JOURNEY TO 2030

TRANSPORTATION PLAN OF THE BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

APRIL 12, 2007

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The Boston Region Metropolitan Planning Organization (MPO) is composed of:

Executive Office of Transportation

City of Boston

City of Everett

City of Newton

City of Salem

Federal Highway Administration

Federal Transit Administration

Massachusetts Bay Transportation Authority

Massachusetts Bay Transportation Authority Advisory Board

Massachusetts Highway Department

Massachusetts Port Authority

Massachusetts Turnpike Authority

Metropolitan Area Planning Council

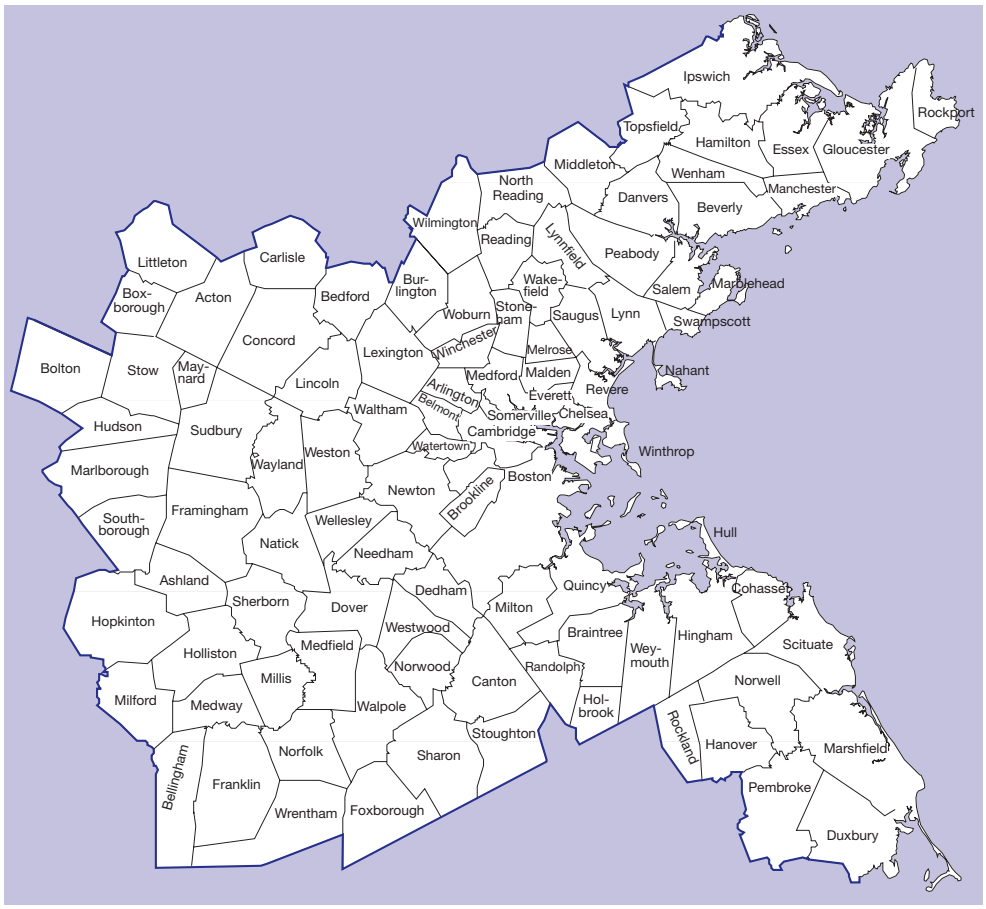
Regional Transportation Advisory Council

Town of Bedford

Town of Framingham

Town of Hopkinton

Prepared by the MPO's Central Transportation Planning Staff



Boston Region Metropolitan Planning Organization Municipalities

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1

INTRODUCTION

Plan Purpose

JOURNEY TO 2030, the Transportation Plan of the Boston Region Metropolitan Planning Organization (referred to as the Plan), is the long-range, comprehensive transportation planning document for the Boston region. The region encompasses 101 cities and towns from Ipswich to Duxbury, and Boston to Marlborough (see Figure 1-1). This is the area in which transportation planning is the responsibility of the Boston Region Metropolitan Planning Organization (MPO), as explained in this chapter. Covering 1,405 square miles, the Boston region makes up about 18 percent of the state's land area; however, with over three million residents, it has 48 percent of the state's population.

The Plan defines transportation visions for the future of the region, establishes goals and policies that will lead to the achievement of the visions, and allocates projected revenue to transportation programs and projects in order to implement those goals and policies. Fundamentally, the Plan is about making choices for the future of the metropolitan area—choices about local and regional land use, choices about where to allocate limited transportation resources, and choices about the type of future we wish to see for our region and, by extension, the Commonwealth. In accordance with applicable federal planning regulations, the Plan addresses surface transportation issues only.

The Plan's 23-year scope allows the MPO to consider the transportation network's future from a broad perspective. Only projects designated as regionally significant and major investment projects are specifically listed by name in the Plan. The term "regionally significant" refers to projects required by federal regulations to be included in the travel demand model (a computer model) for air quality conformity purposes—generally, any project that adds capacity to the regional transportation

FIGURE 1-1

The Boston Region MPO Municipalities

network. Major investment projects are projects that cost over $25 million. For a more detailed explanation of the types of projects that must be included in the model, see Chapter 15, Air Quality Conformity Determination.

Most of the transportation projects that will be funded in the next 23 years do not add capacity to the transportation system and are, therefore, not specifically identified in the Plan. The purpose of these projects is primarily to maintain and operate the existing system. Nevertheless, when it comes time to allocate funds for these projects in the Transportation Improvement Program, they will be selected based upon how well they implement the goals and policies adopted in the Plan.

The Boston Region MPO Structure

The Boston Region MPO is responsible for the development of the Plan. It conducts transportation planning in its region for a variety of transportation modes and facilities, including highway, transit, and freight. By bringing together representatives from local, regional, state, and federal entities and a public advisory committee, MPO decision-making is sensitive to the diverse range of interests and concerns that exist in the Boston region.

Federal law establishes requirements and guidelines for transportation planning in urbanized areas with populations of more than 200,000. In order to be eligible for federal transportation funding, an area must maintain a continuing, cooperative, and comprehensive (3C) transportation planning process. The Boston Region MPO is responsible for carrying out the 3C process in its area.

The MPO is a cooperative board of 14 voting members:

- Executive Office of Transportation (EOT)
- Massachusetts Bay Transportation Authority (MBTA)
- Massachusetts Bay Transportation Authority Advisory Board
- Massachusetts Highway Department (MassHighway)
- Massachusetts Port Authority (Massport)
- Massachusetts Turnpike Authority (MassPike)
- Metropolitan Area Planning Council (MAPC)
- City of Boston
- Six elected municipalities from the Boston region, currently:
  - City of Everett
  - City of Newton
  - City of Salem
  - Town of Bedford
  - Town of Framingham
  - Town of Hopkinton

The Federal Highway Administration (FHWA), the Federal Transit Administration (FTA), and the Regional Transportation Advisory Council also participate on the MPO, in a nonvoting capacity.

Relationship to Other Planning Documents/Initiatives

In addition to the Plan, the Boston Region MPO is required to develop other documents and programs as part of the 3C transportation planning process. These include:

- The Mobility Management System (MMS)
- The Transportation Improvement Program (TIP)
- The Unified Planning Work Program (UPWP)

The UPWP and the MMS are sources of information used in the development of the Plan. Along with the TIP, they help to implement the visions and objectives of the Plan. Other documents or initiatives considered in the development of the Plan are:

- The MBTA Program for Mass Transportation
- Legal commitments of the Commonwealth of Massachusetts

Brief descriptions of all of the above and their relationship to the Plan are provided below.

Unified Planning Work Program

The annual Unified Planning Work Program (UPWP) describes transportation planning studies to be undertaken by the MPO and other entities in the Boston region during a given federal fiscal year. The UPWP is intended to serve two purposes. The first is to provide information to government officials, local communities, and the general public about all of the transportation planning studies that are expected to occur in the region. The second is to provide complete budget information to federal and state officials about the expenditure of federal funds for planning studies that will be carried out by the MPO.

The planning studies in the UPWP are an important source of ideas that may evolve into projects that will eventually be included in the Plan. Likewise, ideas received during the public outreach process for the Plan may lead to studies included in the UPWP.

The Mobility Management System

The MPO's Mobility Management System (MMS), formerly known as the Congestion Management System (CMS), is an ongoing program for monitoring mobility in the region, providing the MPO and transportation planners with timely information about transportation system performance, and making recommendations in the areas where mobility deficiencies are found. The MMS program includes the systematic measurement and analysis of mobility problems in the region so that they may be mitigated. The staff then provides decision-makers with information about transportation system performance and with strategies and recommendations for improving mobility. Information from the MMS and associated planning studies funded through the UPWP is used in the selection of projects for the Plan and the Transportation Improvement Program.

Transportation Improvement Program

The Transportation Improvement Program (TIP) is a multimodal program that sets forth a detailed list of transportation projects that is consistent with the policies and goals of the Plan. The TIP describes the transportation projects that are expected to be implemented during a four-year period and provides information about how they've been prioritized. It also includes a financial plan showing the revenue source or sources, current or proposed, for each project. In order to be eligible to receive federal funds, a project must be programmed in the current federal fiscal year's TIP. In addition to the federally funded projects, most highway projects funded with state transportation money are also included in the TIP in the Boston region. In order for any regionally significant project to be included in the TIP, it must be included in the Plan. One function of the TIP is to serve as a tool for monitoring progress in implementing the Plan.

MBTA Program for Mass Transportation

The MBTA Program for Mass Transportation (PMT) is the long-range, 25-year capital program of the MBTA. The objective of the PMT is to identify and prioritize projects that will result in a cost-effective mass transit system that serves the greatest number of passengers while furthering environmental, economic development, and environmental justice goals. The MBTA adopted the current PMT in May 2003. The MPO used it to prioritize transit projects for inclusion in the Plan. The MBTA has begun updating the PMT; however, it will not be completed in time for updated PMT information to be included in this Plan.

Legal Commitments

Several transportation projects are legal requirements that EOT or other transportation agencies

in Massachusetts must complete within a certain time frame. The legal commitments that have the greatest impact on planning in the Boston region are those pertaining to the State Implementation Plan (SIP) and the Central Artery/Tunnel project.

The federal Clean Air Act requires states with one or more regions that do not meet federal air quality standards, such as Massachusetts, to produce a SIP. A SIP describes the efforts that a state has made, or proposes to make, to reduce levels of pollutants, such as ozone and carbon monoxide. Massachusetts is required to produce a SIP, and EOT and other transportation agencies, including MassHighway, the MBTA, MassPike, and Massport, are required to implement the transportation projects and policies that are included in the SIP.

In the current SIP, the Central Artery/Tunnel (CA/T) project commitments are the result of an agreement entered into by the state's Department of Environmental Protection (DEP) and EOT during the approval process for the CA/T project. This agreement was updated, with revised implementation schedules, in an Administrative Consent Order between DEP and EOT in 2000. In 2004, EOT and DEP began a process of reevaluating the projects in the original SIP commitments that had not yet been completed. This process is being undertaken to ensure that any further investments fund the best regionally significant projects that meet air quality goals and requirements.

As a matter of policy, the MPO includes all legal commitments related to the SIP and the Consent Order in the Plan.

2

THE BOSTON REGION MPO AND ITS EXISTING TRANSPORTATION SYSTEM

The Boston Region MPO area is part of one of the largest metropolitan areas in the United States, considering population, density, and geographic size. The 101 cities and towns of the MPO region encompass approximately 1,405 square miles. The region lies roughly within the 20-mile radius extending from the city of Boston to the communities that abut Interstate 495. The 101 communities that compose the region are quite diverse (see Table 2-1), ranging from the relatively rural communities such as Essex to dense and urban Cambridge. The central city of the MPO area, Boston, is compact, at 48.4 square miles; however, it is closely surrounded by 13 cities, which contribute to the urban nature of the region's core. This core is an important population and employment center and trip destination.

The Greater Boston area is an urban setting rich in natural resources. Inland, the region offers over 25 state forests and parks, as well as numerous rivers, lakes, and ponds. Forests make up 39 percent of the area, with water, wetlands, and open space contributing another 11 percent. The region is bordered on the east by approximately 550 miles of coastal waterfront and the Boston Harbor Islands National Park.

The characteristics of the region present both opportunities and challenges for meeting the region's transportation needs.

Population

According to the 2000 U.S. census, the MPO region has a population of just over 3 million residents, almost 48 percent of the state's total population. It contains approximately 1.2 million households, yielding a regional average of 2.47 persons per household. The municipalities and the persons who reside within the region have different transportation needs requiring solutions designed to fit their diverse demographic, cultural, and environmental situations.

TABLE 2–1

A Comparison of the Five Least Populated Communities and the Five Most Populated Communities in the MPO Region

	POPULATION	HOUSEHOLDS	POP. / HH	SQUARE MILES	POP. / SQ. MI.
ESSEX	3,267	1,313	2.49	14.28	229
NAHANT	3,632	1,629	2.20	1.06	3,426
BOLTON	4,148	1,424	2.91	20.12	206
SHERBORN	4,200	1,423	2.95	16.10	260
WENHAM	4,440	1,285	2.70	8.12	547
BOSTON	589,141	239,528	2.31	49.40	11,926
CAMBRIDGE	101,355	42,615	2.03	7.16	14,156
LYNN	89,050	33,511	2.62	11.45	7,777
QUINCY	88,025	38,883	2.22	16.70	5,271
NEWTON	83,829	31,201	2.51	18.19	4,609
BOSTON REGION MPO	**3,071,600**	**1,197,397**	**2.47**	**1,405**	**2,182**

Source: U.S. census, 2000

Employment

The 2000 U.S. census indicates that the MPO region employed 1,833,250 persons in 2000, a 53 percent increase in the number of jobs from 1970. The majority of these jobs are in the urban core of the region, with the cities of Boston and Cambridge continuing to be the primary employment centers. However, the rate of job growth over the past 30 years outside of Route 128, which is approximately 11 miles from the center of Boston, significantly outpaced that inside Route 128, as shown in Table 2-2.

The rate of job growth outpaced that of population growth, widening the gap between available jobs and the labor force needed to fill them. This led to some of the new jobs in the MPO region being taken by persons living outside the region. This trend is likely to continue and will require collaborative efforts among the metropolitan plan-

TABLE 2-2

Population and Employment Growth in the MPO Region

	EMPLOYMENT			POPULATION		
AREA	1970	2000	CHANGE	1970	2000	CHANGE
INSIDE ROUTE 128	830,450	1,131,900	+36%	1,852,500	1,740,600	-6%
OUTSIDE ROUTE 128	365,900	701,350	+92%	1,161,250	1,331,000	+15%
REGIONWIDE	**1,196,350**	**1,833,250**	**+53%**	**3,013,750**	**3,071,600**	**+2%**

Source: U.S. censuses, 1970 and 2000, and CTPS Employment Database

TABLE 2–3

CHANGES IN LAND USE, 1991–1999

LAND USE	1991 (SQ. MI.)	1999 (SQ. MI.)	% CHANGE
RESIDENTIAL	471	503	+7%
COMMERCIAL	40	42	+5%
INDUSTRIAL	36	38	+6%
OPEN SPACE	80	79	-1%
FORESTS	558	536	-4%
CROPLAND / PASTURE	54	47	-13%
OTHER	197	193	-2%
TOTAL	**1,438**	**1,438**	

Source: Massachusetts Geographic Information System (MassGIS), 1999

ning organizations of eastern Massachusetts, southern New Hampshire, and Rhode Island to coordinate transportation planning.

Rapid expansion of employment in the last 25 years affected the transportation system in a number of ways:

- The transportation system became more extensive, to try to address the increasing needs of underserved communities.
- Transportation system demand became greater, putting increasing strain on the capacities of transportation facilities.
- Dispersed employment caused a change in trip patterns, creating longer trips, and in turn making it harder to provide these trips with alternative transportation modes.
- It is not possible to meet all of these demands with new transportation projects given the available resources. Increases in congestion may be able to be slowed through changes in land use patterns.

LAND USE

Between 1991 and 1999, the amount of developed land in the MPO region grew by 2.5 percent, or 7.6 acres a day on average. The majority of the new land consumption was for single-family housing. Most of this new development took place on formerly agricultural and forested lands. Table 2-3 shows the changes in land use in the region between 1991 and 1999. The majority of land being developed, whether for residential, industrial, or commercial uses, was located along the Route 128 and I-495 corridors.

Further information on the demographics and land use in the region is included in Chapter 11, Land Use and Economic Development.

THE EXISTING TRANSPORTATION SYSTEM

The transportation system in the MPO region is a collection of roads, bridges, transit services, freight rail lines, bicycle routes, pedestrian facilities, and ferry routes that need to work as an integrated system throughout the 101-municipality region and beyond. The transportation system is maintained and operated by a number of different agencies, including but not limited to the Massachusetts Highway Department, the Massachusetts Bay Transportation Authority, the Massachusetts Turnpike Authority, the Massachusetts Port Authority, the Department of Conservation and Recreation, and local entities.

In March 2007, the Massachusetts Transportation Finance Commission issued a report, *Transporta-*

tion Finance in Massachusetts. It stated that the MPO's transportation system is aging, with the MBTA over 100 years old and the interstate highway system 50 years old. The Finance Commission report estimated a transportation-needs gap of $15 billion to $19 billion over the next 20 years to maintain the existing transportation system. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation financing system. The MPO will participate in this process.

The following sections describe each of the modes as they existed in 2006.

The Roadway System

Roadways

The region's roadway system is composed of interstate highways, other arterial highways, collector roads, local roads, and bridges. There are 23,237 lane-miles in the region. Regionwide, there are 1,153 miles of interstate highways; 5,322 miles of arterials; 2,582 miles of collector roads; and 14,180 miles of local roads.[1] Interstates and arterials are intended to provide a high level of mobility at a relatively high speed for long, uninterrupted distances with limited access. Collector roads provide a lower level of mobility than arterials, with lower speeds and shorter distances between access points; they connect local roads with arterials and provide access to abutting land uses. Local roads provide a high level of access to abutting land but provide limited mobility (lower volumes and lower speeds). Figure 2-1 on the following page, shows the functional classifications of major roads in Massachusetts.

Ownership and maintenance responsibilities for the region's roadways vary among local and state entities. The roadway classification, however, does not correlate to ownership. Roads and streets are grouped into functional systems according to the types of service they provide. Figure 2-2 shows the breakdowns of roadway ownership, classification, and type in the Boston region.

MassPike oversaw, and now manages and owns, the largest and most complex roadway project in U.S. history, the Central Artery/Ted Williams Tunnel project in Boston. The major element of this project involved the demolition of an elevated highway and the creation of an underground expressway in its place, the extension of an interstate highway to link it to Logan International Airport, and the construction of a two-bridge crossing of the Charles River. The project, estimated to be 98 percent complete in July 2006, improves mobility in the highly congested downtown Boston area and on the interstates feeding into it. The construction of the Ted Williams Tunnel alone has reduced the time it takes to go from Logan Airport to the South Boston Seaport from 45 minutes, using the Tobin Bridge, to 4 1/2 minutes, using the Ted Williams Tunnel.

Roadway Maintenance

As in any major metropolitan area, the Boston region must continually maintain its roadways. The following programs and policies specifically address roadway maintenance and are discussed in further detail in Chapter 5 (System Preservation, Modernization, and Efficiency).

- The Chapter 90 program (named for Chapter 90 of the Massachusetts General Laws) is used for preserving existing transportation facilities. The program supports roadway construction and maintenance performed by local cities and towns. Typically the majority of Chapter 90 allocations are used for roadway resurfacing and roadway reconstruction. The remaining funding covers items such as engineering and equipment.

[1] MassHighway Road Inventory Year-End Report, 2006. These roadway categories differ from the roadway categories used in the MPO's Mobility Management System.

FIGURE 2-1

Functional Classification of Major Roads in Massachusetts

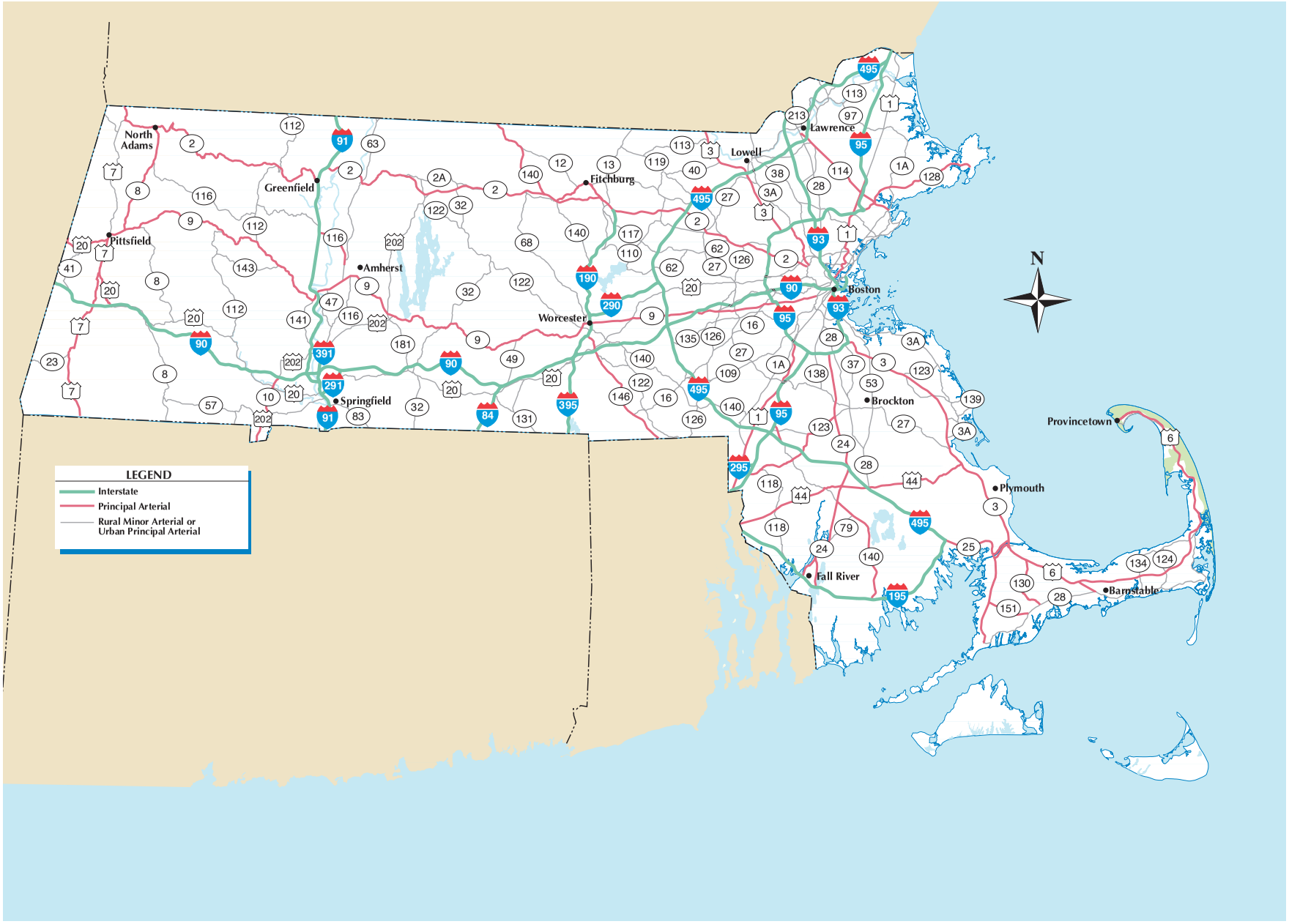
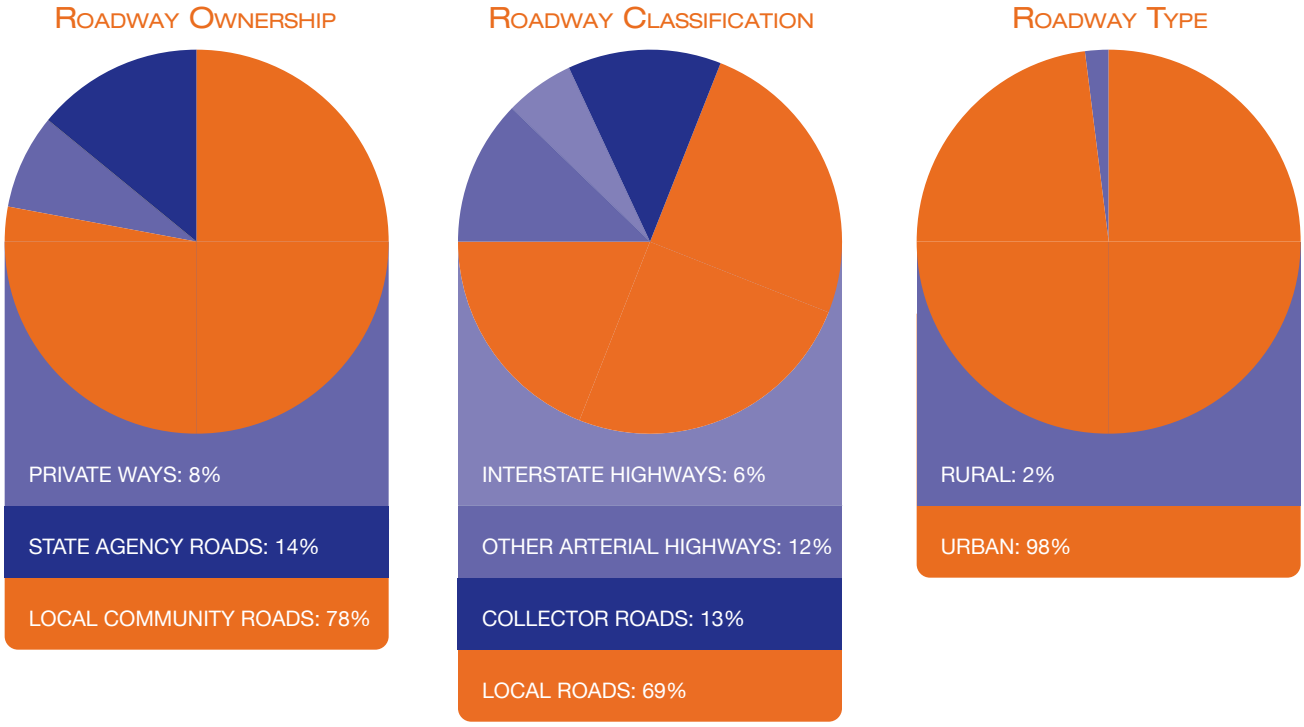


FIGURE 2-2

BREAKDOWNS OF ROADWAY OWNERSHIP, CLASSIFICATION, AND TYPE



Source: MassHighway Road Inventory Year-End Report, 2006

- The MPO supports a preservation approach to infrastructure management to ensure that assets are managed, maintained, and operated to preserve their useful life and reduce the need for more costly, capital-intensive solutions.
- Another effort underscores the importance of community involvement in transportation decision-making by requiring that all MassHighway reconstruction projects be responsive to the environment—natural, cultural, and historic—within which the projects are undertaken. The needs of local residents, including pedestrians and bicyclists, must be considered as fundamental to the project, not as an afterthought.
- As part of this effort, the statewide Design Issues Working Group developed the *Project Development and Design Guide* in January of 2006. The Guide allows project proponents and stakeholders to think creatively about how to provide safe accommodation of a transportation facility's users while ensuring that it fits the facility's physical setting and preserves aesthetic, historic, and environmental resources.

Pavement Management

MassHighway maintains a pavement management system, which stores, analyzes, and summarizes pavement information for use in selecting and implementing cost-effective pavement construction, rehabilitation, and maintenance programs. MassHighway constantly monitors the roadway network's roughness and deterioration using a variety of methods and measuring devices. The current pavement condition of roadways under MassHighway jurisdiction is as follows:

- Excellent rating – 34 percent
- Good rating – 40 percent
- Fair rating – 21 percent
- Poor rating – 5 percent

Projected future conditions with an assumed pavement funding level of $135 million annually would be:

- Excellent rating – 52 percent
- Good rating – 28 percent
- Fair rating – 14 percent
- Poor rating – 6 percent

Roadway Congestion Levels

The MPO documents the region's mobility concerns through its Mobility Management System (MMS). MMS data and analyses show that during the most recent period of monitoring arterial roadways (2001–2003), average morning peak period speeds were below the posted speed limit on 39 percent of the monitored arterial roadway network, compared with 32 percent during the previous monitoring period, five years earlier. The difference between the two monitoring periods was smaller during the evening peak period, where average speeds were below the posted speed limit on 42 percent of the monitored arterial roadway network, compared with 40 percent during the previous monitoring period.

On limited-access highways (interstate highways), travel speed data show that during the latest monitoring period (1999–2000), 29 percent of the region's highway network had average morning peak-period speeds of less than 50 mph, compared with 21 percent during the previous monitoring period five years earlier. In the evening, 25 percent of the region's highway network had average evening peak-period speeds of less than 50 miles per hour during the most recent monitoring period. However, the findings do not indicate that speeds have changed significantly since the previous monitoring period.

