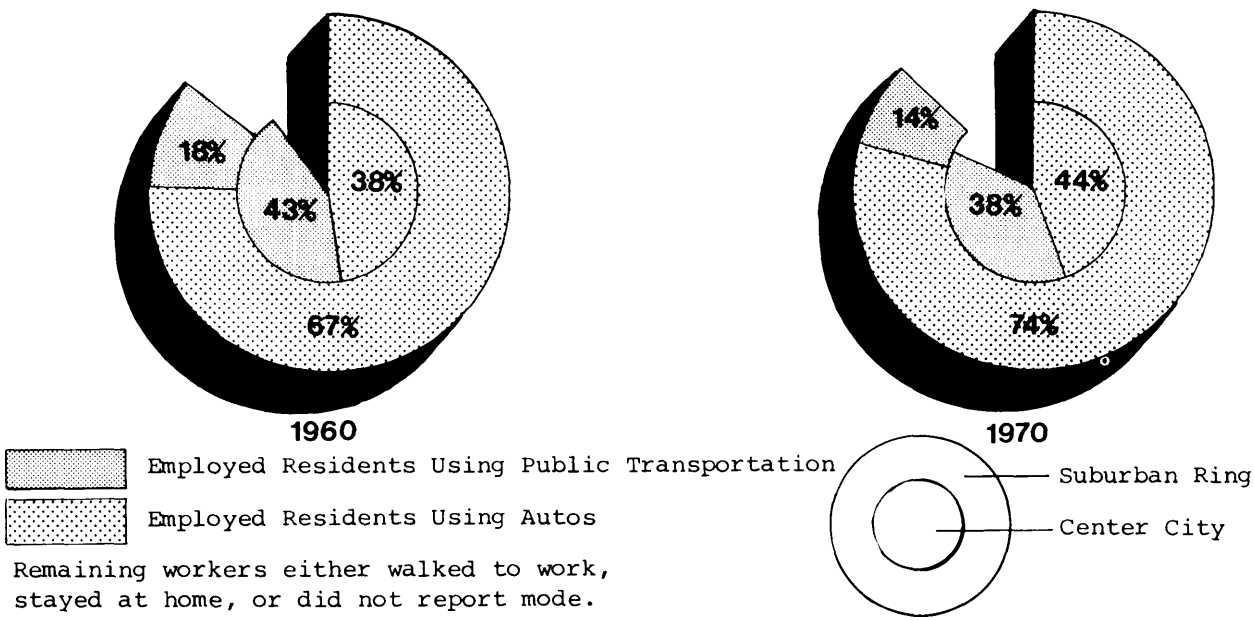


FIGURE 2: BOSTON SMSA TRAVEL CHARACTERISTICS

Source: Urban Transportation Fact Book, American Institute of Planners and the Motor Vehicle 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.

LAND AREA (1970)'
(square miles)

Suburban Ring	941
Center City	46
Entire SMSA	987

POPULATION

	Suburban Ring	Center City
1960	1,898,284	697,197
1970	2,112,629	641,071

DENSITY
(population/square mile)

	Suburban Ring	Center City
1960	2,017	15,156
1970	2,245	13,936

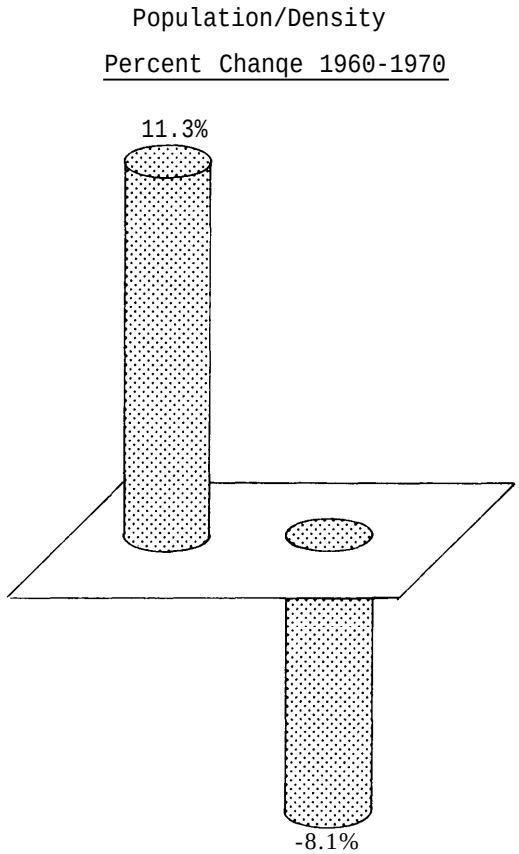


FIGURE 3: BOSTON METROPOLITAN AREA CHARACTERISTICS

I Does not include two new townships added to the SMSA since the 1970 Census.