Chapter 6, Mobility, includes a detailed discussion of congestion and mobility in the region, along with descriptions of programs employed by the MPO and its member agencies to mitigate congestion and improve mobility.

Bridges

Of the 4,979 bridges in Massachusetts, 1,447 are located within the MPO area. Ownership of the bridges in the MPO area is broken out as follows:

- 61 percent are under the jurisdiction of MassHighway
- 17 percent are under the jurisdiction of cities and towns
- 9 percent are under the jurisdiction of MassPike
- 13 percent are under the jurisdiction of other state agencies, including the Department of Conservation and Recreation and the MBTA

In Massachusetts, bridge conditions are determined through a nationally adopted rating system based on a number of standards. The standards include structural adequacy, safety, serviceability, traffic, and public use. The three major condition categories are listed below with the percentage of bridges in the MPO region that fall under each category:

1. Meets standards: of the bridges in the MPO region, 54 percent fall under this category.
2. Functionally obsolete: The bridge fails to meet current traffic demands or highway standards such as bridge width, traffic volume, or condition of approach roadways. Inclusion in this category does not necessarily mean that the bridge itself is deficient or there is an immediate safety concern. Of the bridges in the MPO region, 34 percent fall under this category.
3. Structurally deficient: Deterioration has reduced the load-carrying capacity of the bridge and is an indication that reconstruction may be necessary. MassHighway rates bridges to determine their safe load-carrying capacity using three standard rating trucks: a two-axle single unit, a three-axle single unit, and a five-axle tractor-trailer. If a bridge is weight-restricted, it can impede the flow of fire trucks, ambulances, school buses, or commercial trucks, delaying their response or requiring them to detour through residential

neighborhoods or circuitously through remote areas. Of the bridges in the MPO region, 12 percent fall under this category.

More information on the road and bridge programs discussed above is provided in Chapter 5, System Preservation, Modernization, and Efficiency.

The Public Transportation System

The Boston metropolitan area is served by a hub-and-spoke network of rapid transit, streetcar, express bus, commuter rail, and commuter boat lines. Local bus and trackless trolley services fill in gaps between spokes by offering line-haul service in heavily congested urban areas, feeder service to rail, and some intersuburban linkages. Demand-responsive transportation for people with disabilities and the elderly is also provided.

The MBTA is the primary transit provider in the Boston region. The MBTA district is made up of 175 municipalities and includes communities outside of the Boston Region MPO area. Table 2-4 shows the typical weekday boardings by mode for the MBTA. Each of the transit services is briefly described below. For a more detailed description of the MBTA's existing services, see the Program for Mass Transportation (PMT) adopted in May 2003 (www.bostonmpo.org/bostonmpo/pmt/pmt.htm).

TABLE 2–4

TYPICAL WEEKDAY BOARDINGS BY MODE (FISCAL YEAR 2005)

MODE	BOARDINGS
RAPID TRANSIT AND STREETCAR	628,400
BUS AND TRACKLESS TROLLEY	363,500
COMMUTER RAIL	135,900
CONTRACTED BUS	4,400
COMMUTER BOAT	4,650
PARATRANSIT	5,400
TOTAL	**1,142,250**

Source: MBTA, "Ridership and Service Statistics," Tenth Edition, 2006.

Rapid Transit and Streetcar

The MBTA rapid transit and streetcar system serves 140 stations on six lines. Typical weekday passenger boardings on this system were 628,400 in 2005.

- Red Line – 21-mile rail rapid transit line with 22 stations running on two branches between Alewife Station in North Cambridge to both Ashmont Station in Dorchester and Braintree Station in Braintree. It is the longest and most heavily utilized rapid transit line in the system.
- Mattapan High Speed Line – 2.5-mile, eight-station streetcar line connecting with the Red Line and operating between Ashmont Station and Mattapan through the Dorchester neighborhood of Boston and the town of Milton.
- Orange Line – 11-mile rail rapid transit line with 19 stations operating between Oak Grove on the Malden/Melrose line and Forest Hills in Jamaica Plain.
- Blue Line – 6-mile, 12-station rail rapid transit line, the shortest of the rail rapid transit lines, operating between Wonderland Station in Revere and Bowdoin Station in the Government Center area of Boston.
- Green Line – 23-mile streetcar line over four branches: Boston College (B Line), Cleveland Circle (C Line), Riverside (D Line), and Heath Street (E Line). The line has 66 stops/stations and is located in Boston, Brookline, Cambridge, and Newton.
- Silver Line – 2.3-mile bus rapid transit line with 13 stations operating along Washington Street between Dudley Square in Roxbury and Downtown Crossing in Boston, and a 6.5-mile bus rapid transit line with 19 stops/stations operating along the waterfront from South Station with three branches: SL1 to Logan International Airport, SL2 to Boston Marine Industrial Park, and SL3 to City Point.

Figure 2-3 shows the rapid transit and streetcar service in the Boston region.

FIGURE 2-3

MBTA Rapid Transit and Streetcar System

Bus and Trackless Trolley

The MBTA operates 178 bus routes, and it also has four electric trackless trolley lines in Cambridge, Watertown, and Belmont. Figure 2-4 shows the municipalities within the Boston region that are served by the MBTA bus system. Typical weekday passenger boardings on bus and trackless trolley routes were 363,500 in 2005, and nearly all bus routes connect with the rapid transit system. Bus service includes crosstown service, feeder service to rapid transit stations, frequent service along major arterials in heavily congested areas, and express bus service. Most of these routes have lengthy histories, and many had their origins as streetcar lines built before 1900. Schedules and routings have been revised gradually over the years, but most continue to operate along the same general alignments in response to continuing demand.

Commuter Rail

The 365-mile commuter rail network is composed of 13 radial lines and 126 stations (see Figure 2-5). Typical weekday passenger boardings on the network were 135,900 in 2005. The commuter rail system is split into two parts: North Side service operates to and from North Station, and South Side service to and from South Station. The Massachusetts Turnpike can be considered the dividing line between North and South Side service: all routes north of the Turnpike—the Rockport, Newburyport, Haverhill, Lowell, and Fitchburg Lines—operate to and from North Station. Lines along the Turnpike or to the south—the Framingham/Worcester, Needham, Franklin, Providence, Stoughton, Fairmount, Middleborough, and Kingston/Plymouth lines—operate to and from South Station. There is no direct transit connection between North and South Stations, although a project to link the two has been proposed. Although this project is not included in the Plan at this time, the MPO feels that a study of the right-of-way requirements should be conducted for preservation of that right-of-way so as not to preclude this project's going forward in the future.

Over 40,000 park-and-ride spaces are provided for commuter rail riders. In addition, the Greenbush Line operating from South Station to Scituate is scheduled to open in 2007.

Commuter Boat

MBTA commuter boat service operates between:

- Hingham and Rowes Wharf (Boston)
- Quincy, Long Wharf (Boston), and Logan Airport
- Quincy, Hull, Logan Airport, and Long Wharf
- Charlestown Navy Yard and Long Wharf

A total of 2,497 parking spaces are provided in Hingham, Quincy, and Hull. Typical weekday passenger boardings on the boat service were 4,650 in 2005.

Demand Responsive Transit Services

THE RIDE is a demand responsive transit service operated by private carriers under contract to the MBTA that provides transportation to people who cannot use fixed-route public transportation because of disabilities all or some of the time. THE RIDE operates sedans and lift-equipped vans within 62 municipalities in the MBTA district (Figure 2-4). It is a shared-ride service provided

FIGURE 2-4

Municipalities Served by the MBTA Bus System and THE RIDE

LEGEND

- Municipalities with MBTA bus service
- MBTA's THE RIDE service area boundary

FIGURE 2-5

MBTA Commuter Rail System

365 days a year from 6:00 AM to 1:00 AM. The MBTA also issues a reduced fare "Transportation Access Pass" to anyone age 65 and older and to persons with disabilities who are able to use public transportation. The passes are valid on public transportation anywhere in Massachusetts.

In addition, services are provided through a number of community senior transportation resources in the region. They include:

- Boston Senior Transportation Services (senior shuttle, taxi discount program, and the Kit Clark Program, which provides lift-equipped vans from seniors' homes and program sites)
- Brookline Elder Bus and Brookline Elder Taxi System
- Cambridge Taxi Discount Program
- Newton Department of Senior Services (Shopper's Bus and transportation to medical services)
- SCM Community Transportation (for residents of Somerville, Cambridge, and Medford)

Private Carrier and Suburban Bus Service

Four private carriers provide regular local bus transportation in East Boston, Winthrop, Medford, Milton, Canton, Hingham, and Hull under contract to the MBTA. Five additional private carriers are funded by EOT and administered through the MBTA's Inter-District Transportation Program (ITP) to provide commuter service to downtown Boston. The same program also finances a local service from Braintree Station to Hanover and Marshfield. Nine private carriers that are not included in the ITP program also operate commuter service into Boston.

The MBTA provides funding to local communities to operate their own local transit systems. The Suburban Bus Program is geared toward low-density communities where regular MBTA service would not be cost-effective. The program, which began in 1979, subsidizes nine services in Beverly, Burlington, Bedford, Lexington, Natick, Framingham, Dedham, and Mission Hill in Boston. In addition, funded by EOT, Framingham runs three routes to neighboring communities. Peabody operates a local bus service that is not included in the Suburban Bus Program.

In addition, the MPO has implemented a suburban mobility program. The purpose of the program is to address transportation needs in areas that are currently not served or are underserved by transit. This program initiates outreach to encourage eligible entities to develop projects and apply for project funding. Currently service is being provided in Ipswich, Essex, Framingham, Marlborough, and Southborough.

Several buses from adjacent regional transit authorities connect with MBTA buses. These connections include Brockton Area Transit's connection to MBTA Route 716 at Cobb Corner; Lowell Regional Transit Authority's connections to Routes 350, 351, and 352; and Cape Ann Transportation Authority's connections to Routes 435, 436, and 465.

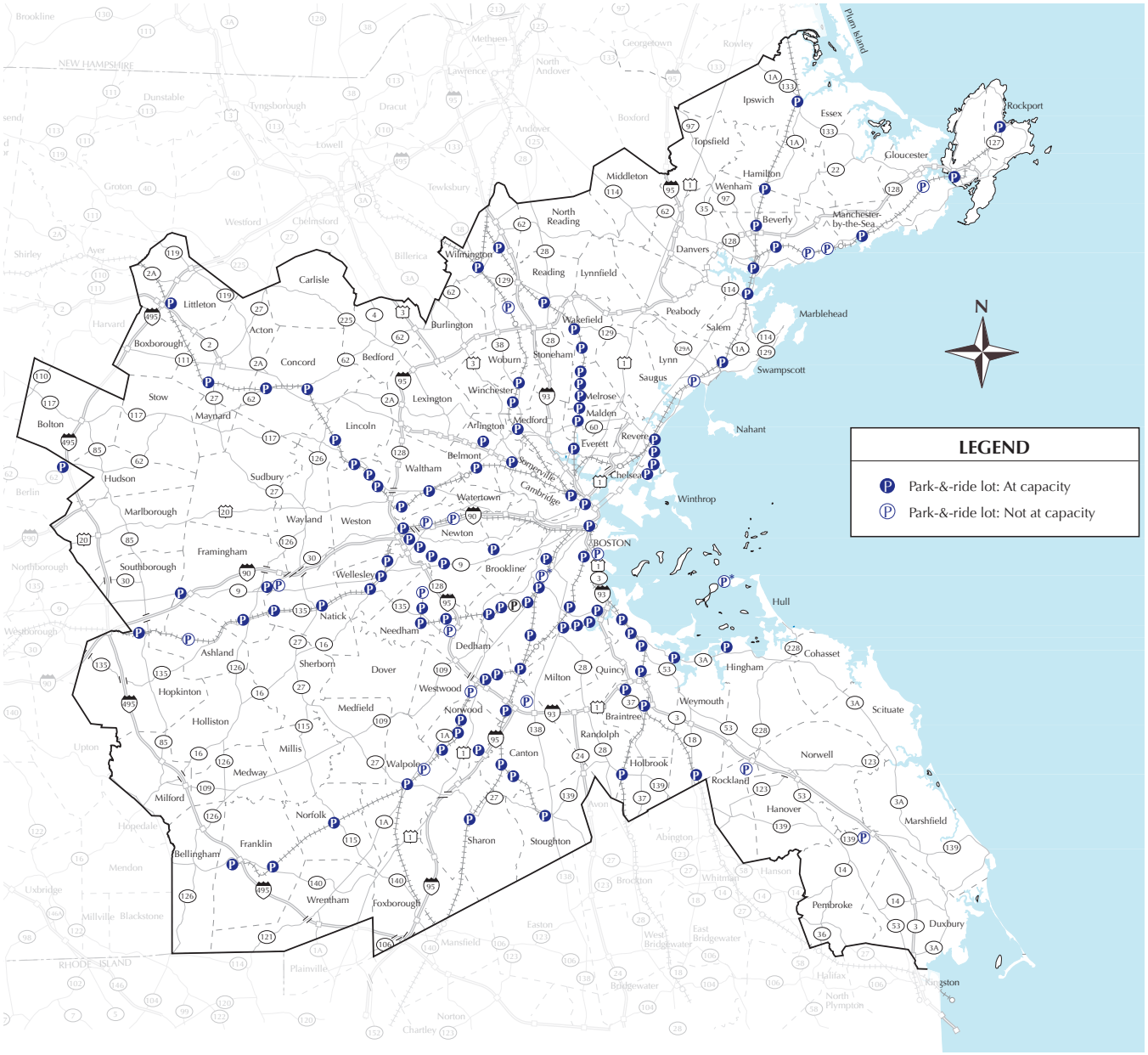
Park-and-Ride Facilities

There are 124 park-and-ride facilities in the Boston region. These facilities provide 46,334 parking spaces for public use.[2] Most of the facilities are located at transit stations or at access points to limited-access highways. The MBTA is the largest provider of commuter parking spaces. MassHighway, Massport, and Masspike also operate park-and-ride facilities. The locations of the region's lots are shown in Figure 2-6, which also identifies the lots that are at capacity and in need of expansion or augmentation. Park-and-ride facilities are monitored through the MMS. For more information on park-and-ride facilities, see Chapter 6, Mobility.

[2] This total includes parking at stations on the Mattapan High Speed Line, which is temporarily closed for renovations. The High Speed Line will reopen in the summer of 2007.

FIGURE 2-6

Park-and-Ride Facilities



Current Needs of the Transit System

One of the MBTA's key elements for capital planning is the Program for Mass Transportation (PMT). As one of the country's oldest transit systems, the MBTA has an abundance of needs just to maintain the current system as described above. In the current PMT, adopted in 2003, the MBTA evaluated its system preservation needs and listed its highest priorities as follows:

- Installation of automated fare collection system (completed in 2007)
- Revenue vehicle replacement
- Bridge rehabilitation
- Commuter rail and rapid transit track replacement
- Station improvements

The PMT also included an examination of capacity issues of the existing transit system. It found that passenger crowding occurs on all three systems—rapid transit, bus, and commuter rail. On the rapid transit lines, passenger crowding occurs mostly during spans of one hour or less within the morning and evening peak commuting times. On the bus and trackless trolley systems, it was found that bus routes in the urban core are subject to crowded conditions, especially during peak periods and school-commute times. In addition, buses on routes operating in heavy traffic conditions are vulnerable to delays, which can result in long gaps in service and bus bunching. Capacities on commuter rail vary according to the number of cars and the mix of car types in the train.

The capacity of the commuter rail and rapid transit lines is limited not only by the capacity of the trains, but also by the capacities of the modes used to access the trains. For commuter rail lines especially, adequate parking capacity is necessary to divert trips from private automobiles. Capacity issues at MBTA facilities must also be addressed to meet ridership demand. Commuter rail system capacity is also limited by the throughput capacities of the downtown terminal stations—South Station and North Station. The capacity of the terminal stations also impacts the amount of yard capacity needed for midday or overnight storage of trains.

Bicycle and Pedestrian Transportation

Bicycling and walking are primary modes of transportation for some residents of the MPO region. Many bicycle to reach transit, and almost everyone walks or uses a wheelchair for portions of all trips. According to the PMT, 84 percent of riders walk or bicycle to stations to access the rapid transit system. Facilities for pedestrians include sidewalks, multi-use paths, and street crossings. Bicycle facilities include both off-road paths and on-road improvements, such as designated bike lanes. Roller skaters and joggers also use the road system and multi-use paths.

Municipalities do much of the planning for pedestrian and bicycle facilities. When planning is done at the regional level, pedestrian mobility is determined by the availability of sidewalks, their condition, and the safety and convenience of roadway crossings. Bicycle mobility is affected primarily by road conditions, such as pavement quality, shoul-

der width, and traffic speed and volume, although some off-road trails are available in the region.

Trails and Routes

There are 15 regional multi-use paths or trails in the MPO region: the Minuteman Commuter Bikeway, Linear Park (Somerville Community Path), East Boston Greenway, Mystic River Reservation Bike Path, Upper Charles Trail, South Bay Harbor Trail, Dr. Paul Dudley White Bike Path, Charles River Greenway, Marblehead Rail Trail, Battle Road Trail, Neponset River Greenway, Muddy River Bike Path, Jamaica Pond Paths, Assabet River Rail Trail (the Hudson and Marlborough segment is in the MPO region), and Southwest Corridor Bikeway (see Figure 2-7). Most trails are built on abandoned railroad rights-of-way or along natural corridors such as rivers. The Minuteman Commuter Bikeway is an example of the former, and the Dr. Paul Dudley White Bike Path is an example of the latter.

One signed, long-distance bicycle route exists in the MPO region and continues outside the region to Falmouth and Provincetown, which are on Cape Cod. The 135-mile-long Claire Saltonstall Bikeway, also known as Bikeway Route 1, is primarily an on-road, signed route that includes some trail segments.

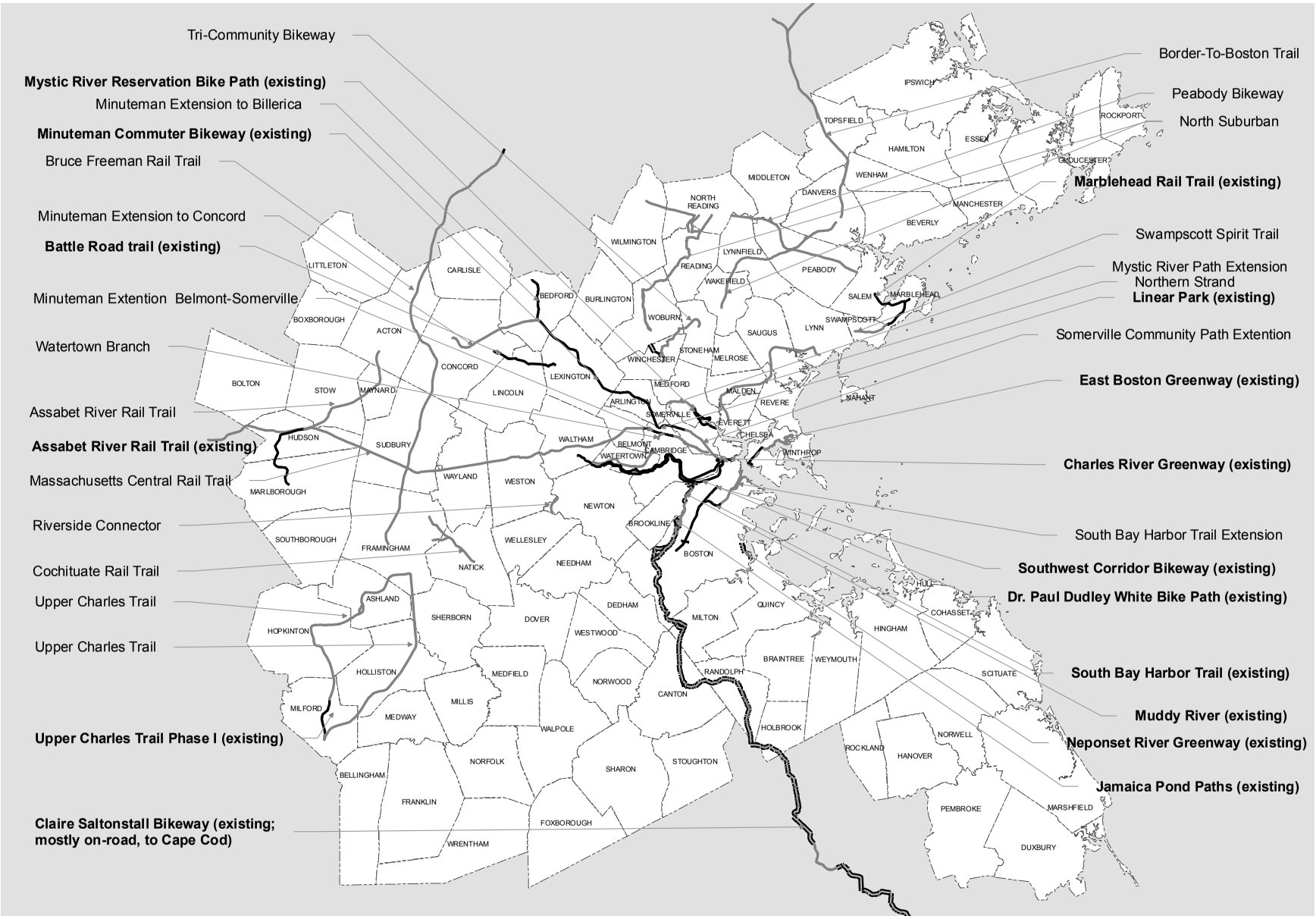
Trails allow users to be separated from motor-vehicle traffic. They are used not only by experienced commuter bicyclists heading to work, but also for recreation, by both adults and children. Trails have proven to be popular with a wide range of users.

Regional trails in the Boston area that are either in the planning stage or under construction include the following (see Figure 2-7):

- Northern Strand (also known as Bike-to-the-Sea; in Everett, Malden, Revere, Saugus, and Lynn)
- Tri-Community Bikeway (Winchester, Woburn, and Stoneham)
- Border-to-Boston Trail (Danvers, Wenham, and Topsfield)
- Assabet River Rail Trail (Hudson, Stow, Maynard, and Acton)
- Mass. Central Rail Trail (Hudson, Sudbury, Wayland, Weston, Waltham, and Belmont)
- Bruce Freeman Rail Trail (Carlisle, Acton, Concord, Sudbury, and Framingham)
- Upper Charles Trail (Milford, Hopkinton, Ashland, Holliston, and Sherborn)
- Peabody Bikeway
- Swampscott Rail Trail
- Minuteman Extension to Concord (Bedford and Concord)
- Minuteman Extension to Billerica (Bedford)
- South Bay Harbor Trail Extension (Boston)
- Somerville Community Path Extension
- Mystic River Path Extensions (Somerville, Arlington, and Medford)
- Neponset River Trail Extension (Boston and Milton)

FIGURE 2-7

Existing and Proposed Multi-Use Paths



- Belmont/Cambridge/Somerville Project
- Watertown Branch
- Cochituate Rail Trail (Framingham and Natick)
- North Suburban Bike Plan Paths (Wakefield, Lynnfield and Wilmington)
- Riverside Connector (Newton and Wellesley)

Sidewalks

Safe pedestrian use of our transportation network requires sidewalks, crosswalks, and other street crossing infrastructure, and the enforcement of laws to protect pedestrians. While sidewalks may not be absolutely necessary for some low-volume local streets, the presence or absence of sidewalks is a good indicator of whether roadways in a community have been designed to give pedestrians equal access to all adjacent uses served by autos.

The percentage of all roadways in a transportation analysis zone (TAZ) with sidewalks on one or both sides of a roadway are shown in Figure 2-8 (limited-access highways and other roads that exclude pedestrians are not included). A TAZ is an aggregation of census geography used in the MPO's transportation demand model based on demographic information and numbers of trips produced and attracted within its borders. Most urban areas and some community centers provide sidewalks along most of their roadways. However, for most TAZs within the Boston MPO region, almost 80 percent of existing roadways have no sidewalks.

In the past, MassHighway guidance on project design required that pedestrian and bicycle accommodations be considered in all roadway projects. MassHighway's current *Project Development and Design Guide* requires pedestrian mobility to be given the same importance as all other uses.

Local interest in walkable communities can be seen in the response to the MPO's Walkable Community Workshop program. Since 2004, the MPO has sponsored more than eight workshops in cooperation with host communities, and is expected to conduct at least six workshops per year in the future. The MPO supports more detailed studies and technical support for municipalities through the study of bicycle and pedestrian improvements in both small-town and urban centers. MAPC will be developing a regional Pedestrian Plan in 2007.

Road Travel

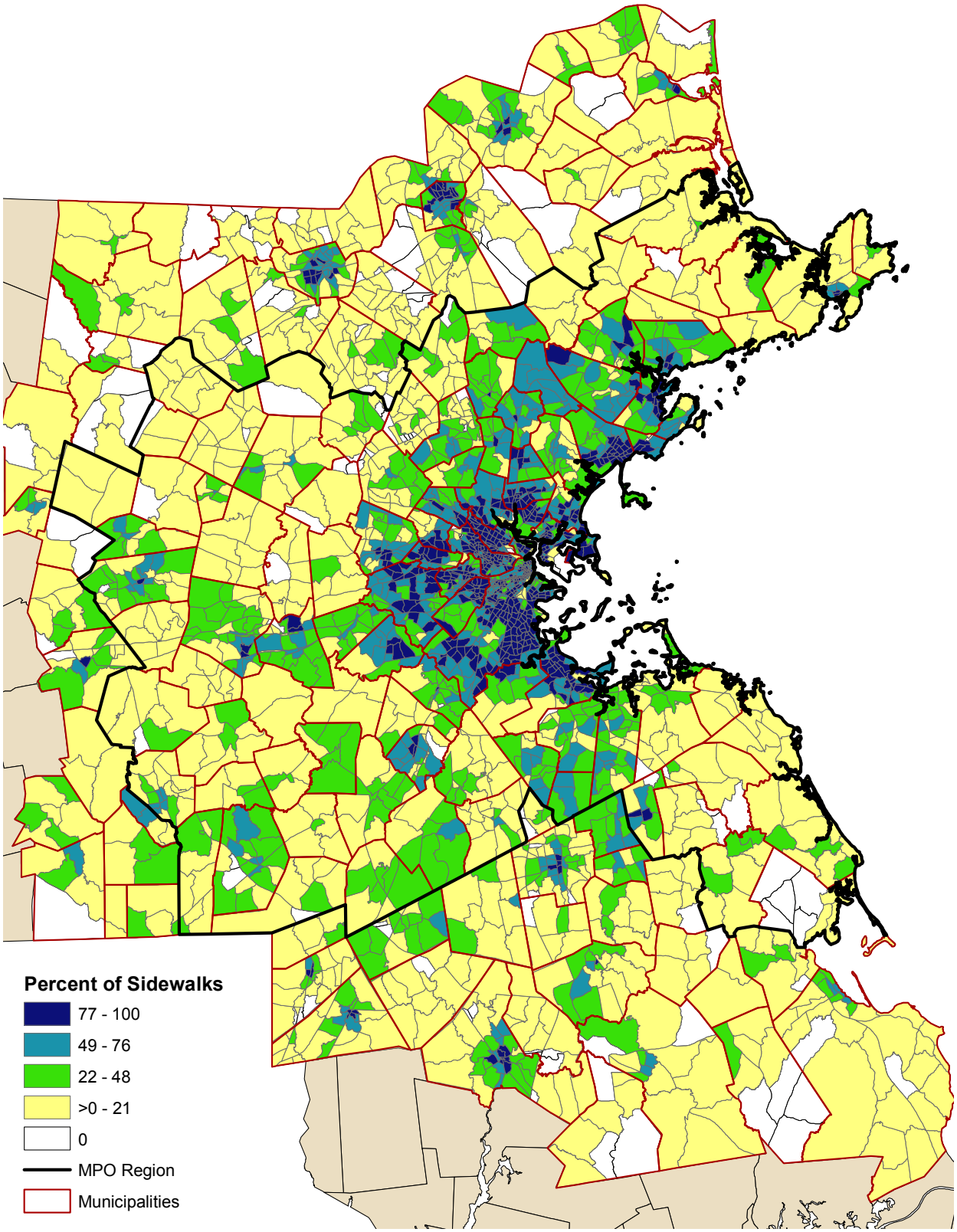
Chapter 90E, Section 2A, of the Massachusetts General Laws (Chapter 87, of the Acts of 1996) requires consideration of bicyclist and pedestrian needs regarding roadways whenever feasible. The intent of this law is to make travel as safe as practical for bicyclists and pedestrians. In some cases, restriping may be all that is necessary, but space for bicyclists can also be provided by adding bicycle lanes or paved shoulders, or by striping wide outside travel lanes.