Source: Urban Transportation Fact Book, American Institute of Planners and the Motor Vehicle 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.

Residents in the Boston central city as well as residents in the suburbs rely heavily on public transit for their commute to work. In 1970, 38 percent of all employed central city residents used public transit to commute to work, while 14 percent of all employed suburban ring residents used public transit for this purpose. In each case, only New York City had a higher percentage utilization of public transit. By contrast, 44 percent of employed central city residents and 74 percent of employed suburban ring residents commuted by auto. Again, only New York City residents ranked lower in percentage commutation by auto.

In spite of Boston's strong showing as a transit city, transit use is declining in Boston, as it is in most U.S. cities. The shift of jobs away from areas served by the current rapid transit and feeder bus systems parallels the drop in annual MBTA ridership. From the recent peak of approximately 185 million annual passengers in 1967 (versus 175 million in 1963), ridership dropped steadily to 146 million in 1973. After a modest gain in 1974, ridership again began to decline in early 1975 (see Figure 4).

EXISTING PASSENGER TRANSPORTATION SYSTEM

Highways in the Boston area include the Route 128 circumferential highway, one of the earliest "beltways" to be completed for a major American city, and Route 495, an outer-ring circumferential. A major portion of Route 128 has recently been designated as 1-95 in substitution for the previously proposed extension of Route 1-95 through the downtown Boston core. The 1-95 project was shelved following the Boston Transportation Planning Review (BTPR) study.

Radial expressway facilities from Route 128 into the downtown core include the Southeast Expressway, the Massachusetts Turnpike (1-90), and Route 1-93. Route 2 extends inward from Route 128 to the city of Cambridge, while the Northeast Expressway extends from downtown Boston to the city of Revere. The Central Artery serves major traffic flows within the downtown, connecting with the Southeast Expressway, the Massachusetts Turnpike, 1-93, and (via the Mystic River Bridge) the Northeast Expressway. Numerous arterials and parkway facilities also serve major vehicular traffic flows. In addition to the deletion of proposed Route 1-95, an extension of Route 2 and the Inner Belt (proposed Route 1-695) were deleted from the region's highway plan as a result of the BTPR study. Route 1-93 was subsequently signed to follow the Central Artery and the Southeast Expressway to a junction with Route 128 south of Boston.

At the present time no major highway construction projects are proposed within the Route 128 perimeter, although major upgrading, minor connector roads, parking terminals, and other related highway improvement projects slated for implementation within Route 128 carry an estimated price tag of $1.2 billion to $1.8 billion. z

Boston's extensive but aging transit system, operated by the Massachusetts Bay Transportation Authority, includes 37 route miles of rail rapid transit, 43 route miles of streetcar lines, 3,538 route miles of bus service, 8 route miles of trackless trolley, and 480.2 track miles of commuter rai] (operated through subsidy agreements with the Boston & Maine and the Penn-Central Railroads).

The rail rapid transit network includes four main lines—the Red, Orange, Green, and Blue Lines. Having developed in piecemeal fashion over the years, the Boston system is comprised of non-interchangeable vehicles. Not all tunnels in the subway system can receive all vehicles currently in operation. In addition, high- and low-level platforms are present on various lines. In essence, the subway system consists of four separate systems, with different rolling stock and servicing facilities. Added to this, electrical buses, regular buses, and the commuter rail system bring the total of separate transit systems to seven.

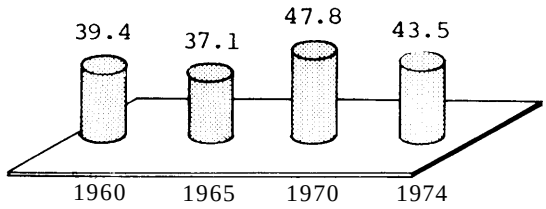
MBTA's transit operations have long experienced spiraling deficits. By 1960, when its annual operating deficit reached nearly $15 million, Boston's transit system was suffering dramatically greater losses than any other city studied. Today, its annual operating deficit is second only to New York's. A major reason for this situation is the fact that Boston's transit work force is among the highest paid in the country, with a minimum salary for unionized workers totaling $14,000. Other reasons include MBTA's outdated equipment and the fact that it generates much of its own power in inefficient, oil-burning power plants.