Access to Other Modes

Many people bicycle or walk to other modes. Those who bicycle to transit connections either park their bicycle or take it on board in accor-

FIGURE 2-8

Percentage of Roads with Sidewalks by Transportation Analysis Zones



dance with the MBTA's Bikes on the T program. There are bicycle parking facilities at most MBTA stations, and they are now added as a matter of course during station reconstructions. The MBTA has also begun a systemwide expansion of bicycle parking facilities, using $50,000 of transit enhancement funding. The MBTA has worked with the Massachusetts Bicycle Coalition (MassBike) and other constituencies to identify bicycle rack locations. MassHighway continues to address nonmotorized-access issues through trail construction and roadway reconstruction projects. To promote bicycling, the MPO is funding bicycle parking at municipal locations through a program administered by MAPC.

Intercity Travel

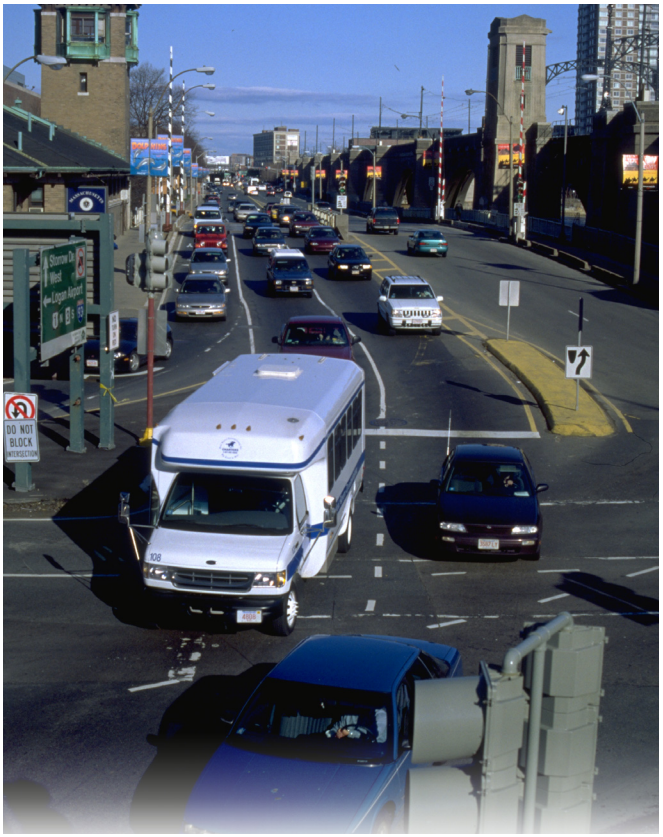
The importance of passenger travel between cities is particularly great in the densely populated New England region and the Northeast Corridor. The Boston region is the largest urbanized area in the six-state New England region. It is significant to intercity travel in New England, both as the major trip generator and as the transportation hub for many trips in which Boston is not the point of origination or destination. Boston's Logan International Airport carries approximately 64 percent of all commercial air passenger trips that pass through New England airports, although the Boston area population composes only about 25 percent of the six-state total.

The Boston region is also the northernmost major metropolitan area in the Northeast Corridor. This rail corridor, which encompasses Washington, D.C., Baltimore, Philadelphia, New York City, Providence, Boston, and the smaller urban areas in between, has historically generated more intercity rail travel than any other region in the nation. Even as the population of the U.S. has dispersed to the south and west, the Northeast Corridor has remained the nation's largest generator of intercity rail traffic.

Boston's location at the northern end of the Northeast Corridor has led to its being a terminus for most of the intercity bus and rail traffic coming through the region from New York City and points south. Boston's proximity to New York City, the nation's largest metropolitan area, has created a situation in which air, bus, and rail frequencies between the two cities surpass the levels seen in almost any U.S. city-pair outside of the Northeast Corridor. Automobile traffic on the major highway routes heading south along the corridor is also greater than that observed on other intercity highways between metropolitan areas outside of the region.

Automobile

The largest share of intercity travel is by automobile. I-95 provides the only direct highway connection to New York City from the Boston metropolitan area. Between Boston and New York, I-95 also serves Providence, Rhode Island, and New Haven, Connecticut. I-95 continues south through the Northeast Corridor to serve Philadelphia, Baltimore, and Washington, D.C. The Massachusetts Turnpike (I-90) provides an alternative route to New York City and the rest of the Northeast Corridor from the Boston region and points



west. The primary variation of this route involves taking the Turnpike to Sturbridge and then using I-84 and I-91 to connect with I-95 in southern Connecticut. To the north, I-93 and I-95 provide access to New Hampshire and Maine.

Airports

The major airports in the Boston region are Logan International Airport and Hanscom Field. Logan Airport, located in East Boston, is owned and operated by MassPort and is the twentieth-busiest airport in the U.S. in terms of the number of passengers. Access to Logan is greatly facilitated by its location, less than two miles from downtown Boston. Currently, approximately 32 percent of people traveling to or from Logan use public transportation. Recently, the MBTA improved transit access to the airport by relocating and modernizing Airport Station, on the Blue Line, and by better connecting the airport with South Station, on the Red Line, via the Silver Line. Service is also provided through the Logan Express bus service and through water shuttles and water taxis.

Hanscom Field, located 20 miles northwest of downtown Boston in the towns of Bedford, Concord, Lexington, and Lincoln, is also owned and operated by MassPort. It is the busiest general-aviation airport in New England, handling business, charter, private, and air-taxi flights. Currently, one commercial carrier operates out of Hanscom. Located three miles from I-95 and Route 128, Hanscom Field is accessible by car and by MBTA bus Route 76 (out of Alewife Station).

In addition to Logan and Hanscom, the MPO includes other public-use airports: three municipally owned (Beverly, Norwood, and Marshfield) and two privately owned (Stow and Marlborough). These airports provide facilities for general aviation services—those not operated by a major airline. Some are termed "reliever" because they offer an alternative to Logan Airport, thereby reducing air traffic and congestion at Logan. The general aviation airports are used by businesses in the region and for flight instruction and recreation.

Intercity Passenger Rail

Amtrak, the nation's passenger rail system, offers daily departures from South Station and North Station in downtown Boston. Amtrak shares both North and South Station rail facilities with the MBTA's commuter rail service, and has connections with the MBTA's rapid transit system at those stations. The intercity bus terminal is also located at South Station. Amtrak trains departing from South Station operate either along the Northeast Corridor route, providing service to Providence, New Haven, New York City, Philadelphia, Baltimore, and Washington, D.C., or along the Lakeshore Limited route, through Framingham, Worcester, and Springfield—which is a stop along the Vermonter route—and then on through New York State and Ohio to Chicago. The trains departing from North Station are for the Downeaster service, which runs between Boston and Portland, Maine.

The MBTA's commuter rail system provides service to other New England cities; these trips are primarily scheduled to coincide with commuting patterns into and out of Boston. The largest cities

served by the commuter rail system are Providence and Worcester, from South Station, and Lowell, from North Station.

Intercity Bus

The vast majority of intercity bus trips that serve the Boston metropolitan area use the South Station bus terminal. Most of this travel consists of long intercity trips, but there are also some suburban commuter trips. Direct service is provided to most major cities and attractions within New England, as well as to New York City, Montreal, and Toronto.

Freight Transportation

A key component of a healthy, vibrant economy in the Boston region is the ability to efficiently move goods and freight within it. This ability requires an infrastructure that allows for the smooth transfer of goods to their final destination. Impediments to movement increase the delivery cost of goods and may adversely affect the economy of the region.

The main modes of freight movement within the region are truck, rail, water, and air; however, truck is the predominant mode.

Truck Freight

The trucking industry, composed of private operators, is highly competitive and depends upon state and local authorities to maintain a safe and efficient highway network. It comprises several major types of operators, including private fleets, for-hire long-distance truckload (TL) carriers, and regional less-than-truckload carriers. The economies of the U.S. and Massachusetts depend on the trucking industry for a majority of the shipments of goods to factories, stores, and households, and each of these types of carriers depends on having a roadway network that meets its needs. Of the freight currently being transported in Massachusetts, 94 percent is carried by truck.

A major problem facing the trucking industry in the Boston region is the lack of a coordinated truck-route policy. Because of the nature of the street patterns developed over the past 350 years, it is common for truck routes to pass through heavily populated residential corridors. This causes a conflict between the desire of residents for a quiet streetscape and the trucking industry's desire for a direct route between the origin and destination. Under Massachusetts law, a community must gain permission from MassHighway before restricting truck traffic.

Another issue affecting the trucking industry is bridge-weight restrictions. Currently, there are approximately 155 "posted" bridges in the region. Posted bridges have signs at both ends informing drivers of the bridge's vehicle-weight restrictions. A bridge is posted if it is either designated as "functionally obsolete" because it has not been designed to support modern trucks, or if it is designated as "structurally deficient" due to significant deterioration of the bridge deck, supports, or other major components. Closed and weight-restricted bridges sometimes require long detours, resulting in increased shipping costs and reduced efficiency.

In addition, more off-road parking facilities for trucks are needed to allow truckers to pull off the road to check their vehicles and/or to sleep.

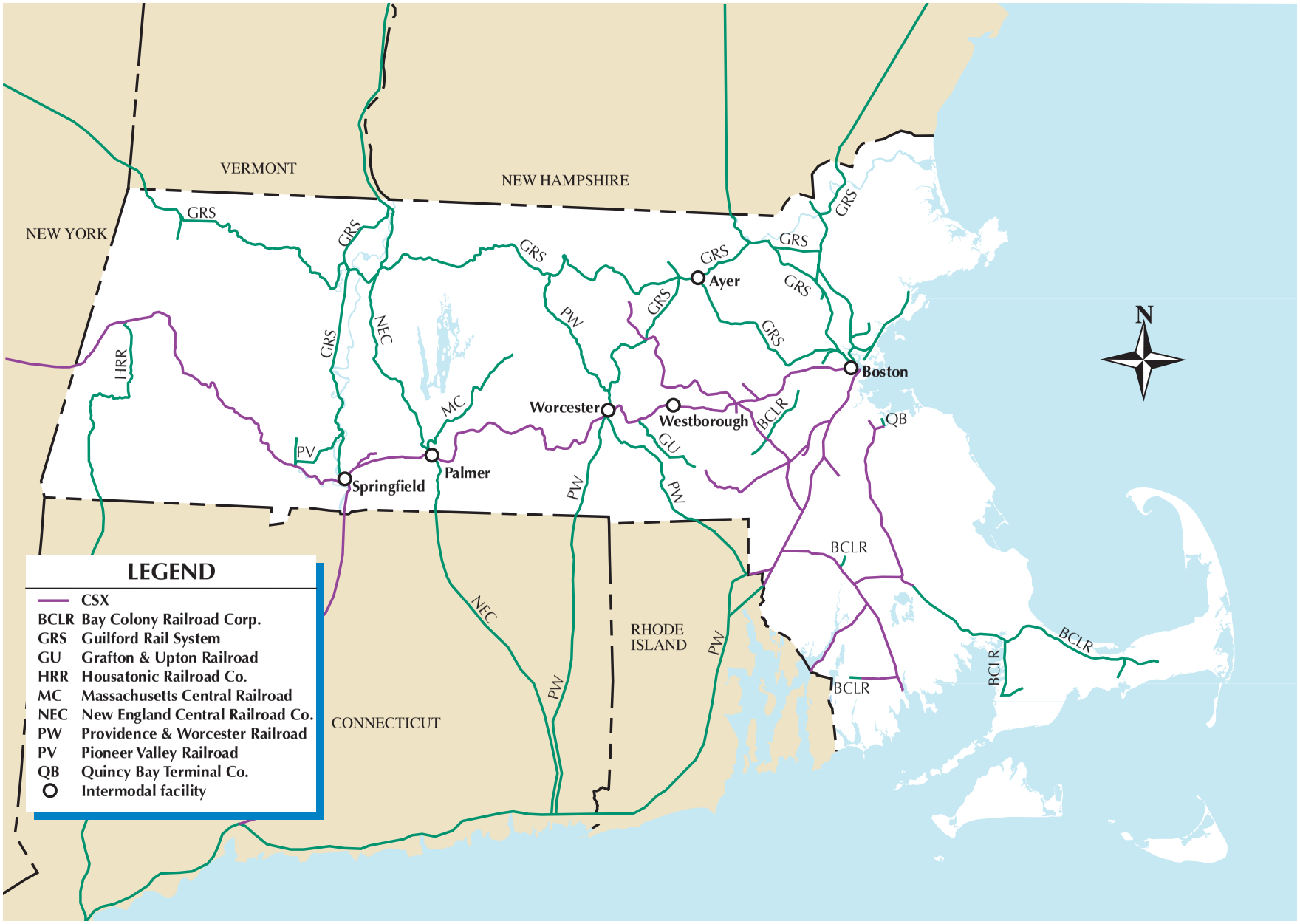
Rail Freight

The rail industry is also an important operator of freight transportation within the Boston MPO area. Four rail freight carriers operate within the region: CSX Transportation, Pan Am Railways, Bay Colony Railroad Corporation, and Fore River Transportation Company. CSX is the only Class I railroad in the Boston region and in Massachusetts. A Class I railroad is a line-haul freight railroad with annual operating revenues in excess of $289 million.

Figure 2-9 shows the freight rail lines and operators within the Boston Region MPO area and throughout Massachusetts. The CSX Transportation main line runs from Boston to Albany, New York, and serves as a major east–west rail corridor for interstate service in Massachusetts. It

FIGURE 2-9

Massachusetts Freight Rail Lines: Operational Jurisdiction



connects the national system to most of the other rail lines. Pan Am (formerly Guilford Rail System) operates on the former Boston & Maine Railroad routes and provides access to northern New England and upstate New York. The Bay Colony Railroad engages in line-haul (fixed- or dedicated-route) services in southeastern Massachusetts and Cape Cod. Fore River Transportation Company (formerly Quincy Bay Terminal Railroad) operates from Quincy to Braintree, where it interchanges with CSX.

Products shipped by rail include automobiles, chemicals, containers (with and without chassis), and bulk products. Over the last two decades, the trucking and rail industries have created a closer link to one another through the use of container shipping and double-stacking on rail. Primarily used over long routes, double-stacking has increased the potential competitive advantage for rail shipping. In the Boston region, bridge clearances over railroad rights-of-way do not allow for double-stack rail cars. A minimum of 21 feet of vertical clearance is required to allow for double-stacking. There are approximately 56 bridges with less vertical clearance than that. Also, as discussed below, the Port of Boston has no direct rail access.

Water Freight

The ports of the MPO region and Massachusetts (shown in Figure 2-10) have played a key role in the economic development of New England since the 1600s. The main ports are located in Boston, Gloucester, and Salem.

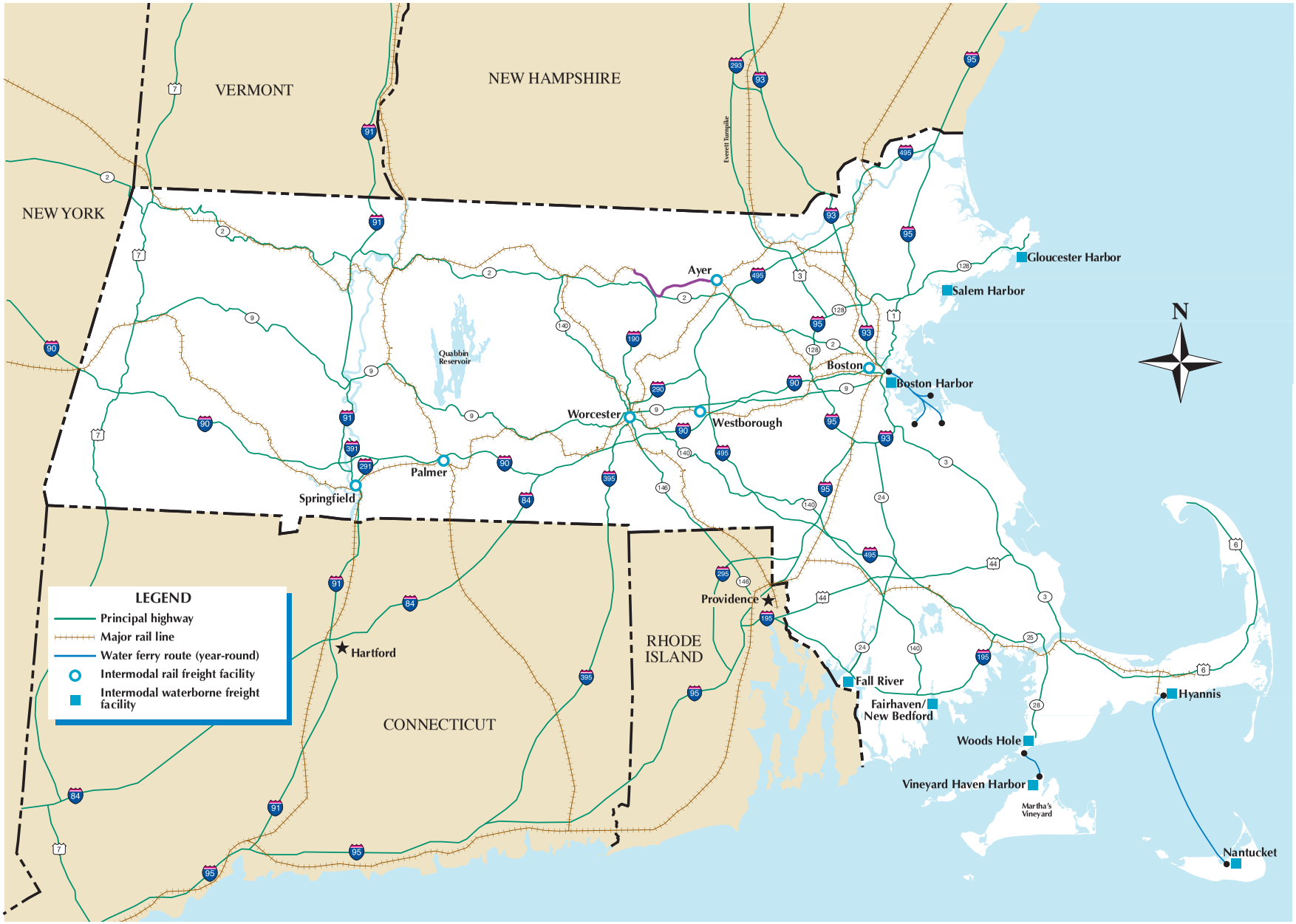
The Port of Boston is the major gateway in Massachusetts for international shipping. It includes a number of terminals and other port facilities. Conley Container Terminal is a 101-acre, multi-berth terminal with 50 acres of storage space. All cargo is unloaded from the ships onto trucks. On average, 900 to 1,000 trucks move in and out of Conley Terminal daily. Currently there is no rail service directly into or out of Conley Terminal. For rail connections, trucks take cargo to rail transfer facilities such as the one at Beacon Park Yards in Allston, four miles from the terminal.

Moran Container Terminal and Mystic Pier One in Charlestown are used for the importing and processing of automobiles. Moran Terminal has the potential for rail service over the Mystic Wharf Branch rail line, a 1.45-mile track in Charlestown. Massport purchased this rail line from Pan Am Railways (formerly Guilford Rail System) in 2002 to preserve rail access to the port. Pan Am Railways has discontinued service and this branch is now considered inactive.

The Massport Marine Terminal/North Jetty is located on the waterfront in the Marine Industrial Park in South Boston (site of the former South Boston Army Base). Approximately 10 acres of the site is dedicated to modern seafood processing or related facilities that support the region's fishing industry. Massport recently awarded a bid for the redevelopment of the remaining 30 acres of the North Jetty area. The redevelopment will allow for the handling of bulk and conventional

FIGURE 2-10

Massachusetts Commercial Ports



cargo and for refrigerated warehousing. This site has access to the highway system via designated truck routes. There is also a potential rail connection to this site.

Other facilities in the Port of Boston include the East Boston Shipyard and Marina; Mystic Piers and Medford Street Terminal in Charlestown; and the Boston Fish Pier, International Cargo Port, and Fargo Street Terminal in South Boston.

The Port of Boston annually handles more than 1.3 million tons of general cargo, 1.5 million tons of nonfuel bulk cargo (salt, gypsum, cement, automobiles), and 12.8 million tons of bulk fuel cargos (petroleum and liquefied natural gas). Approximately 95 percent of all freight shipped into the Port of Boston has a final destination within 75 miles. Major trade routes from Boston include barge service to New York and Canada and scheduled container ship service from Europe and Asia.

The Port of Salem is owned and operated by the New England Power Company. More than one million tons of coal and three million barrels of oil are delivered to the port annually. Landside access to the port is by truck. Existing rail service is one mile from the port.

The Port of Gloucester is owned by the Commonwealth of Massachusetts and operated by Elliot Shipping Inc. It is an import-export point for Canadian and European ports of call. It connects to Route 128 via local roadways and is located one mile from a rail siding. Gloucester has developed into a major import center for frozen seafood products and currently maintains the largest cold storage port facilities of any U.S. port.

Air Freight

Logan Airport currently serves as the only significant air freight terminal in the Boston region. In 2005, Logan Airport ranked 18th in the nation in terms of cargo handled. The major intermodal freight movement to and from Logan is by truck. Freight transported by air usually has at least one of the following characteristics: time sensitivity, high value-to-weight ratio, and perishability. There is no freight rail access to Logan Airport, and no provisions for it are likely to develop. Currently, little freight is handled at Hanscom Field.

Further information on all modes of travel as they relate to the policies adopted by the MPO is included in Chapters 5 through 11.

3

PLAN DEVELOPMENT

Federal metropolitan planning regulations require MPOs to develop a regional transportation plan every four years. The last Boston Region MPO Transportation Plan (2004–2025) was adopted in September 2003. The MPO has built upon the work done for the 2004–2025 Plan in the development of JOURNEY TO 2030. This chapter outlines the process that was followed in the development of JOURNEY TO 2030.

Public Outreach for the Plan

Process and Activities

The MPO's public participation program is designed to provide opportunities for members of the public, other stakeholders, and elected officials to be involved in the development of the Regional Transportation Plan (the Plan), Unified Planning Work Program (UPWP), and Transportation Improvement Program (TIP), and to support the ongoing work of the Regional Transportation Advisory Council (the Advisory Council) and the Regional Equity Program. As part of the 2000–2025 Transportation Plan Update, the MPO adopted its current public involvement program in March 2002 following extensive public outreach that yielded comments regarding the guiding policies of the Plan, project selection, and environmental justice issues. The activities of the public involvement program are designed to meet federal planning rules that require the MPO to maintain a continuing, cooperative, and comprehensive (3C) transportation planning process. The MPO followed and expanded on this public involvement program by developing a specific public involvement plan for JOURNEY TO 2030. The JOURNEY TO 2030 public involvement plan was discussed in special inserts on the Plan in *TRANSREPORT* and was approved by the MPO in January 2006.

To develop JOURNEY TO 2030, the MPO conducted a variety of outreach activities, beginning in the fall of 2005, targeting audiences that included: area residents; municipal, state, and federal officials; businesses; and traditionally

underrepresented persons, including people with disabilities, low-income and minority communities, and non–English speakers. Methods for eliciting public input included the following:

- *Open houses* that informed the public about the transportation planning process and about studies and projects underway, and that offered a forum for discussion and an exchange of ideas. Open houses were held from 2005 through 2007, and focused on Plan topics such as policies, modeling, regional equity, transportation projects, and land use scenarios.
- *Regional forums* held in February 2006 and February 2007 to hear the views of particular constituencies, such as local officials, and to provide information on the Plan and the Mobility Management System.
- *Regional equity and environmental justice forums* held in April 2006 and January 2007 for professionals working in environmental justice neighborhoods and members of the public to discuss the transportation needs of low-income and minority neighborhoods.
- *"Invite Us Over" sessions,* where MPO staff visited municipal, community, and professional organizations, as requested, to present information and discuss ideas for the Plan.
- *Workshops* held in July 2006 and February and March 2007 to provide information about all of the certification documents and to give the public an opportunity to comment on the Plan and its projects and programs.
- *MAPC subregion meetings,* where MPO staff met periodically with MAPC subregional groups to gather information on projects that would be included in the Plan, update the subregional groups on the Plan process, and accept comments.

The Advisory Council, which is funded by the MPO, is an important avenue for public involvement, and it serves the MPO in an advisory capacity. Composed of citizen groups, advocacy organizations, municipal officials, regional entities, and state agencies, it is charged with creating a forum for the ongoing discussion of pertinent regional transportation topics and for considering diverse views. MPO staff presented information on JOURNEY TO 2030 at several Advisory Council meetings.

Communicating with the Public

The MPO uses several means to alert members of the public about MPO news, activities, and events, and to encourage public participation in the transportation planning process.

E-mail Distribution Lists: MPOinfo and MPOmedia

Throughout the planning process, the MPO prepares press releases, flyers, and other notices for distribution to a broad network of interested

parties. These materials are distributed via the MPO's one-way e-mail list, which includes over 1,200 contacts, including municipal officials, planners, regional equity contacts, special interest groups, members of the general public, and legislators. Press releases and informational flyers are also distributed to over 200 media outlets, including local Spanish-language publications (which receive Spanish-language text). Outreach materials are also distributed to the Access Advisory Committee to the MBTA (AACT), which works with the MBTA to ensure that the public transportation system in the region is accessible to the elderly and people with disabilities.

The MPO has expanded its e-mail contacts so that its messages reach councils on aging; commissions on disability; community development corporations; chambers of commerce; economic development, Main Street districts, and transportation committees; and conservation, youth, historical, and natural resource commissions.

TRANSREPORT

The MPO's monthly newsletter, *TRANSREPORT*, is an important means of providing information on various aspects of the entire MPO planning process, including announcements of public participation opportunities and outreach activities. Each issue provides information on upcoming transportation-related public meetings and events, MPO activities, and ways to contact MPO staff with ideas and questions. Special inserts on important Plan topics are frequently included to provide detailed information and encourage public comment.

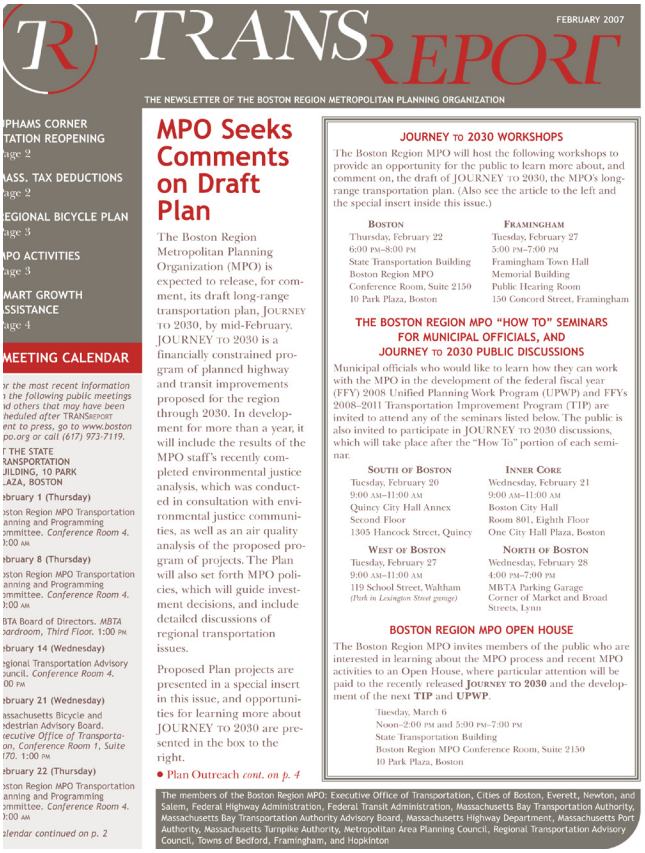
TRANSREPORT is sent to nearly 3,000 recipients, including over 100 state legislators and their staffs, numerous local officials, and members of the general public in each municipality in the region. *TRANSREPORT* issues are posted each month on the MPO's Web site, which also has an archive of past issues.

Web Site

The MPO's Web site has pages designated for the Plan and each of the other certification documents. These pages are updated frequently. Visitors to the Web site are invited to submit comments electronically. Between November 2005 and January 2007, the Web page for the Plan received 5,635 hits.

Public Comments

As a result of the outreach, the MPO received numerous comments on the Plan from members of the public. The Boston Region MPO reviewed and considered all comments during the decision-making process. A summary of written and oral comments relating to the development of the Plan is included in Appendix A. In addition, the MPO responded to comments received during the formal comment period for the draft Plan (February through March 2007). The comments received during the formal comment period, along with the MPO action taken, are also included in Appendix A, in a separate table.



TRANSREPORT

FEBRUARY 2007

THE NEWSLETTER OF THE BOSTON REGION METROPOLITAN PLANNING ORGANIZATION

PHAMS CORNER
TATION REOPENING
age 2

ASS. TAX DEDUCTIONS
age 2

EGIONAL BICYCLE PLAN
age 3

PO ACTIVITIES
age 3

MART GROWTH
SSISTANCE
age 4

MEETING CALENDAR

r the most recent information
the following public meetings
d others that may have been
heduled after TRANSREPORT
ent to press, go to www.boston
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BTA Board of Directors. MBTA
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bruary 21 (Wednesday)
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70. 1:00 PM

bruary 22 (Thursday)
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lendar continued on p. 2

MPO Seeks Comments on Draft Plan

The Boston Region Metropolitan Planning Organization (MPO) is expected to release, for comment, its draft long-range transportation plan, JOURNEY TO 2030, by mid-February. JOURNEY TO 2030 is a financially constrained program of planned highway and transit improvements proposed for the region through 2030. In development for more than a year, it will include the results of the MPO staff's recently completed environmental justice analysis, which was conducted in consultation with environmental justice communities, as well as an air quality analysis of the proposed program of projects. The Plan will also set forth MPO policies, which will guide investment decisions, and include detailed discussions of regional transportation issues.

Proposed Plan projects are presented in a special insert in this issue, and opportunities for learning more about JOURNEY TO 2030 are presented in the box to the right.

• Plan Outreach *cont. on p. 4*

JOURNEY TO 2030 WORKSHOPS

The Boston Region MPO will host the following workshops to provide an opportunity for the public to learn more about, and comment on, the draft of JOURNEY TO 2030, the MPO's long-range transportation plan. (Also see the article to the left and the special insert inside this issue.)

BOSTON
Thursday, February 22
6:00 PM–8:00 PM
State Transportation Building
Boston Region MPO
Conference Room, Suite 2150
10 Park Plaza, Boston

FRAMINGHAM
Tuesday, February 27
5:00 PM–7:00 PM
Framingham Town Hall
Memorial Building
Public Hearing Room
150 Concord Street, Framingham

THE BOSTON REGION MPO "HOW TO" SEMINARS FOR MUNICIPAL OFFICIALS, AND JOURNEY TO 2030 PUBLIC DISCUSSIONS

Municipal officials who would like to learn how they can work with the MPO in the development of the federal fiscal year (FFY) 2008 Unified Planning Work Program (UPWP) and FFYs 2008–2011 Transportation Improvement Program (TIP) are invited to attend any of the seminars listed below. The public is also invited to participate in JOURNEY TO 2030 discussions, which will take place after the "How To" portion of each seminar.

SOUTH OF BOSTON
Tuesday, February 20
9:00 AM–11:00 AM
Quincy City Hall Annex
Second Floor
1305 Hancock Street, Quincy

INNER CORE
Wednesday, February 21
9:00 AM–11:00 AM
Boston City Hall
Room 801, Eighth Floor
One City Hall Plaza, Boston

WEST OF BOSTON
Tuesday, February 27
9:00 AM–11:00 AM
119 School Street, Waltham
(Park in Lexington Street garage)

NORTH OF BOSTON
Wednesday, February 28
4:00 PM–7:00 PM
MBTA Parking Garage
Corner of Market and Broad Streets, Lynn

BOSTON REGION MPO OPEN HOUSE

The Boston Region MPO invites members of the public who are interested in learning about the MPO process and recent MPO activities to an Open House, where particular attention will be paid to the recently released **JOURNEY TO 2030** and the development of the next **TIP** and **UPWP**.

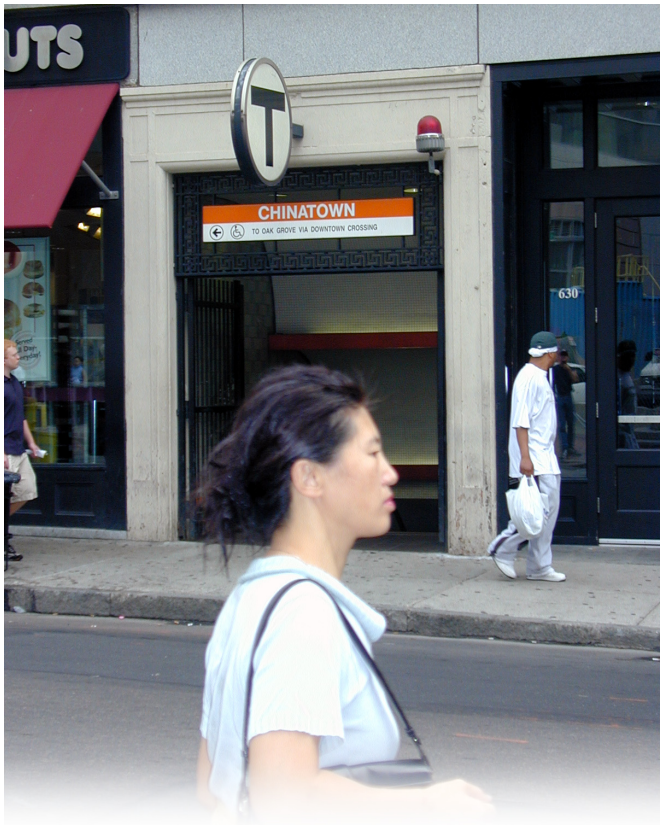
Tuesday, March 6
Noon–2:00 PM and 5:00 PM–7:00 PM
State Transportation Building
Boston Region MPO Conference Room, Suite 2150
10 Park Plaza, Boston

The members of the Boston Region MPO: Executive Office of Transportation, Cities of Boston, Everett, Newton, and Salem, Federal Highway Administration, Federal Transit Administration, Massachusetts Bay Transportation Authority, Massachusetts Bay Transportation Authority Advisory Board, Massachusetts Highway Department, Massachusetts Port Authority, Massachusetts Turnpike Authority, Metropolitan Area Planning Council, Regional Transportation Advisory Council, Towns of Bedford, Framingham, and Hopkinton

Environmental Justice

Environmental justice was an important factor in the development of JOURNEY TO 2030 to ensure that all populations in the MPO (including low-income and minority populations) are treated equitably. MPO policies promote the equitable sharing of the benefits and burdens of the region's transportation system, as well as participation in decision-making. In addition to the public outreach program described above, the MPO also has a regional equity program to identify transportation needs of minority and low-income populations and to provide information about the planning process to encourage public involvement.

The Boston Region MPO's regional equity program is composed of three key elements: outreach, analysis, and the MPO's evaluation of environmental justice issues (see Chapter 9 for more information). After one-on-one meetings and interviews, the MPO provides feedback to community organizations by classifying their needs and concerns as they relate to the Plan, TIP, UPWP, transit service planning, or another agency. The information is then directed to the agency that can best address each need.



In selecting projects for the Plan, the potential impact of a proposed project on environmental justice areas is a criterion in the project ranking processes, as discussed in Use of Goals and Policies in the Selection of Highway Projects, below. The MPO staff gives projects that are estimated to benefit environmental justice areas positive ratings and projects that may burden these areas negative ratings.

As part of the Plan process, the MPO performed a systemwide environmental justice analysis on current conditions (2000 Base Year), the set of projects that are currently funded by the MPO (2030 Conditions if no new projects were funded and constructed), and the set of projects recommended in this plan (2030 Build Conditions). The analysis focuses on the mobility, accessibility, and emissions for communities with a high proportion of low-income and/or minority residents (see Chapter 14 for more information).

Consultations on Environmental Issues

The MPO has responded to SAFETEA-LU directives by consulting with agencies responsible for land management, natural resources, historic preservation, and environmental protection and conservation, as related to transportation initiatives. Natural, environmental, and historic resources were mapped for the Boston region using information from the Commonwealth's Office of Geographic and Environmental Information Systems (MassGIS). The information included Areas of Critical Environmental Concern, flood hazard areas, wetlands, water supply and wellhead protection areas, protected open space, Natural Heritage and Endangered Species Priority Habitats, and historic places, and was used in evaluating the projects. This was done at a regionwide level for the Plan by overlaying the projects on the maps to determine where potential environmental issues could arise.

Once the mapping was completed, MPO staff consulted with MassHighway's and the MBTA's environmental divisions to determine their processes for environmental review of project designs. A meeting was then held with the Massachusetts Environmental Policy Act (MEPA) unit of the Executive Office of Environmental Affairs. The MEPA unit oversees the Massachusetts Environmental Policy Act that requires project proponents to study the environmental consequences of their actions and to take all feasible measures to avoid, minimize, and mitigate damage to the environment.

Through this consultation, it was determined that the MPO staff was reviewing the most important areas of environmental concern and that further review and consultation on environmental effects and mitigation would occur when more detailed information becomes available. This will occur when each of the projects is in the design phase and prior to being funded for construction.

Selection of Projects

One of the primary components of this Plan is a list of major capital expansion projects for implementation over the next 23 years. To select these projects, the MPO first created a Universe of Projects, which is a list of all possible projects for consideration, using different processes for creating the highway portions than for the transit portion of this list.

Universe of Highway Projects

The highway Universe of Projects list is composed of projects that were included in a previously adopted Regional Transportation Plan; projects previously studied, currently being studied, or in development; and projects included in comments received during the public outreach process for the 2000–2025 and 2004–2025 Plans and for the current Plan, JOURNEY TO 2030. The highway Universe of Projects is in Appendix B.

Universe of Transit Projects

The MBTA adopted its Program for Mass Transportation (PMT) in May 2003, which defines a long-range vision for regional mass transportation with respect to infrastructure improvements. The PMT development process included extensive public outreach that generated hundreds of project ideas. These ideas were included in the universe of projects evaluated in the PMT. This expansive list was screened to create a shorter list of feasible projects that warranted further evaluation. Consistent criteria were developed for conducting the screening process. That process led to the approximately 60 transit projects that were considered for JOURNEY TO 2030. For a more detailed discussion of the screening methodology, visit the MPO's Web site, www.bostonmpo.org, and click on the MBTA Program for Mass Transportation button. The transit Universe of Projects, which contains both the projects that survived the screening and those that did not, is in Appendix B.

The Use of Visions and Policies in the Selection of Highway Projects

The MPO devoted a considerable amount of time to the development of visions and guiding policies during the Plan process. A complete list of the visions and policies guiding the development of the Plan is provided in Chapter 4. The MPO used these visions and policies in the project selection process of the Plan. Each highway project, along with its description, was included in the Universe of Projects, and was rated according to its consistency with the following policies:

- System preservation, modernization, and efficiency
- Mobility
- Environment
- Safety and security
- Regional equity, also called environmental justice
- Land use and economic development

The two policies not used (public participation and finance) are not applicable to the assessment of individual projects; these policies are entirely process oriented. MPO staff assigned a rating between –3 and 3, depending on how well the project complied with each policy. A table summarizing the evaluation of projects is in Appendix C.

The Use of the Program for Mass Transportation in the Selection of Transit Projects

As discussed above, the list of screened projects in the PMT was considered for transit project selection in the development of this Plan. Within the PMT, this list was further evaluated and prioritized using performance measures to determine how well each project met the PMT goals and objectives. These goals and objectives are consistent with the Boston Region MPO's regional policies.

The projects were evaluated based on 35 individual performance measures that had been divided into seven categories:

- Utilization
- Mobility
- Cost-effectiveness
- Air quality
- Service quality
- Economic and land use impacts
- Environmental justice

Within the cost-effectiveness category, performance measures that considered each project's impacts on both existing and new riders were used.

A list of the transit expansion projects by mode (rapid transit, bus and trackless trolley, commuter rail, and boat) and their evaluations are provided in Appendix C. Each project was given a rating of high, medium, or low for each category of the

performance measures and was also given an overall rating.

Development of Demographic Projections

As part of the Plan process, land use projections to the year 2030 were used to forecast travel demand. MAPC developed the demographic forecasts that were subsequently adopted by the MPO. The process involved projecting population, employment, and the number of households and allocating them throughout the region. The process of integrating land use considerations into the transportation planning process began with the MPO's review of two different land use scenarios that were developed by MAPC: Current Trends and Smart Growth Plus.

- The Current Trends scenario assumes that areas with recent growth in jobs and housing will continue to grow; that existing resource and infrastructure constraints will not limit development; and that large numbers of people will commute into the eastern Massachusetts area from outside the region in response to a projected shortage of resident workers.
- The Smart Growth Plus scenario relies on the implementation of existing policy tools and achievement of smart-growth goals in three areas: land use, water consumption, and educational achievement for immigrants and minorities. It includes assumptions that more development occurs in town centers and areas with existing infrastructure, that water constraints will limit development in some communities, that less land will be converted to residential and industrial uses in the future, and that more skilled workers will be trained to support the region's economy.

In both of these scenarios, the MPO area is seen as a low-growth region, with an increase of just over 10 percent in both population and jobs by 2030. These two growth scenarios were presented to the public for review in open houses, and were subject to discussion by the MPO. The MPO selected the Smart Growth Plus land use scenario for use in developing the Plan. Detailed descriptions of the development of the population, employment, and household projections under the Smart Growth Plus land use scenario are further discussed in Chapter 11, Land Use and Economic Development.

The MPO received a number of comments regarding the socioeconomic projections used in the development of the Plan. The MPO will review these projections and will make appropriate changes during the next amendment of the Plan. In addition, MAPC is in the process of developing MetroFuture, an update of the agency's 1990 regional land use plan. In MetroFuture, MAPC is looking at additional scenarios as well as the two scenarios considered as part of the JOURNEY TO 2030 process. MAPC anticipates adopting MetroFuture in the spring of 2007. Chapter 11 provides more information on the MetroFuture process and the additional scenarios. Based on the current schedule and the comments received during the JOURNEY TO 2030 process, the MPO anticipates beginning the amendment process within the current federal fiscal year.

Travel Demand Forecasts

In developing JOURNEY TO 2030, the MPO conceptualized the region's transportation needs over the next 23 years. Land use patterns, growth in employment and population, and trends in travel patterns differ in how they affect demands on the region's transportation system. In order to estimate future demands on the system for this Plan, the MPO utilized a regional travel-demand forecast model. The model is a planning tool used to evaluate the impacts of transportation alternatives given varying assumptions with regard to population, employment, land use, and traveler behavior. The model is used to assess potential projects in terms of air quality benefits, travel-time savings, and congestion reduction.

Travel-Demand Model Characteristics

The travel model set simulates existing travel conditions and forecasts future-year travel on the eastern Massachusetts transit and highway systems. To get a more accurate picture of the travel demands in the Boston region, all communities within the commuting shed (the area from which people commute) for eastern Massachusetts are included in the modeled area. This area includes an additional 63 communities that are outside the 101-municipality MPO region.

The model represents all MBTA rail and bus lines, all private express-bus carriers, all commuter boat services, all limited-access highways and principal arterials, and many minor arterials and local roadways. The region is subdivided into over 2,700 transportation analysis zones (TAZs). The model set is made up of several models, each of which simulates a step in the travel decision-making process. The model set simulates transportation supply characteristics and transportation demand for travel from every TAZ to every other TAZ. This simulation is the result of several inputs (different categories of data); the most important include population, employment, auto ownership, transit fares, automobile operating costs, and highway and transit levels of service. These inputs are updated on a regular basis to ensure the reliability of the forecasts. The model set, which is similar in nature to those used in most other large urban areas in North America, also incorporates many new procedures, including the ability to forecast nonmotorized trips and to limit trips based on parking capacities at MBTA stations.

Travel Demand under 2000 Base Year, 2030 No-Build, and 2030 Build Conditions

The travel model analysis for the Plan consisted of several steps. First, an existing conditions network was tested to simulate recent (2000) travel conditions. Appendix D describes all major highway and transit projects that were open for public use by December 31, 2000. Projects included for analysis in the model were "regionally significant" as defined by the federal government, because of their being regional in nature, adding capacity, and having air quality impacts for the region as measured by the model.

A 2030 No-Build alternative was then represented in the model. The 2030 No-Build alternative built upon the 2000 Base Year and added projects that were constructed between 2000 and 2007, projects that are currently under construction, and projects that were programmed in the first year of the 2007–2010 TIP. Descriptions of the 2030 No-Build projects are included in Appendix D. The 2000 Base Year and 2030 No-Build scenarios provided a baseline against which the predicted effects of potential future investments in the transportation system were measured.

Next, an alternative set of projects (called the 2030 Build Scenario) was developed and then compared to the 2030 No-Build scenario (see Development of 2030 Build Scenarios, below). Then these results and other measures, including policies and public comments, were reviewed. A final set of projects was recommended and represented in the model. Using the No-Build analysis as a point of reference, the two Build scenario model outputs helped to measure the effectiveness of congestion reduction, air quality improvements, and other transportation outcomes of each future action transportation network.

The forecasts for the 2030 No-Build and Build scenarios used the 2030 demographic data developed by MAPC using the Smart Growth Plus scenario assumptions. Several important travel statistics were included in each of these forecasts, including:

- Total vehicle-miles of travel (VMT) and vehicle-hours of travel (VHT) on a typical weekday
- Average speed of highway traffic
- Amount of air pollution produced by automobiles and transit vehicles
- Total number of daily trips made by auto and transit
- Average daily fixed-route transit ridership by mode (rapid transit, bus, commuter rail, commuter boat, and express bus)
- Percentage of people traveling by each of the travel modes

Selected travel modeling results for the 2000 Base Year and 2030 No-Build alternatives are shown in Chapter 13.

Development of 2030 Build Scenarios

The MPO used the Universe of Projects as a source for selecting projects to model in the 2030 Build Scenarios. As discussed above, the results of the regional travel demand model were one of the inputs used by the MPO to determine the merits of possible projects. In addition to these results, the MPO used information produced by feasibility studies, project-specific studies, project-specific modeling work, environmental impact reports, input from local officials, and information produced in the MPO's Mobility Management System.

Each highway and transit project was also reviewed for conformity with the MPO's transpor-

tation policies. PMT project descriptions were reviewed for each transit project. In addition, the MPO reviewed comments from the Advisory Council and the MAPC subregional groups. They also reviewed public comments received during outreach sessions held during the development of this Plan, as well as past Plans.

Using these inputs, the MPO developed two transportation project lists for modeling. Highway projects were eligible to be included in the two model alternatives (described below) if there was sufficient project information to include in the model and if a cost estimate existed, and transit projects were eligible if they were included in the PMT. Highway projects for which this information was not available and transit projects that were screened out of the PMT were not included in the final project lists.

Alternative One was based on the projects that were recommended in the 2004–2025 Plan, but with modifications to the list of transit projects. The Commonwealth is in the process of reexamining three transit projects that are included as required mitigation projects for the Central Artery/Tunnel project. In addition to the transit projects included in the 2004–2025 Plan, the MPO decided to include the alternative projects that are being considered as substitute mitigation projects (see Chapter 15, Air Quality Conformity Determination, for a more detailed discussion). The alternative projects were included based on the significant amount of work and public review that had been completed during the substitution process. All highway projects were reviewed again using the inputs outlined above. The transit projects were reviewed using information provided by the adopted PMT. This alternative was not a financially constrained set of projects.

Alternative Two is the set of projects recommended for inclusion in the Plan. The projects were reviewed based on modeled data, evaluation ratings determined by compliance with MPO policies, updated information received since the last Plan, and public comments. Using this information, this alternative was developed to be a financially constrained set of projects.

The model results for the projects recommended for inclusion in the Plan, which used the Smart Growth Plus land use scenario, are included in Chapter 13, The Recommended Transportation Plan.

4

VISIONS AND POLICIES

The Boston Region Metropolitan Planning Organization (MPO) developed a set of topics and visions for the future of the regional transportation network. Public outreach was conducted throughout the region to obtain input into this process.

The topics and visions expand upon the MPO topics and policies adopted by the MPO in January 2006 to guide the development of JOURNEY TO 2030 and to steer decision-making for transportation in the region. *Topics, policies*, and *visions* are defined as follows:

- Topics – main areas of focus
- Policies – specific statements to be used in guiding decision-making
- Visions – descriptions of the "end state" that exists after policies have been achieved

Public input received during outreach for JOURNEY TO 2030 and views expressed during the MAPC MetroFuture Plan process of the Metropolitan Area Planning Council (MAPC) shaped the topics and policies and subsequently the visions. The topics, policies, and visions are also consistent with the guiding principles of the *Commonwealth of Massachusetts Long-Range Transportation Plan*. They are also based on or related to the eight planning factors in the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), which is the federal surface transportation legislation.

While the topics, policies, and visions focus primarily on the transportation network, transportation's strong interrelationship with land use requires references to sustainable growth and development, environmental and cultural resource protection, and the creation of environments that promote healthy lifestyles. The MPO will actively promote these values, as well as the policies and visions in its planning and decision-making, in

order to bring transportation in the region closer to the visions presented below.

Topic: System Preservation, Modernization, and Efficiency

Vision: Preserving the existing transportation network and replacing systems once their life span is realized are tasks critical to the promotion and effective management of regional mobility. The vision of the Boston Region MPO is to maintain and manage existing transportation facilities so that they function at their highest possible level of safety and efficiency. In this manner, people using elements of the system will experience the highest possible service level. Application of transportation systems management and Intelligent Transportation Systems (ITS) technologies will be the main tool used to provide information, reduce congestion, and expedite transit service, thereby providing for system reliability, safety, and efficiency. Upgrading to keep in step with evolving standards will help meet the region's changing needs.

Policy: To emphasize the preservation, modernization, and efficiency of the existing transportation system, the MPO will:

- Put priority on projects that maintain, repair, and modernize existing infrastructure.
- Set funding goals for maintaining the system.
- Make investments that maximize the efficiency, effectiveness, reliability, and flexibility of the existing transportation system
- Encourage and support, through planning and programming, projects and programs that improve the operation of the existing transportation system through the use of ITS, new technologies, and transportation systems management.

Topic: Mobility

Vision: A coordinated mix of transportation modes and services will give users of the region's transportation system increased opportunities for convenient, reliable, speedy, affordable, and accessible travel. Existing roadway, transit, bicycle, pedestrian, and freight links will be maintained and their serviceability improved. New routes, lines, and connections will serve additional needs. The spectrum of options will serve travelers from different areas of the region with varying needs.

Policy: To improve mobility for people and freight, the MPO will:

- Put a priority on projects and programs that increase the availability of transportation options for people and freight by improving connections, access to and within the system, services, and infrastructure to meet needs.
- Support projects and programs that improve public transportation service by making it faster, more reliable, and more affordable.
- Consider how an improvement to a single mode can make the entire system work better.
- Fund projects that expand the existing transportation system's ability to move people and goods in areas identified in the Boston Region Mobility Management System, the MBTA Program for Mass Transportation, the MPO's Regional Equity Program, and MPO

and EOT freight studies, and through public comment. This includes encouraging options that manage demand. Adding highway capacity by building general-purpose lanes should be considered only when no better solution can be found and should be accompanied by proponent commitments, developed in the environmental review process, to implement transportation demand management (TDM) measures.

- Assist agencies and communities in planning and implementing projects that provide bicycle and pedestrian routes, networks, and facilities.
- Support programs that meet public transportation needs in suburban communities, including improving access to existing public transportation and partnering with others to initiate new intrasuburban services linking important destinations.
- Provide better access for all to transportation throughout the region, including for our youth, elderly and disabled users, and members of zero-vehicle households. This includes identifying and addressing structural and operational barriers to mobility.
- Develop a multimodal and comprehensive plan for freight movement that includes an evaluation of freight infrastructure needs and access to intermodal facilities (air, road, rail, and water).

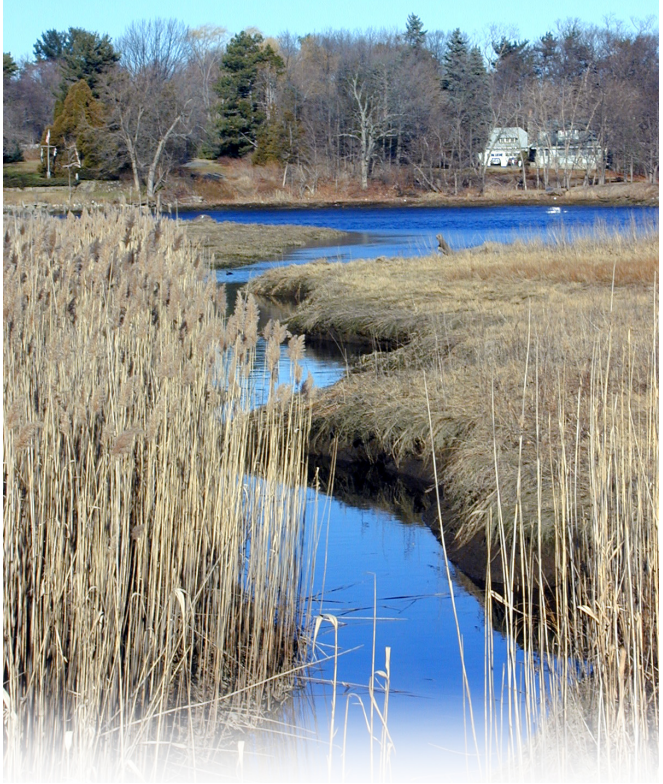
Topic: Environment

Vision: Transportation planning activities and projects will strive to reduce air quality degradation and other environmental degradations caused by transportation. Vehicle emissions (carbon monoxide [CO], nitrogen oxides [NOx], volatile organic compounds [VOCs], particulates, and carbon dioxide [CO_2]) will be reduced by modernizing transit, truck, and automobile fleets, and through increasing transit mode share.

In the process of considering transportation projects, the MPO will take into account the management and minimization of soil and water contamination, such as highway and rail right-of-way runoff, and wetland impacts. Construction of transportation facilities will be planned and carried out in a manner that avoids or minimizes negative impacts to natural resources. Transportation planning will also promote project design that preserves cultural resources such as community character and cohesiveness, quality of life, and historic and scenic resources; protects greenfields, open space, wildlife, and ecosystems; and advances sustainability and health-promoting transportation options. Transportation agencies will work with environmental and cultural resource agencies to achieve these ends.

Policy: To minimize transportation-related pollution and degradation of the environment; promote energy conservation; support the preservation of natural resources and community character; and advance sustainability, regional environmental benefits, and health-promoting transportation options, the MPO will:

- Give priority to projects that maintain and improve public transportation facilities and



services so as to increase public transportation mode share and reduce reliance on automobiles.

- Give priority to projects that reduce congestion or manage transportation demand to improve air quality.
- Support, through planning and programming, projects that make transportation in the region more sustainable.
- Promote the use of low-polluting or alternative fuels, efficient engine technology, and other new, viable technologies that protect resources.
- Consider environmental issues during project selection; in particular, air quality and the reduction of pollutants (CO, NOx, VOCs, particulates, and CO_2), the protection of water resources (soil and water contamination, stormwater management, and wetlands impacts), greenfields and open space, and wildlife and ecosystem preservation; and value those projects that reduce negative impacts.
- Recognize value in transportation projects that preserve natural and cultural resources, including visual, auditory, historic, aesthetic, community, and local quality-of-life values.

- Recognize, in evaluations, projects that respect community character in their purpose and design.
- Consult with environmental and cultural resource agencies and entities on environmental effects, particularly through the existing National Environmental Policy Act/Massachusetts Environmental Policy Act (NEPA/MEPA) processes.
- Encourage, through planning and programming, transportation choices that promote a healthy lifestyle such as walking and bicycling.

Topic: Safety and Security

Vision: Safety and security initiatives will be implemented to protect the region from natural and human threats. Transportation infrastructure and its operation will be upgraded on an ongoing basis for the safety and security of all users. Technologies will be employed to manage incidents, conduct emergency response, and support safe evacuations using various transportation modes. Highway and transit infrastructure will be kept in a state of good repair. There will be fewer crashes, due to improved intersection designs and upgrades.

Policy: To improve safety and security for all transportation system users and prepare the transportation system for its role in emergency-response preparedness, the MPO will:

- Support designs and fund projects and programs that address safety problems and enhance safe travel for all system users. This includes designs and projects that encourage motorists, public transportation riders, bicyclists, and pedestrians to share the transportation network safely.
- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including ITS, to provide for safety and security.
- Participate in regional planning for safety and security initiatives, such as evacuation and contingency measures, and homeland security.

Topic: Regional Equity

Vision: Regional equity and the needs of low-income and minority residents will be assessed through regular activities and technical analyses. Low-income and minority residents will share equally with others in access to the transportation network and its mobility benefits. Environmental burdens from transportation facilities and services will be identified and minimized for all populations.

Policy: To promote the equitable sharing of the transportation system's benefits and burdens, and to incorporate environmental justice principles into transportation planning and programming activities, the MPO will:

- Continue the outreach to communities with a high proportion of low-income and minority residents to identify transportation needs.
- Assess regional equity by analyzing mobility, accessibility, and congestion for communities with a high proportion of low-income and minority residents.
- Fund projects that address identified regional equity issues and needs.

Topic: Land Use and Economic Development

Vision: Multimodal transportation will serve business, residential, and mixed-use centers. Transit, bicycle, and pedestrian facilities will be linked in a network to a growing inventory of denser residential development, employment and commercial centers, and major destinations. Transportation investments will focus on centers of economic activity and areas with adequate water, sewer, and other public infrastructure. Transportation rights-of-way will be used to maximize public benefits.

Transportation planning will be integrated with land-use and economic-development planning to the greatest extent possible in order to achieve more mobility, foster sustainable communities and transportation, and expand economic opportunities and prosperity. Transportation improvements will be made to facilitate the movement of freight throughout the region.