MBTA adopted a lo-year transit development program in 1974 that includes both small- and

2 Joint Regional Transportation Committee, Transportation *Plan for the Boston Region,* 1974-1983, July 1974.

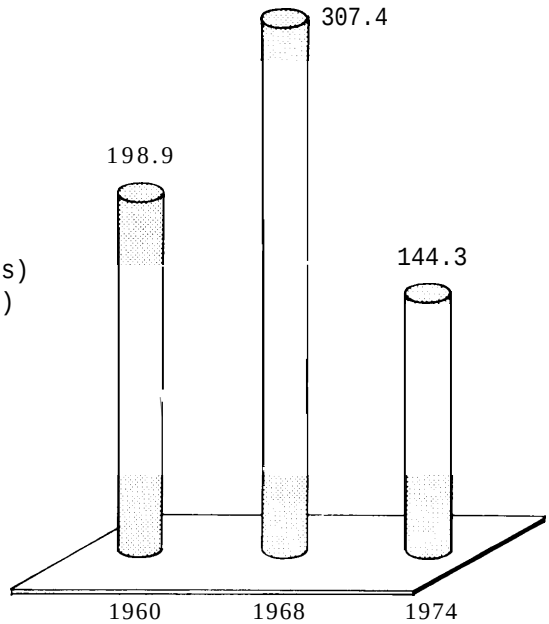
VEHICLE MILES OPERATED
(millions of miles)

Peak Year = 1969 (48.5 million miles)
Low Year = 1965 (37.1 million miles)



REVENUE PASSENGERS'
(millions of passengers)

Peak Year = 1968 (307.4 million passengers)
Low Year = 1971 (144.3 million passengers)



NET OPERATING REVENUE
(millions of dollars)

Peak Year = 1962 (-$10,332,457)
Low Year = 1974 (-$128,508,677)

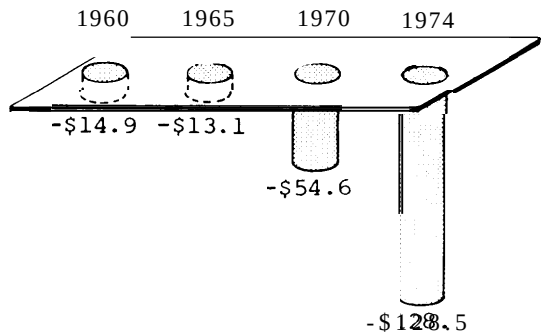


FIGURE 4: BOSTON TRANSIT OPERATIONS. 1960–1974

Source: American Public Transit Association records for operations of the Massachusetts Transit Authority and the Massachusetts Bay Transportation Authority.

IData on revenue passengers not available for 1961-1966, 1969-1970.

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.

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large-scale improvements to the existing system. Extensions proposed for the Orange, Blue, and Red Lines are currently under study. The program calls for improving commuter rail and trackless trolley service. It also recommends consideration of a circumferential transit system in the downtown area using an advanced technology. Finally, it proposes investigating the feasibility of a new cross-harbor tunnel exclusively for airport limousines, buses, emergency vehicles, and possibly carpools.

TRANSPORTATION PLANNING INSTITUTIONS

The Boston region's institutional structure for transportation planning is in the midst of transition. Policymaking functions are being moved away from older organizations that are tied to the State legislature to new agencies with a direct line of responsibility to the Governor.

Executive Office of Transportation and Construction (EOTC)

The Executive Office of Transportation and Construction, a State cabinet-level office, was created in 1971 as part of the reorganization of State government. The reorganization clarified lines of responsibility in the executive branch and has resulted in the consolidation of many commissions and State departments. Although not yet implemented in full, the reorganization of State transportation agencies should result in the streamlining of administration and a more consolidated approach to solving transportation problems.

TABLE I.—Federally Recognized Regional Agencies

Designation	Agency
A-95	Metropolitan Area Planning Council (MAPC)
MPO	Five agency compact chaired by the Secretary of the Executive Office of Transportation and Construction and including the Department of Public Works, the Metropolitan Planning Council, the Massachusetts Bay Transportation Authority, and the MBTA Advisory Board.