Policy: To promote the integration of land-use, economic-development, and transportation planning to achieve efficiencies; benefits for mobility and the environment, including sustainable communities and transportation; and stronger economic opportunities, the MPO will:

- Link transportation planning with land-use and economic-development plans, particularly in areas identified for economic development by state, regional, and local planning.
- Make transportation investments where existing or planned development will encourage public transportation use, walking, and bicycling.
- Give priority to projects in areas identified in local and regional plans as being suitable for concentrated development and/or redevelopment, including brownfield redevelopment; support initiatives that increase sustainability.
- Consider both existing development and densities in transportation decision-making and give priority to projects that support them.
- Consider the appropriate use and maintenance of transportation rights-of-way to maximize public benefits.

- Put priority on transportation investments related to existing centers of economic activity; or to areas with adequate water and sewer infrastructure; or to municipal centers or areas targeted for economic development.
- Support, through planning and programming, transportation improvements that provide transportation links for economic activities such as freight movement.

Topic: Public Participation

Vision: Members of the public will have the opportunity to be informed about and involved in MPO planning and decision-making regarding transportation projects, programs, and spending for the region. Information will be presented in clear and concise formats, including visualizations, accessible formats, and other media. The MPO will strongly encourage low-income and minority residents and those with limited English proficiency to participate. The Regional Transportation Advisory Council will continue to contribute to the development of all MPO documents.

The MPO will work with project proponents and members of the public to help them understand the MPO project evaluation and selection processes. To facilitate this understanding, the MPO will, in conducting those processes, consistently follow its published project-selection criteria.

The MPO will consult with environmental, cultural resource, community, business, economic development, and other agencies throughout the region and state to promote the integration of their interests with transportation planning and programming.

Policy: To promote public involvement in all phases of transportation planning and design, the MPO will:

- Implement the MPO public participation plan in a way that provides all residents and businesses the opportunity to participate in the transportation planning process.
- Communicate effectively with project proponents and members of the public to ensure their understanding of the MPO project evaluation and selection processes and facilitate their participation.
- Use the MPO's criteria, based on MPO policies, in decision-making and project selection.
- Continue to work with the Regional Transportation Advisory Council in the development of all MPO documents, and support the Advisory Council's work of bringing the public's views to MPO decision-making.
- Reach out to under-represented persons and groups, including low-income and minority residents and those with limited English proficiency, to ensure that decisions are made in an open and participatory process.
- Solicit the input of environmental, cultural resource, community, business, economic development, and other appropriate agencies on MPO activities, to promote the integration of these interests with transportation planning and programming.
- Work to improve coordination among the local, regional, and state jurisdictions that own and operate the region's transportation system.
- Expand methods of communication and explore new technologies to improve outreach. Use varied media and visualization techniques.

Topic: Finance

Vision: Projects programmed by the MPO will effectively and efficiently use the region's limited financial resources to maintain, operate, and improve the transportation system. In addition, the MPO will pursue opportunities for innovative funding and public-private partnerships. The MPO will encourage implementing agencies to provide transparent and accurate information to better estimate and contain project costs.

Policy: To secure and efficiently and effectively apply financial resources for the maintenance, modernization, and appropriate expansion of the regional transportation system, the MPO will:

- Consider project effectiveness in meeting transportation needs during project selection.
- Work to identify and acquire new revenues for the transportation system, including those from innovative funding sources and public-private partnerships.
- Work with implementing agencies, communities, and project proponents to identify and adopt information systems to better estimate and contain project costs.
- Consider the cost of maintenance and operations when selecting projects.

Eight Planning Factors in SAFETEA-LU

SAFETEA-LU authorizes the federal surface transportation programs for highways, highway safety, and transit for the five-year period 2005–2009. According to SAFETEA-LU, consideration of the planning factors listed below should be reflected, as appropriate, in all aspects of the metropolitan transportation planning process, including activities such as the formulation of goals, objectives, performance measures, and evaluation criteria for use in developing the metropolitan transportation plan; identification of prioritization criteria for projects and strategies reflected in the TIP; and development of short-range planning studies, strategic planning and/or policy studies, and transportation needs studies.

There are numerous direct and indirect relationships between the MPO's policy topics and SAFETEA-LU's eight planning factors (see Figure 4-1). The planning factors and the relationships with MPO policies are discussed in more detail below.

SAFETEA-LU has placed increased emphasize in a number of areas in transportation planning, including Environmental Mitigation, Consistency between Regional Transportation Plans and Planned Growth and Development Plans, and Visualization Techniques. These areas have been addressed in the Journey to 2030 Plan in the following chapters.

- Environmental Mitigation is discussed in Chapter 10 – Environment, outlining the different environmental areas that are affected by transportation in the region. It also includes maps showing how these areas are affected by the specific projects that are recommended in the Plan. A discussion of the consultation that occurred with the environmental agencies during the development of the Plan as well as when mitigation will occur is also included in Chapter 10. Chapter 3 – Plan Development also includes a summary of the consultation process on environmental issues.
- Consistency between Regional Transportation Plans and Planned Growth and Development Plans is discussed in Chapter 11 – Land Use and Economic Development. It includes a discussion of how proposed planned growth and development through 2030 has been incorporated and used in the development of Journey to 2030. Chapter 3 – Plan Development includes a summary of the development of demographic projections and Chapter 13 – The Recommended Plan also includes a summary of the recommended land use scenario.
- Visualization Techniques have been used in the development of the Plan in a number of ways including the development of the recommended land use scenario, in public participation events during the development of the Plan, and in presentations to the MPO in their discussions throughout the Plan process. Chapter 3 – Plan Development includes a summary of the steps undertaken in the development of the Plan.

FIGURE 4-1

Relationships between SAFETEA-LU Planning Factors and MPO Policy Topics

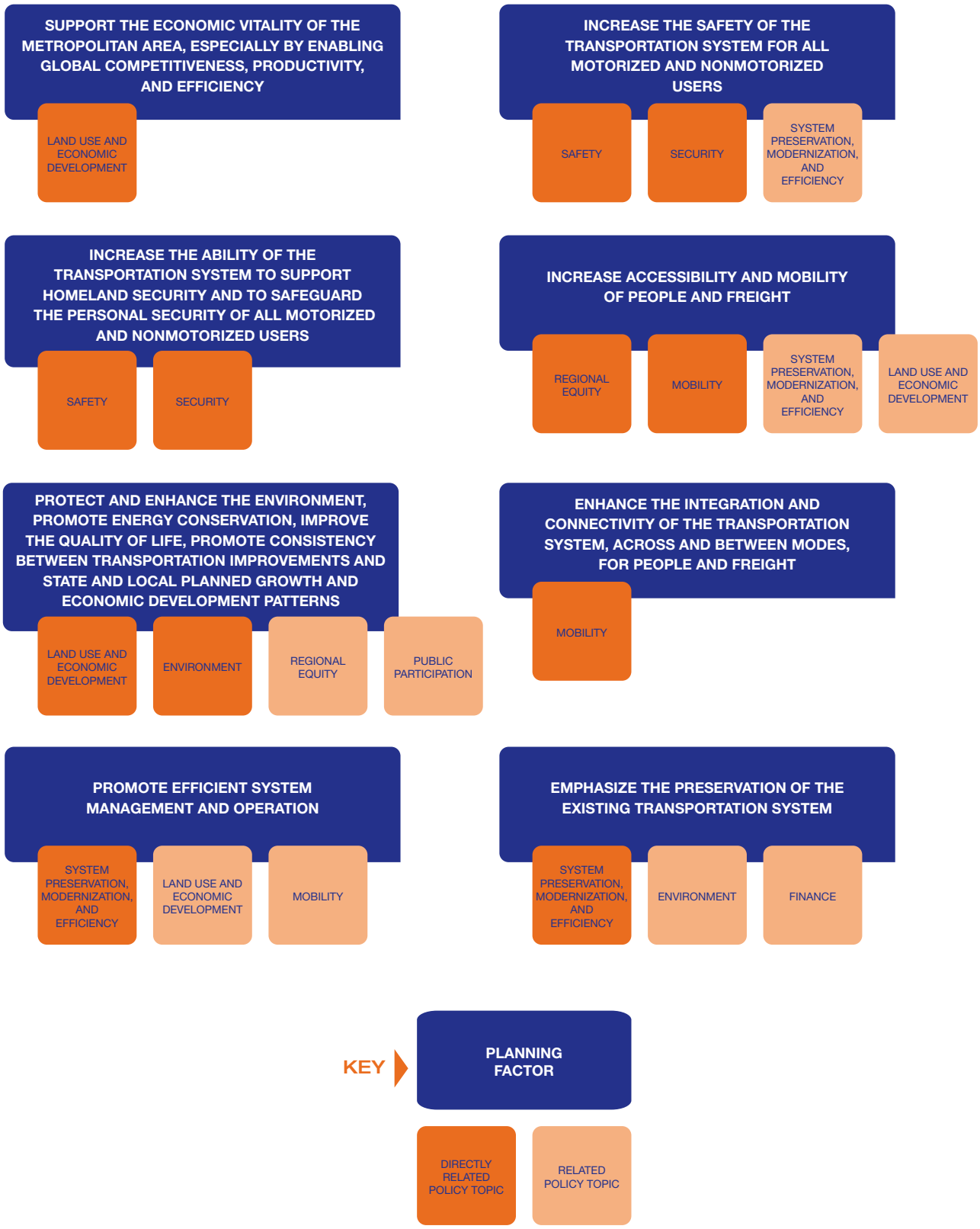


FIGURE 4-2

Relationship between the Economic Vitality Planning Factor and the MPO's Land Use and Economic Development Policy Topic

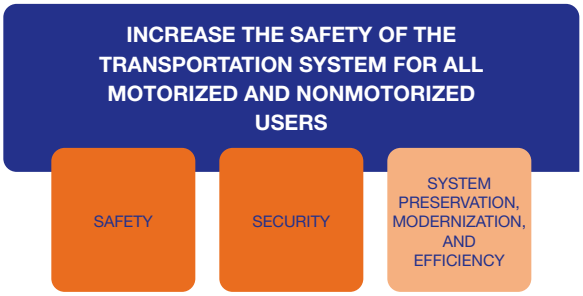
SAFETEA-LU Planning Factor: Support the economic vitality of the metropolitan area, especially by enabling global competitiveness, productivity, and efficiency.

Directly-related MPO policies are:

- Link transportation planning with land-use and economic-development plans, particularly in areas identified for economic development by state, regional, and local planning (topic: land use and economic development).
- Put priority on transportation investments related to existing centers of economic activity; or to areas with adequate water and sewer infrastructure; or to municipal centers or areas targeted for economic development (topic: land use and economic development).
- Support, through planning and programming, transportation improvements that provide transportation links for economic activities such as freight movement (topic: land use and economic development).

FIGURE 4-3

Relationship between the Safety Planning Factor and the MPO's Policy Topics



SAFETEA-LU Planning Factor: Increase the safety of the transportation system for all motorized and nonmotorized users.

Directly-related MPO policies are:

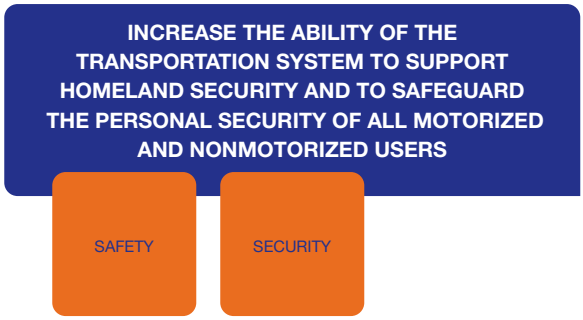
- Support designs and fund projects and programs that address safety problems and enhance safe travel for all system users. This includes designs and projects that encourage motorists, public transportation riders, bicyclists, and pedestrians to share the transportation network safely (topic: safety and security).
- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including ITS, to provide for safety and security (topic: safety and security).
- Participate in regional planning for safety and security initiatives, such as evacuation and contingency measures, and homeland security (topic: safety and security).

A related policy is:

- Put priority on projects that maintain, repair, and modernize existing infrastructure (topic: system preservation, modernization, and efficiency).

FIGURE 4-4

Relationship between the Security Planning Factor and the MPO's Safety and Security Policy Topic



SAFETEA-LU Planning Factor: Increase the ability of the transportation system to support homeland security and to safeguard the personal security of all motorized and nonmotorized users.

Directly-related MPO policies are:

- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including ITS, to provide for safety and security (topic: safety and security).
- Participate in regional planning for safety and security initiatives, such as evacuation and contingency measures, and homeland security (topic: safety and security).

FIGURE 4-5

Relationship between the Accessibility and Mobility Planning Factor and the MPO's Policy Topics

SAFETEA-LU Planning Factor: Increase accessibility and mobility of people and freight.

Directly-related MPO policies are:

- Put a priority on projects and programs that increase the availability of transportation options for people and freight by improving connections, access to and within the system, services, and infrastructure to meet needs (topic: mobility).
- Support projects and programs that improve public transportation service by making it faster, more reliable, and more affordable (topic: mobility).
- Fund projects that expand the existing transportation system's ability to move people and goods in areas identified in the Boston Region Mobility Management System, the MBTA Program for Mass Transportation, the MPO's Regional Equity Program, and MPO and EOT freight studies, and through public comment. This includes encouraging options that manage demand. Adding highway capacity by building general-purpose lanes should be considered only when no better solution can be found and should be accompanied by proponent commitments, developed in the environmental review process, to implement transportation demand management (TDM) measures (topic: mobility).
- Assist agencies and communities in planning and implementing projects that provide bicycle and pedestrian routes, networks, and facilities (topic: mobility).
- Support programs that meet public transportation needs in suburban communities, including improving access to existing public transportation and partnering with others to initiate new intra-suburban services linking important destinations (topic: mobility).
- Provide better access for all to transportation throughout the region, including for our youth, elderly and disabled users, and members of

zero-vehicle households. This includes identifying and addressing structural and operational barriers to mobility (topic: mobility).

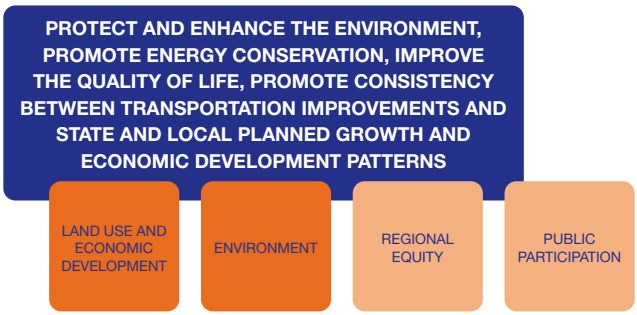
- Assess regional equity by analyzing mobility, accessibility, and congestion for communities with a high proportion of low-income and minority residents (topic: regional equity).

Related MPO policies are:

- Make investments that maximize the efficiency, effectiveness, reliability, and flexibility of the existing transportation system (topic: system preservation, modernization, and efficiency).
- Make transportation investments where existing or planned development will encourage public transportation use, walking, and bicycling (topic: land use and economic development).
- Support, through planning and programming, transportation improvements that provide transportation links for economic activities such as freight movement (topic: land use and economic development).

FIGURE 4-6

Relationship between the Environment Planning Factor and the MPO's Policy Topics



SAFETEA-LU Planning Factor: Protect and enhance the environment, promote energy conservation, improve the quality of life, and promote consistency between transportation improvements and State and local planned growth and economic development patterns.

Directly-related MPO policies are:

- Give priority to projects that maintain and improve public transportation facilities and services so as to increase public transportation mode share and reduce reliance on automobiles (topic: environment).
- Give priority to projects that reduce congestion or manage transportation demand to improve air quality (topic: environment).
- Support, through planning and programming, projects that make transportation in the region more sustainable (topic: environment).
- Promote the use of low-polluting or alternative fuels, efficient engine technology, and other new, viable technologies that protect resources (topic: environment).
- Consider environmental issues during project selection; in particular, air quality and the reduction of pollutants (CO, NOx, VOCs, particulates, and CO_2), the protection of water resources (soil and water contamination, stormwater management, and wetlands impacts), greenfields and open space, and wildlife and ecosystem preservation; and value those projects that reduce negative impacts (topic: environment).
- Recognize value in transportation projects that preserve natural and cultural resources, including visual, historic, aesthetic, noise, community cohesiveness, and local quality of life values (topic: environment).
- Recognize, in evaluations, projects that respect community character in their purpose and design (topic: environment).
- Consult with environmental and cultural resource agencies and entities on environmental effects, particularly through the existing NEPA/MEPA processes (topic: environment).
- Encourage, through planning and programming, transportation choices that promote a healthy lifestyle such as walking and bicycling (topic: environment).

- Give priority to projects in areas identified in local and regional plans as being suitable for concentrated development and/or redevelopment, including brownfield redevelopment; support initiatives that increase sustainability (topic: land use and economic development).
- Consider both existing development and densities in transportation decision-making and give priority to projects that support them (topic: land use and economic development).
- Put priority on transportation investments related to existing centers of economic activity; or to areas with adequate water and sewer infrastructure; or to municipal centers or areas targeted for economic development (topic: land use and economic development).

Related MPO policies are:

- Make transportation investments where existing or planned development will encourage public transportation use, walking, and bicycling (topic: land use and economic development).
- Solicit the input of environmental, cultural resource, community, business, economic development, and other appropriate agencies on MPO activities, to promote the integration of these interests with transportation planning and programming (topic: public participation).
- Assess regional equity by analyzing mobility, accessibility, and congestion for communities with a high proportion of low-income and minority residents (topic: regional equity).

FIGURE 4-7

Relationship between the Integration and Connectivity Planning Factor and the MPO's Mobility Policy Topic

SAFETEA-LU Planning Factor: Enhance the integration and connectivity of the transportation system, across and between modes, for people and freight.

Directly-related MPO policies are:

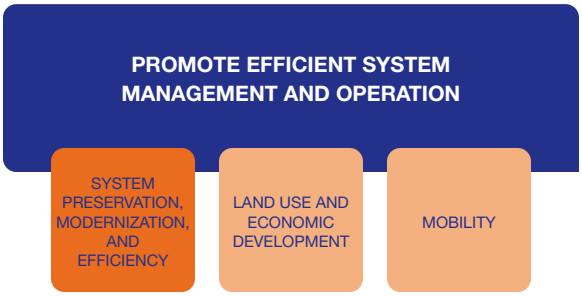
- Consider how an improvement to a single mode can make the entire system work better (topic: mobility).
- Develop a multi-modal and comprehensive plan for freight movement that includes an evaluation of freight infrastructure needs and access to intermodal facilities (air, road, rail, and water) (topic: mobility).

A related MPO policy is:

- Put a priority on projects and programs that increase the availability of transportation options for people and freight by improving connections, access to and within the system, services, and infrastructure to meet needs (topic: mobility).

FIGURE 4-8

Relationship between the Management and Operation Planning Factor and the MPO's Policy Topics



SAFETEA-LU Planning Factor: Promote efficient system management and operation.

Directly-related MPO policies are:

- Make investments that maximize the efficiency, effectiveness, reliability, and flexibility of the existing transportation system (topic: system preservation, modernization, and efficiency).

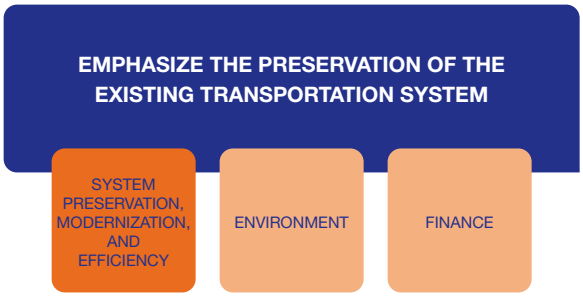
- Encourage and support, through planning and programming, projects and programs that improve the operation of the existing transportation system through the use of Intelligent Transportation Systems (ITS), new technologies, and transportation systems management (topic: system preservation, modernization, and efficiency).

Related MPO policies are:

- Support projects and programs that improve public transportation service by making it faster, more reliable, and more affordable (topic: mobility).
- Consider how an improvement to a single mode can make the entire system work better (topic: mobility).

FIGURE 4-9

RELATIONSHIP BETWEEN THE PRESERVATION PLANNING FACTOR AND THE MPO'S POLICY TOPICS



SAFETEA-LU Planning Factor: Emphasize the preservation of the existing transportation system.

Directly-related MPO policies are:

- Put priority on projects that maintain, repair, and modernize existing infrastructure (topic: system preservation, modernization, and efficiency).
- Set funding goals for maintaining the system (topic: system preservation, modernization, and efficiency).
- Make investments that maximize the efficiency, effectiveness, reliability, and flexibility of the existing transportation system (topic: system preservation, modernization, and efficiency).

Related MPO policies are:

- Encourage and support, through planning and programming, projects and programs that improve the operation of the existing transportation system through the use of Intelligent Transportation Systems (ITS), new technologies, and transportation system management (topic: system preservation, modernization, and efficiency).
- Support, through planning and programming, projects that make transportation in the region more sustainable (topic: environment).
- Consider the appropriate use and maintenance of transportation rights-of-way to maximize public benefits (topic: land use and economic development).
- Consider the cost of maintenance and operations when selecting projects (topic: finance).

THE USE OF POLICIES IN THE SELECTION OF PROJECTS

The MPO used the policies described at the beginning of this chapter in the project selection process of the JOURNEY TO 2030 Plan. Each project included in the Universe of Projects with a defined description was rated according to its perceived consistency with the following six of the eight policies:

- System preservation, modernization, and efficiency
- Mobility
- Environment
- Safety and security
- Regional equity
- Land use and economic development

The evaluation assigned ratings to each project for each of the six policies. An explanation of the rating system and a matrix summarizing the evaluation of projects was discussed in Chapter 3 (Plan Development), with additional information included in Appendix C.

5

SYSTEM PRESERVATION, MODERNIZATION, AND EFFICIENCY

The Boston Region MPO's Vision for System Preservation, Modernization, and Efficiency

Preserving the existing transportation network and replacing systems once their life span has been realized are tasks critical to the promotion and effective management of regional mobility. The vision of the Boston Region MPO is to maintain and manage existing transportation facilities so that they function at their highest possible level of safety, service, and efficiency. In this manner, people using elements of the system will experience the highest possible service level. Application of transportation systems management and intelligent transportation systems (ITS) technologies will be the main tool used to provide information, reduce congestion, and expedite transit service, thereby providing for system reliability, safety, and efficiency. Upgrading to keep in step with evolving standards will help meet the region's changing needs.

To implement this vision, the MPO has developed a set of policy statements to guide its decision-making:

- Put priority on projects that maintain, repair, and modernize existing infrastructure.
- Set funding goals for maintaining the system.
- Make investments that maximize the efficiency, effectiveness, reliability, and flexibility of the existing transportation system.
- Encourage and support, through planning and programming, projects and programs that improve the operation of the existing transportation system through the use of ITS, new technologies, and transportation systems management.

Introduction

Due to its size, use, and age, the Boston regional transportation network must be constantly maintained and modernized to handle the millions of trips that are made every day. An extensive transportation network ties the region together. Private vehicles, freight, and transit share much of the over 23,000 lane-miles and 1,447 bridges in the region. With over 2,500 vehicles, 275 stations, 885 miles of track, over 46,000 parking spaces, 20 miles of tunnels, and 19 maintenance shops, the MBTA's infrastructure is extensive and has major capital needs. Thousands of miles of sidewalks, bike lanes, and multi-use paths connect people's homes with transit, work, and shopping, as well as providing recreation opportunities for the region's residents.

Boston has the oldest subway system in North America, with the first underground streetcar service dating back to 1897. Original sections of this subway still exist along the Green Line under Boston Common. The first station along what is now the Blue Line opened in 1906, the first stations along the Orange Line in 1908, and the first stations along the Red Line in 1912. In 1973, the MBTA bought various commuter rail lines from private owners. The MBTA's commuter rail system now runs from as far away as Worcester and Providence, Rhode Island, into Boston.

The long-term plan must succeed at preserving, modernizing, and improving the operational efficiency of the transportation system. In almost all cases, the most effective use of limited transportation resources is to preserve and modernize existing facilities by maintaining a state of good repair, relieving choke points, addressing high-incident crash locations, and improving mobility. To continue to meet the challenge of keeping the transportation network in good condition, significant state resources must be directed toward system preservation. These resources will be used to reduce the number of structurally deficient and weight-restricted bridges, invest in newer and cleaner transit vehicles, and ensure that all modes are safe, secure, and meet customer expectations.

Programs That Emphasize the Preservation, Modernization, and Efficiency of the Existing Transportation System

More efficient spending can be achieved through optimizing performance and maintaining the current transportation system investments. The programs described below have been identified under two categories—physical maintenance and management programs (programs to maintain the physical infrastructure) and operational efficiency management programs (programs designed to preserve capacity and improve mobility and safety throughout the region).

Physical Maintenance and Management Programs

Preservation of the Existing Transportation System

The Boston Region MPO emphasizes reinvesting in the region's transportation infrastructure for

both highway and transit spending to ensure that current infrastructure is maintained and enhanced to best serve the public. This approach focuses on projects that preserve and rehabilitate transportation facilities. It ensures that assets are well managed, maintained, and operated to preserve their useful life, thereby reducing the need for more costly, capital-intensive replacements or solutions. The approach emphasizes keeping existing transportation assets in good condition. Allocating resources for existing infrastructure, can also enhance older communities with improved road, bridge, and public transit facilities, rather than encouraging new growth in open and undeveloped areas.

Various initiatives have been implemented to support these efforts. Some of these initiatives are described in the remainder of this chapter.

This approach does not preclude expansion projects. Some projects involving strategic capacity expansions can help address longstanding problems of safety and mobility, foster economic development and job creation, and improve air quality. Some of the projects in this Plan are included in an effort to advance these goals.

Roadway Maintenance

Chapter 90 Program

The Chapter 90 program (named for Chapter 90 of the Massachusetts General Laws), which is administered by MassHighway, contributes to the Commonwealth's strategy of preserving existing transportation facilities. This program supports the construction and maintenance of roadways classified as local; that work is performed by the cities and towns of the Commonwealth. The Chapter 90 program is funded by bond revenue.

Chapter 90 defines a specific formula for the apportionment of funds to municipalities. Under this formula, funds are distributed based on standardized measures of local roadway infrastructure and usage. The formula comprises three variables: local road mileage as certified by MassHighway, employment figures from the Department of Employment and Training, and population estimates from the U.S. Census Bureau.

Typically, the majority of Chapter 90 allocations (60 percent) are used for road resurfacing, with another 32 percent for reconstruction. The remaining funding goes toward engineering and equipment. These funds are reimbursed to communities based on certified expenditure reports submitted to MassHighway. This program helps communities maintain and preserve locally-owned roadways.

Interstate Highway Maintenance

MassHighway oversees the interstate maintenance program and ensures that the system of interstate highways within the region is maintained to an acceptable standard. Work under this category includes reconstruction, resurfacing, signing, striping, and other routine or periodic maintenance.

Pavement Management

Pavement management systems play a key role in the rehabilitation and maintenance of our highways. A pavement management system (PMS) stores, analyzes, and summarizes pavement

information for use in selecting and implementing pavement construction, rehabilitation, and maintenance programs. The system assists in the decision-making process required to maximize the funds employed for pavement preservation.

MassHighway uses PMS to constantly monitor the roadway network's roughness and deterioration using a variety of methods and measuring devices. Within the MPO region, they monitor all National Highway System (NHS) roadways and connector roads, which include all interstate roadways and some other major state roadways. They also monitor principal arterial roadways and non-NHS numbered state routes. The total amount of roadway monitored is approximately 1,300 miles. Based upon the results of this monitoring, MassHighway evaluates and prioritizes corrective actions for the improvement and maintenance of the roadways under its jurisdiction. Pavement maintenance may be accomplished through surface patching, roadway resurfacing, or full-depth reconstruction. The MPO encourages all municipalities in the region to use a PMS for their local roadways.

Bridge Maintenance and Rehabilitation

Over the next 23 years, the MPO will need to continue to fund the maintenance and rehabilitation of the region's bridges, which includes replacing bridge decks and reconstructing bridges. With the goal of optimizing allocation of limited resources, MassHighway and the MBTA implemented PONTIS, a bridge management software tool for recording, organizing, and analyzing bridge inventory and inspection data. PONTIS is used by departments of transportation in over 45 states and by numerous national and international agencies. PONTIS is used to guide the statewide bridge program, which dedicates significant resources to preservation, not just repair and replacement. PONTIS also assists in clearly articulating roles and responsibilities and coordinating between the various stakeholders in the process. PONTIS contains information on the year built/rebuilt, the inspection frequency for each bridge, and detailed structural information such as the bridge description, dimensions, and the conditions of the deck, superstructure, and substructural elements. The database also contains the inventory and operating values of each bridge, which indicate the load-carrying capacity of the structure.

Highway Bridges

A systematic approach to evaluating bridge conditions is critical to meeting the goal of infrastructure preservation. In Massachusetts (and many other states as well), bridge conditions are determined through a nationally adopted rating system. Using this system, bridges are typically inspected on a two-year cycle, although a particular bridge may be inspected as often as every six months, depending upon the identified concerns.