On January 1, 1975, the Executive Office of Transportation and Construction assumed responsibility for the preparation and annual revision of MBTA's transit development program. EOTC has assigned this task to the Central Transportation Planning Staff.

Central Transportation Planning Staff (CTPS)

The Central Transportation Planning Staff (CTPS) was organized to provide a technical transportation planning resource for the region. This interagency group is intended to provide for the more effective use of available resources by permitting a more comprehensive and coordinated approach to transportation planning. At the request of EOTC, CTPS prepares the region's annual transit development program.

Massachusetts Bay Transportation Authority (MBTA)

The Massachusetts Bay Transportation Authority was established by the State legislature in 1964. It replaced the Metropolitan Transit Authority, expanding participation in the transit district from 14 cities and towns to 78 (now 79). MBTA was mandated to operate the area's transit systems and to plan improvements. The cities and towns in the MBTA operating district are assessed according to a statutory formula for funds to offset operating deficits, However, in 1974 and 1975 the State legislature agreed to pay half the deficit out of general revenues. The State legislature must approve bonding authority before MBTA can launch new capital projects.

Until January 1975, MBTA policy was set by the board of directors, and the executive function was performed by a general manager. The general manager position has been effectively eliminated by the transfer of leadership to the chairman of the board of directors.

As noted, responsibility for preparing the region's annual transit development program was moved in January 1975 from MBTA to the State Executive Office of Transportation and Construction.

MBTA Advisory Board

The Advisory Board, consisting of appointed representatives of the 79 cities and towns in the MBTA district, does not play an active role in transit planning. Its principal function is to approve the annual operating budget of the authority. Since the operating budget depends in part on the nature

and extent of the overall transit system, the Advisory Board is also empowered by statute to approve MBTA's capital improvement program. It thereby has an important, although indirect, voice in the region's transit planning and capital improvement programing functions.

The same legislation that revised the MBTA board of directors and transferred planning responsibilities to EOTC also provided increased funds ($40,000 per year) for staff for the MBTA Advisory Board. The additional staff assistance should provide the Advisory Board with improved capabilities in carrying out its review functions.

Joint Regional Transportation Committee (JRTC)

In 1973, the Commonwealth of Massachusetts, through its Executive Office of Transportation and Construction (EOTC) and the Department of Public Works (DPW), joined with Boston's Metropolitan Area Planning Council (MAPC), the Massachusetts Bay Transportation Authority (MBTA), and MBTA's Advisory Board in a Memorandum of Agreement to establish the Joint Regional Transportation Committee (JRTC). Representatives from the five signatory agencies, delegates from eight other State agencies, representatives of a dozen cities and towns, and a number of citizens designated by the EOTC sit on the committee, which functions as the region's policy advisory board for transportation planning and programing.

Committee of Signatories

In March 1975 the same five agencies that created JRTC established a second agreement to service collectively as the region's Metropolitan Planning Organization and take charge of coordinating transportation planning in the Boston areas The EOTC Secretary is chairman of the group.

Metropolitan Area Planning Council (MAPC)

The Metropolitan Area Planning Council, a multi jurisdictional agency representing 101 cities and towns in the Boston area, was created by the State legislature in 1963. It functions as the A-95 project review agency. 4 MAPC is a signatory to the Memorandum of Understanding that established the MPO but its direct role in this committee is limited primarily to administrative functions.

Massachusetts Department of Public Works (DPW)

The Massachusetts Department of Public Works historically was the dominant force in transportation planning in the Boston area. This dominance ended with declaration of a moratorium on highway construction in February *1970.* Through the State government reorganization plan, much of DPW'S policymaking role was transferred to EOTC.

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[3] The Urban Mass Transportation Administration and the Federal Highway Administration require Governors to designate a Metropolitan Planning Organization (M PO) in each area to carry out the "con tin uing, comprehensive transportation planning process carried out cooperatively ." (the "3-C" process) mandated by the Federal-Aid Highway Act of 1962 and the Urban Mass Transportation Assistance Act of 1974. According to joint UMTA-FHWA regulations published in September 1975, MPO's must prepare or endorse (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,

[4] Office of Management and Budget Circular A-95 requires one agency in each region to be empowered to review all proposals for Federal funds from agencies in that region. Circular A-95 replaced Circular A-82, which was created to implement Section 204 of the Demonstration Cities and Metropolitan Development Act of 1966 (42 U. SC. 3301).