Since a majority of bridges in the region meet national standards for structural adequacy, safety, and public use, most preservation efforts are focused on bridges that are structurally deficient and weight-restricted. Currently, 12 percent of

the bridges in the Boston region (or 169 bridges) are within this classification. Structurally deficient bridges have experienced deterioration significant enough to potentially reduce their load-carrying capacities, although structurally deficient bridges are not necessarily weight-restricted or unsafe. Weight-restricted bridges can impede the flow of commercial trucks and public safety vehicles (such as fire engines) and school buses. When these bridges were built decades ago, they were not designed to support the increased weight of today's commercial vehicles. MassHighway rates the capacity of the bridges to safely carry the posted loads.

One important asset management initiative is the municipal bridge maintenance agreements between MassHighway and many local communities. Under these agreements, MassHighway reconstructs bridges under local jurisdiction. In return for bridge reconstruction, municipalities agree to the maintenance and repair of minor deficiencies of the new bridge. The preservation agreements specify the types of maintenance required and provide for routine inspections by MassHighway. Together with the bridge evaluation criteria, these preservation agreements are an important part of a unified system for prioritizing and addressing the needs of all bridges, regardless of ownership.

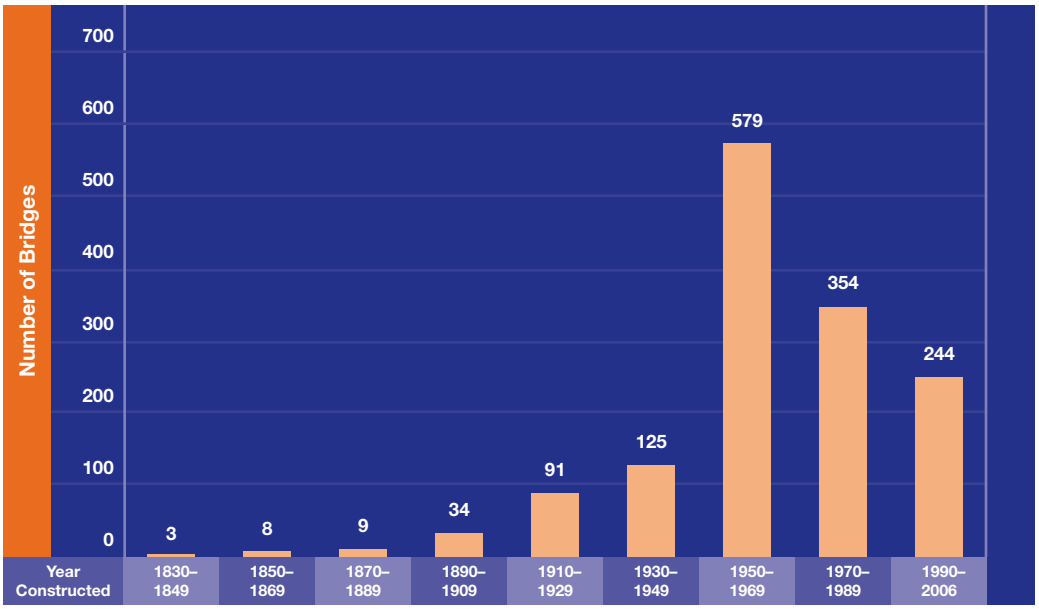
Another issue that has been acknowledged recently is the deteriorating condition of the bridges and roadways owned by the Department of Conservation and Recreation (DCR) in the Boston Region MPO area. The MPO recognizes this concern and believes that a resolution and sufficient additional funding must come from beyond the MPO, at the statewide level.

The age of the Commonwealth's bridges is a significant factor in preservation efforts (Figure 5-1), and a major reason for the region to place new emphasis on bridge preservation. Bridges have an average lifespan of approximately 50 years before significant rehabilitation work is needed. Many bridges will reach this milestone within the next decade; therefore, committing resources to bridge rehabilitation projects is a key priority during that time. As the bridge population ages, an increased focus on bridge rehabilitation and preservation will be needed.

In order to achieve a balanced statewide road and bridge program, MassHighway uses an

FIGURE 5-1

Number of Bridges in the Boston Region MPO Area by Year of Construction



asset management approach that emphasizes careful planning and preventive maintenance in the region. Additionally, MassHighway is committed to achieving and maintaining an adequate level of construction personnel. This includes engineering, inspection, and all other professions entrusted with the supervision, management, quality control, and overall safety of highway construction projects in the region.

Transit Bridges

The MBTA owns and maintains 473 bridges systemwide, comprising 285 railroad, 58 transit, 86 highway, and 44 pedestrian bridges. The MBTA also owns several bridges used for freight services. Railroad and transit bridges typically have a useful life span of 70 years, in comparison to highway bridges, which have a useful life span of 50 years.

Many of the MBTA-maintained bridges throughout eastern Massachusetts are close to reaching, or have already attained, their life expectancies. While many of these bridges are in good structural condition, others are anticipated to need repairs. Using structural integrity and deck ratings established under its bridge management program, the MBTA prioritizes bridge needs based not only on the useful life spans, but also on a variety of other factors, including safety implications, service impacts, and the potential to disrupt service.

In an effort to upgrade and maintain their bridges, the MBTA has customized the PONTIS program. The PONTIS program enables the MBTA to maintain an up-to-date database of all the MBTA-owned bridges and is used to evaluate the condition of each bridge based on the results of inspection and live load rating analysis. The results of the analyses are then used to establish a priority list for the rehabilitation or reconstruction of the bridges.

The bridge inspection program is tailored to ensure that all the bridges receive adequate attention. The frequency and type of inspection for each bridge depends on the structural condition of the bridge.

Both railroad and transit bridges have the same maintenance schedule. Renewal of bridge deck replacement occurs after 50 years of use. Bridge deck waterproofing is replaced after 40 years, and steel is repainted after 30 years. Highway bridges, however, have a different maintenance schedule. Bridge deck replacement occurs after 30 years of use and steel is repainted every 15 years.

Freight

In the Boston region, approximately 56 out of 350 bridges lack sufficient clearances over railroad rights-of-way to allow for double-stack trains. It is the state's policy to provide sufficient vertical clearance to permit double-stack freight movement when a bridge over a rail line is scheduled for rehabilitation. Also, weight-restricted bridges can require detours for commercial vehicles and direct them through residential neighborhoods or circuitously through remote areas. MassHighway also rates bridges to determine their safe load-carrying capacity using the weights of three standard trucks: a two-axle single unit, a three-axle single unit, and a five-axle

tractor-trailer. If the safe load-carrying capacity of a bridge falls below the statutory weight of any of these three trucks, then the bridge is posted for the rated load.

Transit System

State of Good Repair

A priority of the MBTA is the pursuit of a "State of Good Repair" for its systems. To measure the need for capital expenditures devoted to maintaining and replacing existing infrastructure, transit systems often use the State of Good Repair (SGR) standard, whereby all capital assets are functioning at their ideal capacity within their design life. While few transit systems are likely to achieve this ideal, the standard does identify a level of ongoing capital needs that must be addressed over the long term for the existing infrastructure to continue to provide reliable service. Based on an inventory of all existing MBTA capital assets, an SGR database allows the MBTA to track the capital investment needs for the MBTA's existing infrastructure, and to develop a capital investment program to maintain the system in a state of good repair. The State of Good Repair is a criterion that measures the degree to which a proposed project improves the condition of the MBTA's existing infrastructure.

Accessibility

In response to the Americans with Disabilities Act (ADA) of 1990, the MBTA developed an approved Key Station Plan as an initial step in making one of America's oldest public transit systems accessible to all. Title II of the ADA, which covers public services, prohibits public transportation systems from discriminating against persons with disabilities. The U.S. Department of Transportation has established specific requirements for developing systemwide program accessibility, including the need to work with the community of people who have disabilities to determine which stations should be designated as key stations.

Since 1990, the MBTA has been working toward achieving station accessibility. The MBTA has made 73 of its 80 key stations accessible, allocated the construction funds for the remaining 7, and has begun making dozens of non-key stations accessible as part of station modernization projects. In addition, in 2006 the MBTA entered an agreement with the Boston Center for Independent Living. The agreement called for increased funding for elevator improvements, accelerated purchases of low-floor buses and buses with lifts, management and training initiatives, and new public address systems.

The MBTA has programmed 4.1 percent of the total Capital Investment Program for accessibility. In addition to the improvements listed above, the majority of accessibility funding is devoted to the Light-Rail Accessibility Program for the Green Line to modernize stations, install elevators, and raise platforms, as well as the renovations and accessibility improvement project at the Charles/MGH Red Line station.

Vehicles

The revenue vehicle fleet is one of the most visible and important components of the MBTA

service network. These are the trains, buses, and other vehicles that passengers board every day. The MBTA's revenue fleet is composed of approximately 2,500 vehicles. The MBTA adheres to a general standard life cycle of 35 years for rapid-transit and light-rail vehicles, 25 years for commuter rail locomotives, and 25 to 30 years for commuter rail coaches. They recently adopted the policy that the average age of buses going forward will not exceed seven years. Scheduled major overhauls, maintenance, and planned retirements help these fleets reach their useful life, and prevent the unwarranted consumption of resources to maintain their reliability.

The revenue vehicle program represents 29 percent of the MBTA's total 2007–2012 Capital Investment Program, the largest share of any programmatic area, and is composed primarily of reinvestment in the subway system and the bus fleet. In keeping with the MBTA's commitment to upgrade its bus service, ongoing projects are bringing 360 new compressed-natural-gas (CNG) buses, 28 new electric trolley buses (also called trackless trolleys), 348 new emission-control-diesel buses, and 32 dual-mode buses to the MBTA system in the next few years. These fleets will permit the retirement of hundreds of aging diesel buses purchased in the 1980s. Other efforts in this program include major component replacements on the Green, Orange, and Red Lines. The MBTA has purchased of 85 new cars for the Green Line and is taking delivery of 94 new cars for the Blue Line. They are planning for the procurement of Orange Line vehicles in the next decade. This will modernize and expand those subway fleets. Activity within the commuter rail vehicle program includes major midlife overhauls for large portions of the locomotive and coach fleets. It is anticipated that the commuter rail fleet needs will represent a more significant portion of the Capital Investment Program in the future.

To respond to emergencies, perform maintenance work, keep the system safe for passengers, and engage in major construction work, the MBTA operates a large fleet of vehicles and work equipment that is not used to transport passengers. Non-revenue vehicles and equipment support the entire range of MBTA operations. In total, the MBTA owns and operates a fleet of 949 non-revenue vehicles.

Stations

MBTA stations are also one of the most visible components of the transit system. There are 266 rapid-transit, light-rail, commuter rail, and Silver Line stations in the MBTA transit system. There are also over 9000 bus transfer stations and bus stops. Stations are composed of the basic structure, roofs, platforms, lights, shelters, elevators and escalators. The majority of the funding for stations is devoted to the renovation of subway stations and systemwide replacement of escalators and elevators. The total investment in stations represents 11 percent of the 2007–2012 Capital Investment Program.

Extensive station renovation and modernization work is being completed on Red Line stations serving communities in Dorchester and Mattapan and on Blue Line stations serving East Boston

TABLE 5-1

MBTA Subway Track

NAME	LENGTH (MILES)	POWER
RED LINE	45	THIRD RAIL
GREEN LINE (LIGHT RAIL)	46	OVERHEAD CATENARY
ORANGE LINE	42	THIRD RAIL
BLUE LINE	12	THIRD RAIL/ OVERHEAD CATENARY
TOTAL	125	

and downtown to allow for six-car trains. Station improvement projects driven by accessibility concerns and the Key Station Plan, which may include other modernization work in addition to accessibility, are described in the Accessibility section of this chapter. Work also includes new stations on the Silver Line, Greenbush commuter rail line construction, and improvements to North Station and several other stations.

Track and Signals

The MBTA subway system operates on 185 miles of track with a wide variety of construction types, rail ties, and overhead catenary systems. The track network includes 125 miles of revenue track, and an additional 60 miles of non-revenue track within rail yards and other service areas. The right-of-way for heavy-rail subway track often includes a highly electrified third, rail running along the tracks, through which subway cars receive traction power to move.

Subway grade crossings have a useful life ranging from 12 to 15 years. There are 64 grade crossings along the Green Line, since portions of the Green Line are at street level and cross automobile traffic. There are additional grade crossings within MBTA Green Line maintenance facilities.

The commuter rail system operates on a vast network of 638 miles of track, 1.5 million timber ties, and 257 grade crossings, stretching across eastern Massachusetts. Rail on the commuter rail system can be expected to last approximately 40 years. Railroad crossties usually have a life span of 25 to 30, years depending on a variety of mechanical and environmental factors. Grade crossings have a life expectancy of 12 years.

The primary responsibility of the MBTA signal system is to control trains for efficient spacing and runtimes, making it an integral part of the transit system. The signal system's goal is maintaining train separation while attempting to minimize headways and runtimes. The signal system requires ongoing maintenance.

TABLE 5-2

MBTA Commuter Rail Track

NAME	LENGTH (MILES)
FITCHBURG LINE	90
LOWELL LINE	91
HAVERHILL LINE	55
NEWBURYPORT/ROCKPORT LINE	52
WORCESTER LINE	89
NEEDHAM LINE	13
FRANKLIN LINE	34
ATTLEBORO/STOUGHTON LINE	116
FAIRMOUNT LINE	19
MIDDLEBOROUGH/LAKEVILLE LINE	37
PLYMOUTH/KINGSTON LINE	42
TOTAL	638

Communications

The MBTA Communications Department's responsibilities include maintaining an inventory of equipment and overseeing contract services for the wide-area network, two-way radio systems, microwave links, emergency intercoms, public address systems, light-emitting-diode (LED) message signs, fire alarm systems, security systems, and the supervisory control and data acquisition system. The department manages the MBTA's Operations Control Center (OCC), which consists of technology that allows for real-time monitoring and supervisory control of the signal and communication systems for the rapid transit and bus systems.

Maintenance Facilities (Yards and Shops)

Maintenance facilities, or yards and shops, are the sites for regularly scheduled maintenance and emergency repairs on MBTA vehicles. The MBTA operates 4 rapid-transit yards and shops, 4 light-rail and 3 commuter rail maintenance facilities; and 9 bus maintenance facilities, including one bus repair shop. There are also 17 smaller general maintenance facilities throughout the system. A new facility was constructed to maintain Silver Line vehicles and CNG buses. Each facility generally includes a basic building structure with a mechanical plant and shop equipment. The expected life cycle of each of these facilities is 50 years.

The arrival of large fleets of vehicles equipped with new technologies will place additional demands on the personnel and facilities that maintain, repair, refuel, and service the vehicles. Additional fueling and engine equipment designed for CNG buses, along with maintenance and support equipment for additional 60-foot articulated buses, will be needed. Low-floor technologies on the new Green Line subway cars and incoming bus fleets will also have special maintenance needs.

Supporting Infrastructure

Supporting infrastructure includes facilities; tunnels, walls and culverts; and power. Facilities include administrative buildings, ferry terminals, vent buildings, storage buildings, noise walls, retaining walls, parking garages, parking lots, and bus shelters. Most facilities have a useful life of 50 years. Fencing, which prevents trespassers from gaining access to tracks and fast-moving trains, is also included in this category. Fencing has a considerable impact on maintenance costs, particularly on the commuter rail system.

Tunnels, walls, and culverts are located throughout the system. Tunnels are mainly on the core subway system and in several locations in the commuter rail network. The rapid-transit system operates within 14 miles of tunnels. The light-rail system operates within 5 miles of tunnels; the Transitway tunnel is approximately 1.1 miles long. Tunnels generally have a useful life of 100 years, but require periodic maintenance of interior surfaces. The MBTA also maintains an extensive network of culverts along the commuter rail and subway systems, and many retaining walls (all of which have a useful life of 50 years).

While power for the MBTA's network is supplied by an outside utility, the MBTA transforms and distributes electricity over its own system to power the entire network of subway, trackless trolley, and light-rail lines. The capital equipment

in this power program is essential to operations: it supplies electricity to subway trains and trolleys for the traction power they need to move; to the signal systems for the power needed to control the trains; and to stations for their operations.

Bicycle and Pedestrian Program

Pedestrian and bicycle facilities need to be preserved and enhanced to enable safe travel for the region's pedestrians and bicyclists. Almost everyone is a pedestrian at some point in the day; across the entire MBTA system, 84 percent of riders bicycle or walk to stations. The MPO will continue to fund trails, pedestrian amenities, and other bicycle and pedestrian projects. Improvements for bicyclists and pedestrians are a routine aspect of roadway reconstruction projects and are usually funded under roadway maintenance.

Transportation Enhancement Projects

There is a growing recognition that transportation programs must expand beyond their traditional definitions to foster a more sensitive relationship to the environments in which they are located. Transportation enhancement projects are designed to add community, environmental, scenic, or historic value to the transportation system.

As established by Federal legislation, there are twelve eligibility categories for transportation enhancement project funding. These include:

- Bicycle and pedestrian facilities
- Pedestrian and bicyclist safety education and activities
- Acquisition of scenic easements and scenic or historic sites
- Implementation of scenic or historic highway programs, including the provision of tourist and welcome-center facilities
- Landscaping and other scenic beautification
- Historic preservation
- Rehabilitation and operation of historic transportation buildings, structures, or facilities
- Preservation of abandoned railway corridors
- Control and removal of outdoor advertising
- Archeological documentation and research
- Environmental mitigation to address water pollution that is caused by highway runoff or to reduce vehicle-caused wildlife mortality
- Establishment of transportation museums

The MPO will continue to fund various types of transportation enhancement activities, including, but not limited to, bicycle and pedestrian projects, acquiring scenic easements, preserving historic transportation infrastructure, and providing landscaping, streetscaping, and other beautification projects.

Scenic Byways

The goals of scenic byway projects are to recognize, protect, and enhance the unique historic, scenic, cultural, and recreational resources along a designated byway. Two locations in the Boston

Region MPO area have been designated as scenic byways. They are Battle Road, which begins in Arlington and travels west to Concord, and the Essex Coastal Scenic Byway, which begins in Lynn and travels north to Gloucester. The next step after designation of a byway is the preparation of a corridor management plan (CMP) for the each of the locations. Each plan will provide comprehensive inventories and assessments of transportation infrastructure, identify concerns, determine needed improvements, and preserve the areas' intrinsic qualities.

The Battle Road Scenic Byway CMP will be carried out by a partnership with the Metropolitan Area Planning Council and the Working Group, which consists of the Minute Man National Historic Park and representatives from each community along the Routes 2A, 4, 225, and 3 byway corridor. The Essex Coastal Scenic Byway CMP will be prepared by the Essex National Heritage Commission with assistance from the Metropolitan Area Planning Council, several public agencies, and each community along the Routes 1A, 114, 127, and 129 byway corridor. The designated routes of each byway are both culturally and economically important transportation corridors in the Boston Region. Funding assistance may be available through the National Scenic Byway Program for subsequent scenic byway projects.

Operational Efficiency Management Programs

Intelligent Transportation Systems

The region's existing transportation system depends upon technological innovations such as intelligent transportation systems (ITS). ITS comprises advanced transportation applications that use computers, electronics, communications, and safety systems to improve the operation and efficiency of the transportation system. The goals of ITS are to improve interagency coordination; provide long-term cost savings; increase operational efficiency, capacity, and safety; reduce

environmental costs; and enhance personal mobility. Travel demand management and the use of ITS—including emergency response systems—play a significant role in maintaining the efficiency and safety of our roadway system, while helping to increase vehicle and person throughput.

According to the U.S. Department of Transportation, national benefits of ITS include:

- Advanced traffic surveillance and signal control systems have decreased travel times by 8 percent to 25 percent.
- Highway management systems have reduced crashes by 24 percent to 50 percent.
- Electronic fare-payment technologies for transit systems have resulted in revenue increases of 3 percent to 30 percent, due to fewer evasions.
- In some locales, incident-management programs have reduced delays associated with incident-related congestion by 10 percent to 45 percent.

- Electronic toll collection can increase throughput by 200 percent to 300 percent compared to attended lanes (those with toll collectors).

One of the most important uses of ITS in the region is to assist in detecting and responding to traffic incidents. MassHighway's incident-management program originates at the Traffic Operations Center (TOC) in South Boston. As part of the management of the highway system, incident calls are dispatched from the TOC to MassHighway's regional offices to mobilize field staff. Multiple tools are available to TOC operators, including variable-message signs across the region that can be activated with MassTERS software, which also generates lists of appropriate response plans. In addition to variable-message signs, TOC operators can take advantage of other ITS technologies deployed across the region, including cameras, loop detectors, and Remote Traffic Microwave Sensor (RTMS) radar units. Camera, RTMS, and loop-detector data are used to identify and verify incidents, monitor the responses, and to establish clearance of each incident.

Other agencies are integrating ITS into their operations in a variety of ways. The MBTA's Operations Control Center (OCC) was upgraded in the late 1990s to provide improved monitoring and location information for the rapid transit system. This control center allows operators to have real-time information on service and incidents and to plan service changes accordingly. The MBTA has also instituted an automated fare collection (AFC) system and has constructed a state-of-the-art bus control center. Massport has instituted an automated vehicle-identification system to improve revenue control at its parking facilities; has installed closed-circuit television to improve security, assist with incident detection, and provide enhanced curbside management; and has installed variable-message signs to improve landside traffic information.

The Massachusetts Turnpike Authority's Central Artery/Tunnel project's Operations Control Center (OCC) in South Boston contains an advanced electronic traffic-monitoring and incident-response system. Using a wide array of ITS devices, the OCC monitors traffic in the I-93/I-90 (the Massachusetts Turnpike) system of tunnels, ramps, and surface highways in downtown Boston, as well as in the Sumner, Callahan, Prudential, and City Square tunnels and on I-90 from Route 128 to its easternmost end. This fail-safe "Smart Highways" computer system uses more than 45,000 data-collection points to manage traffic and incidents, fire detection and response, security, ventilation, lighting, and air quality. The OCC collects data on traffic speed, volume, and congestion, and distributes information to motorists through electronic message boards, lane control signals, Highway Advisory Radio, and - if necessary - an override of AM and FM radio broadcasts. The Massachusetts Turnpike Authority has also instituted FAST LANE, its electronic toll-collection system.

The Boston Transportation Department also operates a control center, the Traffic Management Center (TMC), located in City Hall. The TMC monitors city traffic through the use of video cameras and embedded loop detectors and can adjust signals (in real time) that are owned by the City of Boston, as well as some detectors owned by Massport, the Department of Conservation and Recreation, and MassPike, to alleviate problems. It also allows for the real-time monitoring of traffic and incident management, and the integrated coordination of emergency-response providers across jurisdictions. The TMC is also capable of receiving and monitoring images from Central Artery Tunnel cameras through a shared video link with the Massachusetts Turnpike's Operation Control Center. The MPO provides some funding for the operation of Boston's TMC.

ITS has been employed and will continue to be employed by Boston region transportation agencies. The use of ITS in improving mobility, safety, and security throughout the transportation network is discussed in the chapters on those topics.

MBTA Automated Fare Collection System

The MBTA's state-of-the-art fare collection equipment provides a convenient way for customers to pay fares and is an efficient way for the MBTA to collect fares. The MBTA's automated fare collection system (AFC) replaces tokens and turnstiles with modern fare gates and fare media throughout the rapid-transit and bus systems (AFC improvements for the commuter rail and commuter boat systems are due in late 2007). Its use allows even more of a customer-service focus, a more flexible fare policy, greater equipment reliability, better fare compliance, and greater fare equity.

The new AFC fare media include the CharlieCard, a plastic "smart card," and the CharlieTicket, a magnetic ticket, both of which can "store" the value of a pass a single ride, or multiple rides. Customers can add value to CharlieCards and CharlieTickets with cash or a credit card using fare vending machines.

Intersection and Signal Improvements

At-grade intersections are, typically, the locations at which the greatest numbers of conflicts occur. Intersection and signal improvements include intersection channelization projects, signal upgrades, and realignments. It does not include intersections or segments of roadway that add additional roadway capacity. Capacity-adding projects are subject to air quality conformity analysis and have been identified in the recommended projects list in the Plan. Intersection and signal improvements not only preserve the system, but also improve the system's efficiency and contribute to improved mobility. Signal coordination, when the timing of consecutive traffic signals is synchronized, is also a strategy employed for moving platoons of vehicles efficiently along a roadway. The Boston Region MPO will continue to fund intersection and signal improvements in future Transportation Improvement Programs.

Interchange Improvements

An interchange is a grade-separated intersection that has ramps connecting major arterial roadways. Improvements can include constructing elevated slip and flyover ramps; constructing flyover bridges and underpasses; improving drainage systems; upgrading and installing guardrails and barriers; widening, relocating and realigning intersections; upgrading signals; and straightening lanes. Benefits of these projects include improved safety and traffic operations, higher levels of service, better site-distance lines, and reduced delays. The Boston Region MPO will continue to fund interchange improvement projects in future Transportation Improvement Programs.

6

MOBILITY

The Boston MPO's Vision for Improved Mobility within the Transportation System

A coordinated mix of transportation modes and services will give travelers the increased ability to travel to and from desired destinations via convenient, reliable, speedy, affordable, and accessible options. Existing roadway, transit, bicycle, pedestrian, and freight links will be maintained and their serviceability improved. New routes, lines, and connections will serve additional needs. The spectrum of options will serve travelers from different areas of the region with varying needs.

To implement this vision, the MPO has developed a set of policy statements to guide their decision-making:

- Put a priority on projects and programs that increase the availability of transportation options for people and freight by improving connections, access to and within the system, services, and infrastructure to meet needs.
- Support projects and programs that improve public transportation service by making it faster, more reliable, and more affordable.
- Consider how an improvement to a single mode can make the entire system work better.
- Fund projects that expand the existing transportation system's ability to move people and goods in areas identified in the Boston Region Mobility Management System, the MBTA Program for Mass Transportation, the MPO's Regional Equity Program, and MPO and EOT freight studies, and through public comment. This includes encouraging options that manage demand. Adding highway capacity by building general-purpose lanes should be considered only

when no better solution can be found and should be accompanied by proponent commitments, developed in the environmental review process, to implement transportation demand management (TDM) measures.

- Assist agencies and communities in planning and implementing projects that provide bicycle and pedestrian routes, networks, and facilities.
- Support programs that meet public transportation needs in suburban communities, including improving access to existing public transportation and partnering with others to initiate new intra-suburban services linking important destinations.
- Provide better access for all to transportation throughout the region, including for our youth, elderly and disabled users, and members of zero-vehicle households. This includes identifying and addressing structural and operational barriers to mobility.
- Develop a multimodal and comprehensive plan for freight movement that includes an evaluation of freight infrastructure needs and access to intermodal facilities (air, road, rail, and water).

Background

Roadway congestion is getting worse in the Boston region: As of the last monitoring period, 22 percent of the region's limited-access highway network operated at travel speeds of less than 50 miles per hour during the morning peak period, and 17 percent operated at travel speeds of less than 50 miles per hour during the evening peak period. These percentages are about 10 percent higher than those noted during the previous monitoring period, which was five years earlier.

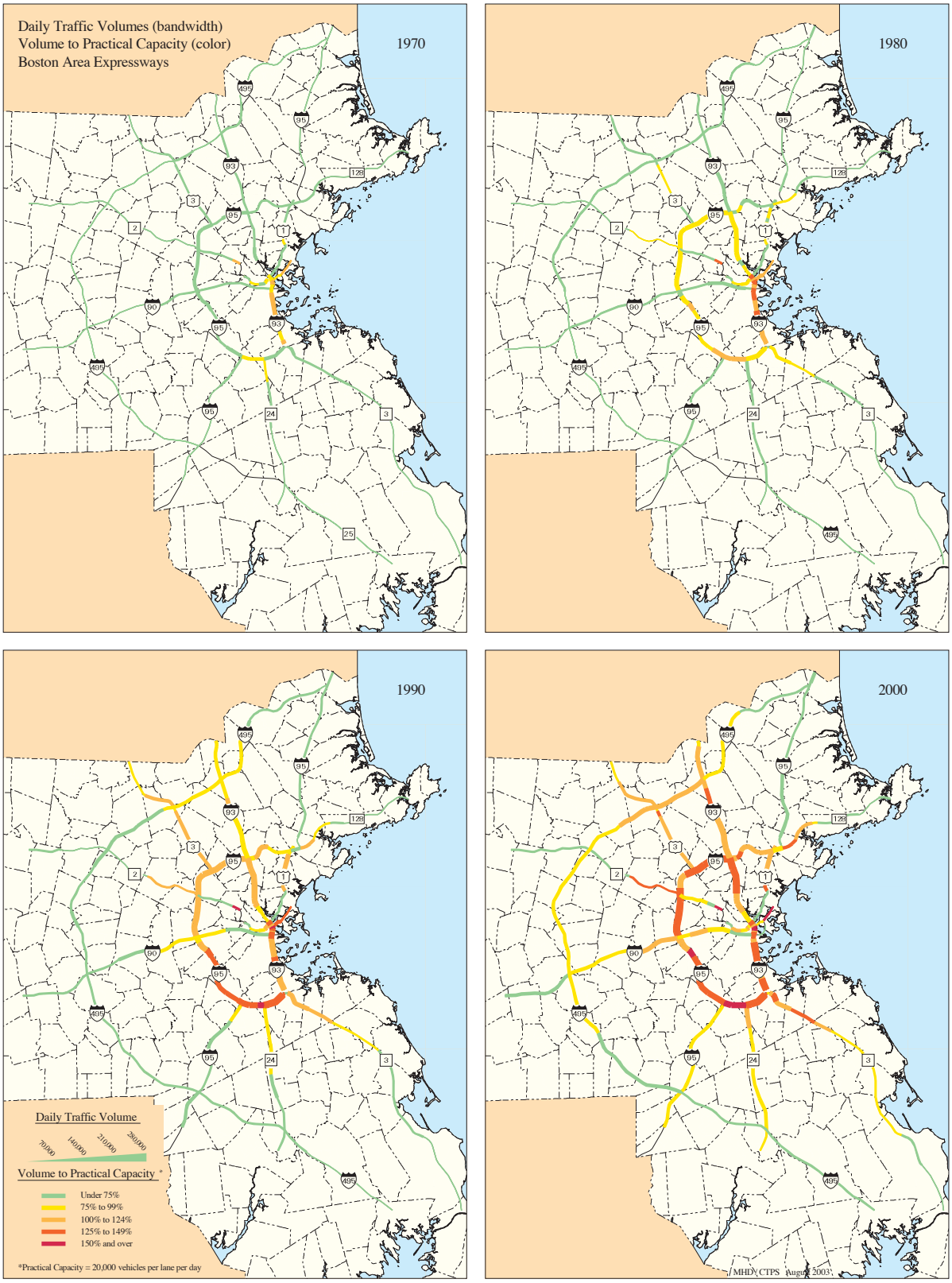
Arterial roadways in the region are also experiencing significant congestion levels. Average peak-period speeds are now below the posted speed limit on about 40 percent of the region's monitored arterial roadway network. In the evening peak period (which is worse than the morning peak period), 15 percent of monitored intersections have two or more approaches with unacceptable levels of service. Since the previous monitoring period, peak-period speeds have decreased and delay has increased.

Figure 6-1 shows volume-to-capacity ratios on Boston area expressways from 1970 to 2000; these ratios illustrate a comparison of the amount of traffic on a highway segment to its available capacity. The maps reflect how congestion levels on limited-access highways have increased since 1970. Radial highways within Route 128, along with Route 128 itself, are currently the most congested in the region. However, portions of the radial highways outside of Route 128 are also becoming congested.

The Boston region is growing rather modestly compared with many other regions in the country. Population in the region is expected to grow to 3.4 million in 2030, a 10.8 percent increase from 2000. Employment is projected to grow to 2 million employees in 2030, a 10.3 percent increase from 2000.

FIGURE 6-1

Daily Traffic Volumes (bandwidth) and Volume-to-Practical-Capacity Ratios (color) on Boston Area Expressways



As population and employment increase in the Boston Region MPO area, the number of automobile trips and trip lengths are also expected to increase. Without adding additional capacity to the existing roadway or transit systems, vehicle-miles traveled (VMT) are projected to increase by 8.9 percent by 2030. Vehicle-hours traveled (VHT) are projected to increase more rapidly, by 10.4 percent, by 2030. These statistics reflect two trends that are expected to continue in the future: travel distances will be longer due, in part, to greater development occurring in the outer areas of the region; and increased congestion will cause most trips to take longer than they now do.

Roadway capacity can also affect the schedule adherence of buses and B and C Green Line trains, which share the roadway with other traffic. In some cases, schedule adherence can cause "bus bunching," which results in passenger crowding. In addition to other service performance categories, the MBTA monitors schedule adherence and passenger crowding on all its services by comparing performance to standards. Some of the MPO programs described later in this chapter aim to specifically address transit capacity on the MBTA.

Finally, adding capacity to the transportation system helps solve the region's congestion problem. However, it is clear that the MPO and its member agencies will need to continue to fund and expand upon programs that make the transportation system operate more efficiently. New technologies will continue to be employed to manage and mitigate congestion, and alternatives to single-occupant vehicles will continue to be supported.

Chapter Outline

The MPO monitors congestion and mobility in the region through its Mobility Management System (MMS), which is described in detail in the next section of this chapter. Information from the MMS was used in evaluating the projects and programs considered for inclusion in the Plan. MMS staff also develop conclusions about congestion and mobility, and recommend programs and strategies for improving mobility in the region.

The MPO and its member agencies have implemented numerous measures that help in relieving congestion or allow for a more efficient use of the roadway and transit network. Some of these measures fall under the broad categories of transportation systems management (TSM) and transportation demand management (TDM). TSM includes strategies for extracting additional capacity out of existing roadway and transit infrastructure by increasing efficiency. One of the main purposes of TDM measures is to reduce the number of single-occupant vehicles as a way to reduce congestion. Existing TSM and TDM programs and strategies are described in the next two sections of this chapter.

The efficient movement of freight into, out of, and within the Boston region is critical to its economy. The existing freight infrastructure is limited in its ability to move the larger volumes of freight that are expected in the future. This chapter includes a section on freight mobility, which outlines the existing capacity constraints in the freight net-

work and offers strategies for increasing capacity and improving the efficiency of freight movement in the region.

Providing access to the transportation system, especially for the elderly, disabled, and low-income populations, is critical to improving mobility throughout the region. The last section of this chapter describes infrastructure, programs, services, and planning efforts to improve mobility for these populations.

Mobility Management System

The Boston Region MPO's Mobility Management System, formerly known as the Congestion Management System (CMS), is an ongoing program for monitoring mobility in the region. It provides decision-makers (primarily the MPO) and transportation planners in the region with timely information about transportation system performance. It allows the MPO to focus improvements in the areas where congestion and other mobility deficiencies are found. This information is also available to members of the public, who may choose to use the MMS information to provide input into the planning and programming of transportation improvements through the MPO's public participation process, as well as to make decisions about their own travel.

The MMS provides reports and recommendations for arterial roadways, limited-access highways, public transit, park-and-ride lots, high-occupancy-vehicle (HOV) lanes, travel demand management (TDM), and bicycle and pedestrian transportation. Information on these aspects of the region's transportation system is posted on the MPO's Web site, which is updated regularly.

MMS data and recommendations feed into the Boston Region MPO's 3C planning process. The MMS recommends planning studies to be undertaken through the MPO's Unified Planning Work Program (UPWP). MMS data are used in the process for rating projects that are evaluated in the development of the Transportation Improvement Program (TIP). The same data are used in rating and selecting the projects and programs considered for inclusion in the Transportation Plan.

Generally stated, congestion and mobility are complex issues that require a multimodal and comprehensive program of strategies and policies to address them. The following conclusions, from the 2004 Congestion Management System report, provide support for the programs and initiatives that the MPO and its member agencies are undertaking to improve mobility in the region.

Congestion and economic growth in the region have been closely related. Employment in the Boston Region MPO area grew by about 53 percent between 1970 and 2000; suburban job growth outpaced that of the urban core during this period (see Chapter 2 for more information on employment in the region). Along with this economic growth came significant congestion growth: between 1982 and 2003, daily vehicle-miles traveled (VMT) grew by 157 percent, and annual person-hours of delay increased nearly fivefold.[1]

[1] David L. Schrank and Timothy J. Lomax, *The 2005 Urban Mobility Report*, Texas Transportation Institute (TTI), the Texas A&M University System, May 2005. Available at http://mobility.tamu.edu/ums.

Travel in the region will most likely continue to grow in the future as the region's economy grows. As new jobs are added to the region's economy, VMT and traffic delay are also expected to grow. As building new capacity is not always possible or desirable, it is important to maximize the capacity of the existing infrastructure. Mitigating the effects of crashes and other roadway events (incident management) and improving the system's operational efficiency for all roadway users, including bus riders, are the two key areas where this strategy reduces congestion.

Public transportation is already a very important contributor to congestion relief in this region, and it can continue to be one in the future. Annual person-hour delay on the roadways of this region is 54 percent lower than what it would be without public transportation.[2] Annual passenger-miles and ridership on public transportation have increased over the last two decades, largely due to the expansion of commuter rail service and park-and-ride lots.

Travel demand management can be part of the integrated solution to reduce congestion and improve mobility. Though the impact on congestion of TDM measures, such as ridesharing, shifting the time of travel, and telecommuting, is limited, these measures can improve mobility for certain travel markets and help reduce VMT as part of the mix of solutions.

Regulatory policies to manage urban growth and form can reduce congestion. Development is occurring more quickly in outlying communities in the region than in the inner core (see Chapter 11 for more information on land use). This development pattern results in more dispersed trips, with fewer commuters traveling into a single central business district. "Smart growth" practices, transit-oriented development, and funding incentives help to reduce VMT and delays by increasing development densities and promoting sustainable development.

Addressing safety can have secondary beneficial effects on congestion. Safety and congestion are interrelated: addressing safety can have beneficial effects on congestion, and, likewise, reducing congestion can reduce the number and severity of crashes. For more information on strategies for improving safety, see Chapter 7.

Transportation Systems Management

In many cases, both highway and transit strategies can be implemented without expanding physical capacity. The MMS recommendations included several operational efficiency strategies for extracting additional capacity out of existing roadway and highway infrastructure. These strategies include intelligent transportation systems, incident management, traffic signal coordination and prioritization, bottleneck removal, and high-

occupancy-vehicle (HOV) lanes. In addition, the MBTA continually evaluates its service plan to improve the efficiency of the transit system. The programs for improving roadway and transit efficiency are discussed below.

[2] Schrank and Lomax, *The 2005 Urban Mobility Report,* May, 2005.

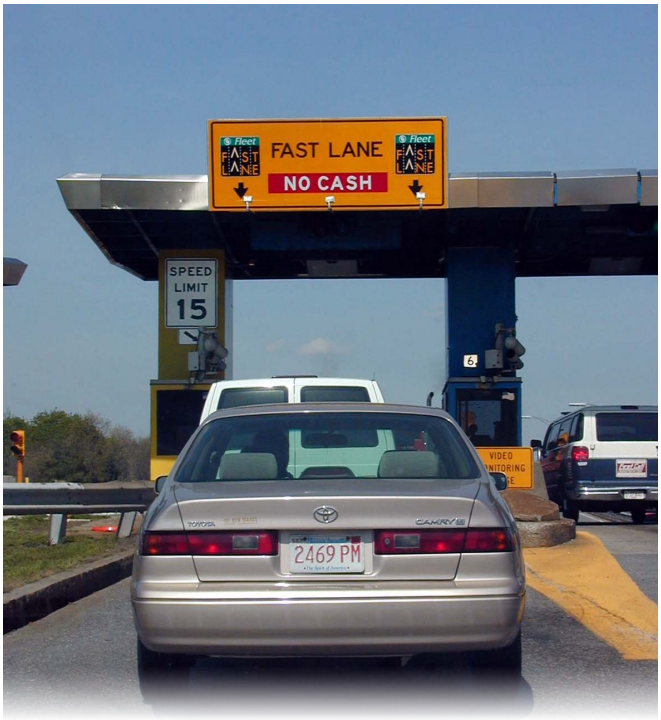
Intelligent Transportation Systems

Intelligent transportation systems (ITS) involve the integration of technology into the management of the operation of transportation facilities, with the goals of increasing operational efficiency and capacity, improving safety, reducing environmental costs, and improving mobility. The MPO has participated in the development of ITS activities since 1992. Boston was one of the first cities to complete an FHWA-sponsored metropolitan area Early Deployment Planning Program for ITS, in 1993.

MassHighway developed a regional ITS architecture for metropolitan Boston in 2005, which conforms to the National ITS Architecture, as federally required. The architecture guides the coordination and integration of ITS projects in the region to help transportation agencies eliminate duplication, reduce design costs and project development time, facilitate efficient system expansion, improve safety and security, facilitate deployment of new technologies, and lower system life cycle costs.

MassHighway, MassPike, Massport, and the City of Boston currently monitor road conditions and traffic flow on major highways and intersections using fixed equipment such as loop detectors and wireless communications. MassPike's Central Artery/Tunnel Operations Control Center is the largest of its kind, featuring over 400 cameras for monitoring roads, 1,200 road sensors for detecting stopped traffic, 120 carbon monoxide sensors, computer-controlled ventilation buildings, and a radio frequency able to interrupt radio broadcasts and dispatch emergency information. MassHighway and MassPike operate numerous variable-message signs. MassHighway's Regional Operations Center dispatches emergency locator HELP patrol vans. Automatic vehicle location (AVL) capability is planned. The City of Boston's Traffic Management Center allows for real-time monitoring of traffic and incident management, and coordination of emergency-response providers.

FAST LANE is an electronic toll-collection system instituted along the Massachusetts Turnpike in October 1998. Vehicles in the FAST LANE system are equipped with transponders that signal that a vehicle is going through a toll plaza without the vehicle having to stop. The toll cost is automatically deducted from a preestablished



account. FAST LANE is in operation not only along the Turnpike, but also at the Ted Williams Tunnel, the Sumner Tunnel, and the Tobin Bridge, and it is interoperable with EZ-Pass, the electronic toll system used in New York, New Jersey, New Hampshire, Delaware, Pennsylvania, West Virginia, and Maryland. The technology increases the capacity of toll facilities and reduces delays.

SmarTraveler, a service sponsored by MassHighway and operated by SmartRoute Systems, delivers real-time, location-specific traffic and transit information for metropolitan Boston via a toll-free phone number. Travel information is also disseminated through online services, television, radio, and print media. SmarTraveler traffic and transit surveillance is conducted via cameras at strategic locations, "mobile probes" (travelers) re-

porting to the operations center by mobile phone or two-way radio, monitoring of 350 publicly available radio frequencies for emergency vehicles, and direct lines to the State Police, Amtrak, MassHighway, and the MBTA.

The MBTA employs several ITS strategies. An advanced bus operations center was added to the MBTA's existing rapid-transit operations facility in 2004 to integrate global positioning systems (GPS) and automatic vehicle location (AVL) technology on its buses to better schedule and direct its fleet through the use of real-time operational information. The real-time use of this technology is currently being used on the Silver Line Washington Street, and the MBTA plans to use it for all of its buses in the future.

The MBTA provides travel information services in a variety of ways. On the MBTA's Web site, customers can access schedules; maps; and fare, station, parking, and service interruption information for all bus, rail, and boat services. Service interruption information includes the operational status of elevators and escalators in MBTA stations. Kiosks at bus stops on Washington Street in Boston inform passengers about Silver Line bus arrivals, and an automated, prerecorded message plays in all rapid-transit stations when a train is about to arrive. Interactive travel-information kiosks at the South Station Transportation Center provide a direct link to the MBTA's Web site, where customers can access schedule information for all services. Information is also provided through electronic boards on commuter-rail platforms. Some rapid-transit trains now have LED screens with scrolling information on upcoming stops, in addition to audible information.

The MBTA recently enhanced its customer-service information system by tying it directly to the software used by the scheduling department. This system now allows customers to access next-trip information for all routes over the phone or on the MBTA's Web site. As part of this system, a trip-planning tool available to customers on the Web generates origin-destination routing suggestions without the aid of a customer-service agent.

Incident Management

Crashes and other incidents on roadways can create instant and far-reaching congestion. It has been documented that in some urban areas, non-recurring congestion accounts for up to 60 percent of total congestion. The Commonwealth of Massachusetts outlines an incident management program in its Regional ITS Architecture for Metropolitan Boston report. The program, which includes MassHighway's HELP patrol vans and numerous surveillance and detection equipment installed along highways, promotes the sharing of information and data about emergencies between agencies in order to facilitate the access of emergency vehicles, as well as reduce congestion resulting from an incident.

Traffic Signal Coordination

Traffic signals that are not coordinated can significantly reduce mobility, even when the roadways are not at capacity. Traffic signal coordina-

tion allows for the smooth flow of traffic through consecutive, closely spaced traffic signals. It is a relatively inexpensive way to increase capacity for vehicles on roadways without lane additions. MassHighway, the City of Boston, and various municipalities already operate signal-coordination and closed-loop traffic signal systems. The MPO supports monitoring existing coordination plans and studying the region's roadways to determine which additional locations could benefit from signal coordination, as recommended in the MMS.

MBTA Traffic Signal Priority

Traffic signal prioritization for transit vehicles has the potential to improve the speed and reliability of the MBTA bus system while maximizing the number of people passing through an intersection. The strategy would utilize hardware and software technologies to enable buses to invoke the green signal phase ("green light"), or to extend the duration of the green phase in order to pass through the intersection without delay. MPO staff are currently conducting a transit signal-priority study for a portion of MBTA bus Route 39. This study could be used as a pilot project to illustrate the benefits of traffic signal prioritization for transit. The MBTA's Silver Line Washington Street service has the capability of directly requesting signal priority through short-range communication with roadside traffic-control equipment, but that capability is not currently utilized.

Bottleneck Removal and Travel Lane Continuity

Congestion and bottlenecks caused by lane drops can create significant congestion and decrease roadway safety on arterial roadways and limited-access highways. Arterial roadways experience delays mostly at signalized intersections, and on local roadways at the minor approach of unsignalized intersections. Limited-access highways tend to have delays at locations where traffic merges, diverges, or weaves, as well as where there are reductions in the number of lanes. The Boston Region MPO recognizes that removing bottlenecks and improving lane continuity on arterial roadways and limited-access highways have the potential to significantly increase mobility. In some cases, minor design improvements at a lane drop can remedy the situation; in other cases, more extensive measures may have to be taken.

MBTA Service Evaluation Process

The MBTA Operations Department is constantly monitoring service and considering changes or adjustments in response to customer demand. In evaluating potential changes, the MBTA examines a number of factors, including the projected number of new transit riders, the rationale for the change, and the net cost per new passenger. Requests for new or changed services can be made by anyone—private citizens, elected officials, MBTA employees, and those representing neighborhood groups or business organizations.

Transportation Demand Management

Transportation demand management (TDM) includes programs and strategies that provide

alternatives to single-occupant-vehicle travel on roadways. These include shuttle services in areas underserved by transit, ridesharing, and high-occupancy-vehicle (HOV) lanes to encourage carpooling. In providing alternate modes of travel, these programs and strategies aim to reduce congestion without adding physical capacity to the existing roadway and highway system.

Transportation Management Associations

Transportation Management Associations (TMAs) are nonprofit coalitions of local businesses dedicated to reducing traffic congestion and pollution and improving commuting options for their employees. There are nine TMAs that serve communities in the Boston region, and several support shuttle services that connect employment locations with MBTA rapid-transit or commuter-rail stations. While some of these services are only available to employees of the member companies, others are open to the general public.

Mass*RIDES* and Ridesharing

Mass*RIDES*, EOT's travel options program, offers free statewide services that mitigate traffic congestion and help people living and working in Massachusetts expand their travel options. A statewide outreach partnership program invites private businesses and public agencies to join in the effort to help reduce traffic congestion. The program staff works closely with other community groups to improve mobility and expand travel choices. Mass*RIDES* provides developers and employers with resources to create work-site commuter initiatives. Mass*RIDES*' services include:

- Training and technical support for corporate transportation coordinators
- Ridematching for carpools and vanpools in a statewide database
- Personalized commuter trip-planning assistance
- Transit route and schedule information
- Vanpool administration
- Parking management strategies
- Work-site access analysis
- Work-site transportation events
- Commuter service-program design

Mass*RIDES* provides comprehensive statewide

MassRIDES
1.888.4COMMUTE • www.commute.com
A Service of the Executive Office of Transportation

information about transportation alternatives through its toll-free, bilingual telephone line and its information center on the Web. Massachusetts commuters can access the statewide computerized ridematching database to obtain information on carpools, vanpools, and transit alternatives that match their commute.

Suburban Transit Opportunities

The MPO has implemented a program to fund suburban mobility projects in suburban areas of the region that are either not served or are underserved by existing transit. The program funds equipment and other capital-related expenses associated with services that aim to improve mo-

bility in suburban areas. This program helps fund services such as:

- Fixed-route transit services operating in suburban-to-suburban and reverse-commute markets
- Employer-based vanpools and carpools
- Flexible-route and demand-responsive transit services

Eligible applicants include local and regional public entities and other appropriate nonprofit organizations capable of implementing transit services. Applicants may partner with TMAs to help implement suburban transit projects. Current suburban

transit services being financially supported by the MPO's suburban mobility program include the Ipswich-Essex Explorer, Framingham LIFT 9, The Local Connection (TLC) in Marlborough and Southborough, and the Neponset Valley TMA RailLink 1 shuttle bus.

In addition to the funding program, the MPO has conducted several studies on suburban transit opportunities in the region. The *Suburban Transit Opportunities Study, Phase 1* identifies characteristics of successful suburban transit services and includes case studies of four suburban transit services operating in the region. The report describes methods, techniques, and lessons learned by transit agencies about operating sustainable suburban transit services.

The report, *Regionwide Suburban Transit Opportunities Phase 2* identifies seven neighborhoods in the region that have either no direct mass transportation service or very limited service, and that appear to have the best potential for supporting new suburban transit service. The report includes suggested routes for new suburban transit services to connect the identified neighborhoods with activity centers, including commuter-rail stations.

The *Regionwide Suburban Transit Opportunities Study, Phase 3*, which is currently underway, involves investigating the potential for demand-responsive service as a way to improve suburban mobility and accessibility. As part of this program, MPO staff will continue to assist organizations with their applications for financial support for new suburban transit services under the Suburban Mobility Improvement Program.

Safe Routes to School

The Safe Routes to School program in Massachusetts aims to increase physical activity and safety for children, and to decrease traffic congestion and air pollution. The program focuses on educating elementary school students, parents, and community members on the value of walking, bicycling, carpooling, using public transit, and taking school buses for traveling to and from school. Additionally, schools can partner with the program to directly implement programs and engineer solutions to accomplish the program's objectives. The Safe Routes to School program in Massachusetts is administered by Mass*RIDES* and is funded through the Federal Highway Administration in accordance with the provisions of SAFETEA-LU, the federal surface transportation legislation.

High-Occupancy-Vehicle Lanes

The Boston Region MPO considers high-occupancy-vehicle (HOV) lanes to be an alternative to building additional general-purpose lanes on congested highways. Vehicles with two or more passengers and motorcycles are allowed to use HOV lanes in the Boston region. There are three HOV lanes operating in the Boston region: a reversible, barrier-separated lane on I-93/Southeast Expressway between downtown Boston and the Braintree Split interchange; a southbound, buffer-separated lane on I-93 North that approaches Boston from the north; and a lane linking I-93 in downtown Boston to the Ted Williams Tunnel. These lanes are meant to encourage ridesharing and to improve the flow of general-purpose traffic along the I-93 corridor, as well as to and from Logan Airport.

Reverse Commuting

Most of the reverse-commute destinations for Boston residents are, and will likely continue to be, those within about 15 miles of downtown Boston. In 2001, MPO staff conducted a reverse-commute study for the MBTA. The study examined the feasibility of providing additional commuter rail and connecting bus transportation services to facilitate reverse commuting. Most employment centers along Route 128 and I-495 are not served directly by commuter rail, and few have feeder buses to existing commuter-rail and rapid-transit stations. However, the study identifies opportunities for pilot programs that warrant further exploration.

Freight Mobility

The efficient movement of freight is critical for the economic health of the Boston region. Trucks experience the same congestion that passenger vehicles face, slowing the movement of freight throughout the region. However, the freight industry has unique needs and challenges, since it operates in several modes: truck, train, plane, and boat. The MPO is observing the continuing reduction in capacity on the freight rail system. This may have impacts on the future movement of freight and on roadway congestion. Moving a larger percentage of freight by rail seems to have the potential for improving air quality, but it would have to be coordinated with passenger rail operations in the region so as not to diminish passenger service that may use the same tracks. The MPO has recently completed a freight study for the region. This study will inform the MPO on its next steps to addressing future freight needs. This information will be incorporated in an amendment to JOURNEY TO 2030 and in other studies conducted by the MPO.

Improving Landside Access to Ports and Transfer Facilities

"The Last Mile"

Trucks traveling to the ports of Boston, Salem, and Gloucester from the highway system must traverse "the last mile" between the highway and the port, which consists of collector and local roads. Trucks on these roads can be a burden for the local communities, and these local routes slow the movement of freight. Access to the highways from the Port of Boston has improved

with the opening of the Central Artery/Ted Williams Tunnel, but it needs to improve further. Although two separate overweight-truck routes have been designated, mostly to accommodate the seafood business, there is a need for additional overweight-truck routes in the area.

Double-Stack Initiative

Double-stack rail cars, which have a container stacked on top of another container, move freight more efficiently than single-stack cars. However, many bridges over rails in the Boston region are too low to accommodate double-stack rail cars. There are approximately 56 bridges with a vertical clearance of less than 21 feet, which is insufficient double-stack cars. Currently, the two major freight operators, CSX and Pan Am, can only operate single-stack trains within the Boston region, limiting the efficiency of freight movement. It is Massachusetts policy that new bridges over rail lines, and bridges over rail lines that are scheduled for reconstruction, are built with a vertical clearance of 21 feet in order to accommodate double-stack rail cars.

Improving Waterside Access to Ports

One of the most important issues for the Port of Boston is dredging the channels to deeper depths in order to accommodate ships of deeper draft. The channel into the Port of Boston was dredged from 35 to 40 feet at low tide, with 45 feet at the berth in the late 1990s. Massport has requested a permit from the Army Corps of Engineers to dredge the channel to 45 feet. It will probably take until the year 2010 to obtain the necessary permits and funding for this additional dredging. Even once this has been completed, the port will not be able to accommodate larger, post-Panamax vessels (ships too large to pass through the Panama Canal). The channel leading to the Port of Gloucester is currently dredged to 24 feet, and further dredging is planned for the future.

Freight Restrictions

Weight-Restricted Rail Bridges

There are two rail bridges in the region, both along Pan Am rights-of-way, which are limited to 263,000 pounds per train carload, limiting the movement of freight to and from the region's ports. Upgrading these bridges would allow for more efficient freight movement in the Boston region.

Weight-Restricted Roadway Bridges

There are approximately 155 "posted" bridges in the region. Posted bridges have signs at both ends informing drivers of the bridge's vehicle weight restrictions. A bridge is posted if it is either designated as "functionally obsolete" because it has not been designed to support modern trucks, or it is designated as "structurally deficient" due to significant deterioration of the bridge deck, supports, or other major components. Some posted bridges can be repaired or rehabilitated to meet such standards; others must undergo costly replacement. Very old historic bridges that cannot be made to carry heavy vehicles may nevertheless be kept for aesthetic reasons or as a community or cultural resource. Trucks exceeding a bridge's weight restrictions

must find alternate routes, increasing the trip distance and travel time.

Overweight-Truck Routes

Two overweight-truck routes, allowing trucks up to 99,000 pounds, are designated in the Boston Port area. These were designated as overweight-truck routes primarily for the seafood business, going to Gloucester (Route 1A to Route 128) and to New Bedford (I-93 to Route 24). However, permits are still required when using these routes. Additional overweight-truck routes in the Port area would improve the efficiency of freight operations, as shippers would be able to use fewer trucks to move the same amount of freight.

Hazardous Cargo

The movement of hazardous materials is restricted in highway tunnels. This affects many of the express highways in downtown Boston, including:

- I-90 – Ted Williams Tunnel under Boston Harbor
- I-93 – Central Artery in downtown Boston
- I-90 – Massachusetts Turnpike Extension under the Prudential Building and Copley Square
- Route 1 – Tobin Bridge approach under City Square in Charlestown
- Route 1A – Sumner Tunnel under Boston Harbor
- Route 1A – Callahan Tunnel under Boston Harbor

This restriction, rigorously enforced by the Massachusetts State Police, causes increases in delivery costs because of increased travel times and fuel costs.

Accessibility

While increasing the efficiency of limited-access highways and expanding transit service contribute to congestion relief and increase mobility in the region, these improvements may not reach all residents in the region. Improving access to transit and other alternative modes of transportation, especially for the elderly, disabled, and low-income populations, increases personal mobility and opportunities by allowing more of the region's residents to walk, drive, and bicycle to access the transit system.

Access to Transit

Park-and-Ride Facilities

The MPO is committed to increasing the available parking capacity at various commuter-rail and transit stations throughout the region. Additional parking facilities will be constructed at transit stations over the lifetime of this Plan based on prioritization in the *Program for Mass Transportation.* The MBTA anticipates using a variety of funding sources for these projects, including federal funds allocated to the MBTA; federal funds allocated to other regional transit authorities for use on the commuter rail system; federally earmarked, MBTA, local, and private funds; and state bonds.

There are 124 park-and-ride facilities in the MPO region (see Table 6-1). These facilities play an important role in reducing congestion in Boston's

TABLE 6-1

Park and Ride Facilities in the Boston Region

PARK-AND-RIDE FACILITIES				
TYPE OF FACILITY		FACILITIES	SPACES	% OF LOTS FULL
TRANSIT[3]	COMMUTER RAIL	76	20,251	61%
	RAPID TRANSIT	29	19,799	59%
	COMMUTER BOAT	3	2,688	33%
	EXPRESS BUS	2	172	50%
COMMUTER BUS[4]		9	3,070	33%
RIDESHARING[5]		5	354	0%
TOTAL		124	46,334	43%

urban core by enabling individuals to drive short distances from their homes and gain access to rapid transit, commuter rail, commuter buses, commuter boats, carpools, and vanpools. Most of the lots are conveniently located in downtown centers or along major highways (see Chapter 2 for a map of park-and-ride facilities in Massachusetts). There are three categories of park-and-ride facilities in the Boston region: those that provide access to transit stations, those served by commuter bus service, and those used for ridesharing (carpools and vanpools).

Some of the park-and-ride lots that are at capacity fill very early in the morning, especially those lots located in communities that do not have competing transit options. Some commuters shift their travel schedules and work hours to arrive at these facilities early enough to secure a parking space. When lots reach capacity, commuters often park along local roadways or drive to their final destination, contributing to congestion.

Transit Station Park-and-Ride Facilities

There are park-and-ride lots at 110 MBTA facilities in the MPO region. They provide 42,910 parking spaces.[6] There are 76 commuter rail stations with park-and-ride facilities, 61 percent of which are considered to be at capacity. There are 29 rapid transit stations with park-and-ride lots; 59 percent are considered to be at capacity. There are also three park-and-ride lots at commuter boat facilities and two at MBTA express bus facilities.

Commuter Bus Park-and-Ride Facilities

Commuter bus service is provided at nine park-and-ride facilities in the region, which provide a total of 3,070 parking spaces. Logan Express, providing service to and from Logan Airport, serves Massport-owned park-and-ride facilities in Braintree, Framingham, Peabody, and Woburn. Three of these four lots fill to capacity during the day. Private bus service is provided at five park-

[3] Source: 2005–2006 MMS Inventory of MBTA Park-and-Ride Facilities (The number of transit park-and-ride facilities is the same as the number of stations that have parking, even though several stations have more than one parking facility, some of which are municipally or privately owned. This table includes private parking spaces near transit stations in its total count of parking spaces.)

[4] Source: 2004 Congestion Management System report.

[5] Ibid.

[6] This total includes parking at stations on the Mattapan High Speed Line, which is temporararily closed for renovations. The Line will reopen in the summer of 2007.

and-ride facilities, in Canton, Framingham, Milton, and Rockland, which are operated by MassHighway, and at another facility in Framingham, which is operated by MassPike. None of those lots fill to capacity during peak hours.

Ridesharing Park-and-Ride Facilities

There are five park-and-ride facilities that have no bus or rail service and are used exclusively for ridesharing (carpools and vanpools). MassHighway operates a small facility in Pembroke, and MassPike operates four facilities—three in Newton and one in Weston. None of these lots fill to capacity during peak hours.

Bicycle Access on the MBTA

Rapid transit customers are allowed to take bicycles aboard Orange, Red, and Blue Line trains during all hours except peak hours, which are 7:00 AM to 10:00 AM and 4:00 PM to 7:00 PM. Bicycles are not allowed on the Green Line, Mattapan Trolley, or Silver Line. There are 1,695 bicycle parking spaces at 62 of the 135 transit stations and stops for customers connecting to transit via bicycle.

Riders are allowed to take bicycles aboard only off-peak commuter rail trains (outbound morning trains, inbound evening trains, all off-peak weekday trains, and all weekend trains). In the summer of 2006, the MBTA introduced a commuter rail coach with 39 bicycle racks installed on one side of the coach. The coach was put into service on the Rockport Line on weekends and holidays during the summer months.

There are over 800 bicycle parking spaces at 51 of the 76 commuter-rail stations in the Boston region for customers connecting to commuter rail via bicycle. There are almost 2,000 bicycle racks at 67 of the 135 rapid transit stations in the region.

The MBTA is in the process of installing bicycle racks on some of the buses in its bus fleet. As of November 2006, the following routes have buses with bicycle racks that accommodate two bicycles each: CT1, CT2, CT3, 93, 109, 110, 111, 112, 325, 326, and 352. By the summer of 2007, the MBTA plans to have bicycle racks on 40 percent of the MBTA bus fleet.

Key Station Plan

The federal Americans with Disabilities Act (ADA) mandates improvements to facilities and infrastructure to ensure that they are accessible. The MBTA developed the Key Station Plan, which designated 80 stations in the MBTA system as facilities to be brought into compliance with ADA. This program has resulted in station improvements that significantly increase the mobility of the elderly and persons with disabilities, as well as improved access for all customers. For more information on the Key Station Plan, see Chapter 5.

Access for Elderly, Disabled, and Low-Income Populations

Residents who are elderly, disabled, or in low-income households often have fewer transportation options than others in the region. The over-55 population is projected to increase by nearly 75

[7] MAPC population and employment projections, January 2006

percent by 2030,[7] and the transportation needs of these populations continue to increase. The following sections describe programs and services to address the mobility needs of these populations.

Demand Responsive Transit Services

THE RIDE, the MBTA's paratransit service, which operates in compliance with ADA, provides door-to-door transportation to people who are unable to use general public transportation (subways, buses, and trains), all or some of the time, because of a physical, mental, or cognitive disability. THE RIDE operates 365 days a year from 6:00 AM to 1:00 AM in 62 cities and towns in the Boston region.

In addition, services are also provided through a number of community senior transportation resources in the region, including:

- Boston Senior Transportation Services (senior shuttle, taxi discount program, and the Kit Clark Program, which provides lift-equipped vans from seniors' homes and program sites)
- Brookline Elder Bus and Brookline Elder Taxi System
- Cambridge Taxi Discount Program
- Newton Department of Senior Services (Shopper's Bus and transportation to medical services)
- SCM Community Transportation for residents of Somerville, Cambridge, and Medford

Coordinated Public Transit–Human Services Transportation Program

The Federal Transit Administration manages three funding programs to improve the mobility of elderly individuals, individuals with disabilities, and low-income individuals: Elderly Individuals and Individuals with Disabilities, Job Access and Reverse Commute, and New Freedom. SAFETEA-LU, the current federal surface transportation legislation, requires that projects selected for these programs be included in a coordinated, public transit–human services transportation program. The Executive Office of Transportation is leading the initiative to develop this program, and the MPO will be involved in its development.

Elderly Individuals and Individuals with Disabilities Program

The Elderly Individuals and Individuals with Disabilities program is a federal funding program that provides funding to states for capital projects to assist in meeting the transportation needs of older adults and persons with disabilities. The states administer this program.

Job Access and Reverse Commute Program

Job Access Reverse Commute (JARC) is a federal funding program that provides funding to support the development and maintenance of job access projects designed to transport welfare recipients and eligible low-income individuals to and from jobs and activities related to their employment. The JARC program also supports reverse-commute projects designed to transport residents of urbanized areas to employment opportunities in the suburbs.

New Freedom Program

The New Freedom program provides new public transportation services and public transportation alternatives beyond those required by the ADA. Initiatives funded through this program provide individuals with disabilities with transportation, including transportation to and from jobs and employment support services.

Bicycle and Pedestrian Accessibility

Regional Bike Parking Program

The Regional Bike Parking Program provides municipalities in the Boston region, the Department of Conservation and Recreation, and the MBTA with the opportunity to purchase bicycle racks at a discount. Municipalities that purchase bicycle racks are eligible for full reimbursement of the purchase price. The program is funded by the Boston Region MPO, EOT, and FHWA, and it is administered by MAPC. There are three participating vendors that provide a variety of styles of bicycle racks and other related products.

To participate in the program, a municipality or agency must pay up front for their purchases, and municipalities may be reimbursed for the purchase price if certain criteria are met. The costs of shipping and installation are the responsibility of the municipality or agency and are not reimbursable.

Regional Bicycle Plan

The Regional Bicycle Plan, funded by the MPO and prepared by MAPC, proposes six general goals and strategies for the region in terms of bicycling, based on previous plans, current planning guidelines, and the MPO's policies:

1. Encourage more trips by bicycle in each community
2. Make bicycling and bicycle accommodations a part of "standard operating procedure" in transportation planning
3. Improve education and prioritization of bicycle project proposals
4. Assist and encourage local initiatives
5. Work with state and federal agencies to simplify and coordinate funding programs
6. Increase regional knowledge about bicycling

In addition to setting goals, the plan also describes the current bicycling network, suggests criteria specific to bicycle projects to be used in the TIP development process, and prioritizes projects and programs to guide state, regional, and local action.

Statewide Bicycle Plan

The Executive Office of Transportation is in the process of updating the Statewide Bicycle Plan, which builds upon the 1998 Massachusetts Bicycle Transportation Plan. The plan update focuses on developing a prioritized plan of on- and off-road bicycling improvements in order to implement a statewide bicycle network.

Walkable Community Workshops

In August 2002, the Boston MPO applied for a grant from the National Center for Bicycling & Walking to hold Walkable Community workshops. National experts came in and hosted a series of eight workshops in March 2003 held in Boston, Burlington, Everett, Marlborough, Norwood, Quincy, Salem, and Somerville. The eight workshops provided half-day courses to promote health, sensible land use, the local economy, and the environment. Each workshop included a presentation that indicated common difficulties pedestrians encounter in navigating their way around the specific community, and a host of possible solutions. Following the presentation, attendees went out to view the local area and returned to discuss problems encountered, possible solutions, and implementation strategies.

The purpose of the national program was not only to generate more interest in walking in the target communities but also to encourage local MPO staffs to follow up with their own workshops. These workshops have become an ongoing program for the Boston Region MPO. In 2004, the Boston MPO staff held three Walkable Community Workshops, in Franklin, Rockport, and Saugus. Staff conducted four in 2005, in Arlington, Belmont, Maynard, and Scituate. Four more were held in 2006, in Bellingham, Beverly, Hull, and Reading.

7

SAFETY

The Boston Region MPO's Vision for the Safety of the Regional Transportation System

Safety initiatives will be implemented to help protect the region from natural and human hazards. Transportation infrastructure and its operation will be upgraded on an ongoing basis for the safety of all users. Technologies will be employed to manage incidents, conduct emergency response, and support safe evacuations using various transportation modes. Highway and transit infrastructure will be kept in a state of good repair. There will be fewer crashes, due to improved intersection designs and upgrades.

To implement this vision, the MPO has developed a set of policy statements to guide its decision-making:

- Support designs and fund projects and programs that address safety problems and enhance safe travel for all system users. This includes designs and projects that encourage motorists, public transportation riders, bicyclists, and pedestrians to share the transportation network safely.
- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including intelligent transportation systems (ITS), to provide for safety.
- Participate in regional planning for safety initiatives, such as evacuation and contingency measures.

Introduction

Safety for motorized and nonmotorized users is an important component of the metropolitan transportation planning process. Furthermore, safety has been

designated as a new, stand-alone planning factor by the federal Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).

This chapter begins with a discussion of SAFETEA-LU requirements and Transportation Safety Planning (TSP, formerly Safety Conscious Planning). Discussions follow of the various components of highway, transit, pedestrian, bicycle, and freight safety. These discussions include information on planning and operations programs to provide safer transportation within the MPO area.

Background

Safety is defined by the United States Department of Transportation, through the Federal Highway Administration (FHWA) and the Federal Transit Administration, as freedom from unintentional harm. The transportation network, both the highway infrastructure and the transit system and services, should serve its purpose without endangering the people who use it. The network should be designed, maintained, operated, and managed with the safety of all users in mind and be properly policed to protect users from accidents, crashes, and assaults. Constructing improvements at high-crash locations, providing an intelligent transportation system for incident response and management, preventing conflicts at grade crossings, and providing the equipment for surveillance and enforcement are examples of safety projects and programs that the state's transportation agencies have implemented.

According to FHWA, in the year 2004 alone, traffic accidents in this country resulted in approximately 42,600 fatalities and nearly 3,000,000 injuries. There were 4,281,000 property damage crashes at a cost of about $230 billion to the United States economy. This equals about $820 per U.S. citizen.

SAFETEA-LU Requirements

Under SAFETEA-LU, MPOs are tasked with considering ways to increase the safety of the transportation system for both motorized and nonmotorized users.

Also with the passage of SAFETEA-LU, a new core Highway Safety Improvement Program (HSIP) has been established with the goal of reducing highway fatalities. The aim is for HSIP to accomplish this by the reallocation of infrastructure safety funds and the implementation of a requirement for strategic highway safety planning. Additional programs will focus on motorcycle safety, improved traffic signs and pavement markings, pedestrian safety, the safety of children walking to school, work zone safety, and the safety of toll collectors and older drivers.

Under HSIP, states have the flexibility to target money to their most critical safety needs. Of the $5.1 billion in HSIP funds designated nationwide for federal fiscal years 2006 to 2009, $220 million per year is targeted for the Railway-Highway Crossings Program. The remainder is apportioned to the states based on lane-miles of federal-aid highways, vehicle-miles traveled on federal-aid highways, and the number of fatalities on federal-aid highways. Massachusetts HSIP

priorities will be taken from the Massachusetts Strategic Highway Safety Plan described below.

Transportation Safety Planning

With the enactment of SAFETEA-LU, Transportation Safety Planning (TSP) was established. TSP is defined as a comprehensive, systemwide, multimodal, proactive process that integrates safety into surface transportation decision-making. TSP was formerly known as Safety Conscious Planning. A robust transportation-safety-planning program includes and integrates the "Four Es" of safety implementation: education, engineering, enforcement, and emergency services.

FHWA's priority safety areas are lane departure crashes, intersections, and pedestrian safety. Lane departure crashes occur when one vehicle leaves its travel lane, resulting in a crash, such as a head-on crash, a vehicle crashing into a tree, or one vehicle sideswiping another vehicle traveling in the same direction. FTA's priority safety areas touch on security along with safety, because it is difficult to completely separate the two. These priority safety areas are:

1. The identification of the top crime-prevention, safety, and security needs, the resolution of which the MPO may be asked to fund.
2. The creation of a National Transit Security Training Facility by the FTA and/or the U.S. Department of Homeland Security (USDHS). This facility will provide training to transit personnel in safety, security, and antiterrorist measures. The MPO may be asked to fund training for MBTA personnel at this national facility.
3. The coordination of safety and security roles and responsibilities between the USDHS and the USDOT. At the Massachusetts state level, this will be accomplished between the Executive Office of Public Safety and the Executive Office of Transportation (EOT). These roles will then be delegated to the MPO level, with the USDHS function arriving via the Regional Transit Security Working Group and the Metro Boston, Northeast, Southeast, and Central Homeland Security Regional Planning and Advisory Councils.

These issues are also discussed in Chapter 8, Security.

Highway Safety

Strategic Highway Safety Plan

All states are required to implement a Strategic Highway Safety Plan (SHSP) that identifies and analyzes safety problems and opportunities. The Massachusetts SHSP (MSHSP), finalized by MassHighway and signed by the governor, was submitted to FHWA in September 2006. The Commonwealth can now use Highway Safety Improvement Program funds for newly eligible safety activities, such as Transportation Safety Planning, the collection and analysis of crash data, the integration of emergency communications equipment, and the implementation of work zone safety projects.

In Massachusetts, the lead agency for both oversight and funding of the MSHSP is MassHighway, under the overall authority of EOT. Other joint sponsors and participants in development and implementation include:

- FHWA
- Federal Motor Safety Carrier Administration
- Massachusetts Governor's Highway Safety Bureau
- Massachusetts Registry of Motor Vehicles
- Massachusetts State Police
- Massachusetts Department of Public Health
- EOT's Office of Transportation Planning
- Boston Region Metropolitan Planning Organization
- Massachusetts regional planning agencies, including the Metropolitan Area Planning Council (MAPC)

The first goal of the MSHSP is to reverse the increasing trend of traffic-related fatalities and injuries, with the eventual goal of zero traffic-related fatalities and injuries. The interim performance measurement for attainment of this goal is, by the year 2010, a 20 percent reduction, compared to 2004, in fatalities (from 476 fatalities to 381) and in injuries requiring hospitalization (from 5,554 to 4,443).

During the development process for MSHSP, six areas of emphasis were explored, and strategies for improving safety in each area were developed. The six strategies are:

1. Data Systems Strategies

   Data systems strategies emphasize educating public safety officials to promote greater use of standard forms, electronic submission and sharing software. This includes developing standard forms and online, database submission procedures for crash reports, citations, and trauma registration.

2. Infrastructure Safety Strategies

   Improving infrastructure safety begins with using criteria to identify high-crash locations and corridors and gathering data on safety deficiencies in order to expedite implementation of improvements. MassHighway Project Need Forms request information on safety deficiencies and MassHighway will provide design assistance as needed. Lane departure issues will be discussed with engineering, enforcement, emergency medical services, and education communities to develop regional and local programs to address this problem. MassHighway will undertake road safety audits, promoting the inclusion of basic safety elements into routine maintenance projects and work-zone safety practices.

3. At-Risk Driver Behavior Strategies

   Solutions for at-risk driver behavior issues focus on education and awareness. Strategies include public outreach regarding the instruction about, and value of, safety belt use (particularly as it pertains to child restraints) and low-speed driving habits. The State will support bilingual Drug Recognition Expert (DRE) programs to certify law enforcement personnel to make highly accurate assessments of persons who may be under the influence of drugs.

4. Strategies for Higher-Risk Transportation System Users

   As it does for most strategies, the State relies on greater awareness to improve careful driving among young drivers by assessing crash data from before and after adoption of the Massachusetts Junior Operator Law (JOL), educating teenagers about accident trends among this age group, and informing parents about the JOL, its regulations, and its consequences. The State proposes a similar approach for its older drivers, working both with the Healthy Aging Coalition to provide transportation-safety-related data, analysis, and information for the Coalition's strategic plan for healthy aging, and with the Massachusetts Council on Aging to inform older and disabled residents about safe mobility alterna-

tives available to them. To address pedestrian and bicyclist accidents, the State will work with local and regional authorities to identify high-crash locations, to encourage local implementation of the Safe Routes to School (SRTS) program, and to promote road-sharing and motorcycle education programs.

5. Public Education and Media Strategies

   The SHSP includes recommendations for public-education- and media-related strategies that will educate the public, legislators, and other opinion leaders to encourage safer behavior on Massachusetts roadways. The strategies discussed focus on raising the awareness of safety and the importance of crafting and delivering specific messages to targeted audiences.

6. Safety Program Management Strategies

   The SHSP proposes a management structure comprised of executive and advisory leadership committees to plan and implement the strategies mentioned above. The executive leadership committee will be responsible for developing and executing a Memorandum of Understanding (MOU) detailing its members' commitment to safety planning, including identifying potential contributions to the safety planning process, and reviewing progress and updates on agency-specific safety initiatives during quarterly meetings. Members of the steering/advisory committee will be responsible for informing their respective agencies about current safety projects and for staying up-to-date on important safety initiatives through bimonthly meetings. These committees will work to develop detailed action plans and will report annually to the Secretary of Transportation, after which MassHighway will assess projects to monitor SHSP's effectiveness.

MassHighway is continuing to work with the stakeholders to develop action plans for strategy implementation. The MPO will support these emphasis areas in various ways, including by helping to link data sets to provide useful information through the Mobility Management System and by submitting project need forms with completed safety data information through the Transportation Improvement Program.

High-Crash Locations

One of the emphasis areas of the Massachusetts Strategic Highway Safety Plan is infrastructure, with a primary emphasis on intersection crashes and lane departure crashes. MassHighway will identify high-crash locations for these types of crashes and work at the local and regional levels to develop and implement location-specific strategies to mitigate the safety deficiencies identified.

Intersection Crashes

Many fatal and incapacitating-injury-causing crashes are intersection-related. Crashes occurring at intersections are frequently evidence of congestion, stop-and-go traffic, or geometric or operational deficiencies at those intersections. High-crash intersections have been identified from the top-accident-locations findings and have been listed in the 2004 Congestion Management System report.

The MPO reviews this list in determining priorities for project funding. It is also used in Mobility Management System planning work to identify intersections that could benefit from improvements such as more flexible traffic signal design (vehicle-actuated traffic signals, traffic signal timing and phasing updates), the creation of safer pedestrian crossings, the institution of green phase traffic signal extensions for buses, and/or traffic signal preemption for emergency vehicles.

Table 7-1 shows the top 25 crash locations in the MPO area. This is a subset of a list of the top 1,000 crash locations in Massachusetts. The numbers in the table's "Weighted Average" column are a measure of crash consequence severity. In the calculation of this, fatalities are most heavily weighted, with a factor of 10; injuries have a factor of 5, and property damage a factor of 1.

TABLE 7-1

Top 25 Crash Locations in the MPO Area, 1999–2001

MUNICIPALITY	CRASH LOCATION	TOTAL CRASHES	WEIGHTED AVERAGE	RELEVANT PROJECT AND STATUS
SOMERVILLE	ROUTE 28 (FELLSWAY) AT ROUTE 38 (MYSTIC AVENUE)	544	1,413	PROJECT INCLUDED IN JOURNEY TO 2030
REVERE	ROUTE 1 (CUTLER HIGHWAY) AT ROUTE 60 (COPELAND CIRCLE)	463	1,324	PROJECT INCLUDED IN JOURNEY TO 2030
BOSTON	I-93 (PULASKI SKYWAY) AT MASSACHUSETTS AVENUE	501	1,257	PART OF CENTRAL ARTERY/TUNNEL PROJECT
READING	I-95 AT I-93	560	1,208	PROJECT INCLUDED IN JOURNEY TO 2030
BOSTON	ROUTE 3, LEVERETT CIRCLE	515	1,160	PART OF CENTRAL ARTERY/TUNNEL PROJECT
BOSTON	I-90 (MASSPIKE) AT I-93	496	1,006	PART OF CENTRAL ARTERY/TUNNEL PROJECT
BURLINGTON	ROUTES 3 AND 3A AT I-95	420	977	
WALTHAM	I-95 AT WINTER STREET	467	959	
MEDFORD	ROUTE 16 (MYSTIC VALLEY PARKWAY) AT ROUTE 28 (FELLSWAY)	372	936	
SAUGUS	ROUTE 1 AT ROUTE 129 (WALNUT STREET)	328	888	
BOSTON	ROUTE 1 AT I-93	348	869	PART OF CENTRAL ARTERY/TUNNEL PROJECT
WESTON	I-90 (MASSPIKE) AT I-95	472	861	
REVERE	ROUTE 1A AT ROUTE 60 (BELL CIRCLE)	329	853	PROJECT INCLUDED IN JOURNEY TO 2030
BOSTON	ROUTE 203 (GALLIVAN BOULEVARD) AT NEPONSET AVENUE	343	851	
WOBURN	I-95 AT WASHINGTON STREET	336	792	
BOSTON	I-93 AT SOUTHAMPTON STREET	318	774	
BRAINTREE	I-93 AT ROUTE 37 (GRANITE STREET)	272	748	PROJECT INCLUDED IN JOURNEY TO 2030
MEDFORD	I-93 AT ROUTE 28 (ROOSEVELT CIRCLE)	317	738	
BRAINTREE	I-93 AT ROUTE 3 (BRAINTREE SPLIT)	314	734	PROJECT INCLUDED IN JOURNEY TO 2030
MEDFORD	I-93 AT ROUTE 16 (MYSTIC VALLEY PARKWAY)	301	733	
CANTON	I-93 AT I-95	297	733	PROJECT INCLUDED IN JOURNEY TO 2030
WOBURN	I-93 AT MONTVALE AVENUE	283	703	
BOSTON	I-93 AT DEWEY SQUARE TUNNEL	278	694	PART OF CENTRAL ARTERY/TUNNEL PROJECT
BELLINGHAM	I-495 AT ROUTE 126 (HARTFORD AVENUE)	373	681	
WELLESLEY	I-95 AT ROUTE 9 (WORCESTER STREET)	289	669	

* Weighted average based on crash severity (property damage, personal injuries, and fatalities).

Lane Departure Crashes

Lane departure crashes account for many incapacitating injury-causing and fatal crashes. MassHighway and UMassSAFE (a multidisciplinary traffic safety research program housed at the University of Massachusetts) analyzed lane departure crashes and prepared a statewide fact sheet and fact sheets and maps for each of the state's regional planning agencies. The MPO uses this information in determining priorities for project funding.

Highway Incident Management with Intelligent Transportation Systems

Intelligent transportation systems (ITS) is the application of technology to improve the operation of the transportation network for users of all modes. ITS technology includes computers, electronic sensors, communications, and other systems to reduce congestion, respond to incidents, and improve safety and mobility. At the core of this process in the MPO region is the Regional ITS Architecture for Metropolitan Boston, which guides the coordination and integration of individual ITS deployment projects.

A common example of an ITS application is a variable-message sign, either permanent or portable, warning motorists of crashes, delays, or approaching inclement weather ahead.

Traffic incident management in Massachusetts is the responsibility of MassHighway and is coordinated from its Traffic Operations Center (MTOC). The MTOC is the "nerve center" for the application of ITS programs throughout the Commonwealth. From the MTOC, reports on traffic incidents are relayed to the involved MassHighway district office, which, in turn, assigns the necessary personnel and equipment required to address the incident. The MTOC also coordinates with the Boston Transportation Department's Traffic Management Center (the operation of which is funded by the Boston Region MPO in the Transportation Improvement Program for federal fiscal years 2007 and 2008), the City of Boston's Emergency

Operations Center, and MassPike's Operations Control Center.

Highway Safety Patrols

The term "highway safety patrols" traditionally refers to state troopers patrolling state highways. The Massachusetts State Police enforce traffic law and provide security on the Massachusetts Turnpike and the interstate highways in the region. Massachusetts State Police troopers provide security through a variety of techniques, including, but not limited to, routine patrol using marked and unmarked cruisers, helicopter overflights, tollbooth surveillance, and crash and criminal investigations.

In Massachusetts, "highway safety patrols" also refers to MassHighway's CaresVan program. Specially equipped vehicles patrol four different routes along 332 miles of interstate and other express highways in the Boston region to aid motorists with disabled vehicles. The routes include Route 128, I-93, I-95, and I-495.

Traffic Calming

Traffic calming includes an array of engineering strategies to increase safety, reduce vehicle

speeds, and improve livability. Engineering measures can be used to compel vehicle operators to slow down and to alter their behavior in other ways. Traffic-calming strategies include traffic management techniques such as changes in traffic routes, changes in the street network alignment within a neighborhood, and the installation of traffic circles, barriers, speed bumps, raised crosswalks, and other physical measures to reduce traffic speeds and volumes on residential side streets. Traffic-calming strategies are encouraged in MassHighway's Project Development and Design Guide, described later in this chapter.

Transit Safety

Due to the intertwined nature of safety and security on transit systems, many safety initiatives of the MBTA and Cape Ann Transportation Authority (CATA) also have a security aspect to them. The reverse relationship is, of course, true as well. Security cameras, as an example, could also be called safety cameras, because they provide for the well being of patrons who may have slipped and fallen in an isolated area of a train station, as well as provide security from a would-be assailant or terrorist on a train platform or a bus.

MBTA Police Department

The MBTA Police Department's primary mission is to maintain safety within the MBTA transit system. The department's approximately 250 uniformed and plainclothes police officers accomplish this through mobile, foot, and canine patrol teams on both scheduled and random patrols, all of which serve to maintain a high degree of visibility within the system. The Blue, Green, Orange, and Red Lines are served by 115 police officers, 4 police substations, and 15 police kiosks, while additional surface patrols provide support to buses and commuter rail.

The three primary components of the department's safety operations are:

- Community Policing Patrol Plan
- Investigation and prosecution (arrests and trials)
- Police/community relations (public outreach)

MBTA Safety Department

The primary role of the MBTA Safety Department is to ensure the safety of the MBTA's employees, its customers, and members of the general public throughout the MBTA system. In order to accomplish this, the MBTA Safety Department designs, implements, supports, and monitors safe work practices for and among its employees, whether they are working in MBTA vehicles and facilities or on MBTA property and rights-of-way. These safe practices are outlined in the MBTA's System Safety Program Plan and in its Safety Policies and Procedures Manual.

Examples of the types of activities conducted by the MBTA Safety Department include:

- Right-of-way safety training
- Tracking accidents
- Operation Lifesaver
- Safety audits
- Safety hazard correction
- Safety drills

Communications Interoperability

One of the issues facing the MBTA in its emergency-response planning is that of interoperability. Interoperability is defined as the ability of radio equipment belonging to one organization's first responders in an emergency to communicate with that of another organization's first responders. Currently, radio coverage inside MBTA subway system tunnels does not meet these operational standards. This affects the response capabilities of not only the Boston and Cambridge fire departments, but both cities' police departments, emergency medical services, and the MBTA Police Department. Interoperability affects nearly every community in the commonwealth. The MBTA is working with other members of the State Interoperability Committee to explore this issue and develop ways to improve radio communications.

MBTA Surveillance Cameras

The MBTA will increase the number of surveillance cameras on the rapid transit system by 186, bringing the total number operating in the rapid transit system to 488. This will provide a security camera in every rapid transit station in the entire system. The MBTA surveillance cameras are monitored from a number of different locations, including the MBTA Operations Control Center, the MBTA Police Department, and the Massachusetts Emergency Operations Center in Framingham.

In addition, the MBTA has embarked upon a program of installing surveillance cameras in new buses. There is also a strong surveillance component to the MBTA's Station Management Program, which includes the Automated Fare-Collection System Project, the Hub Stations Project, and the Wide Area Network Project. The Hub Stations and Wide Area Network Projects' surveillance components consist of closed-circuit television cameras and the fiber-optic cable required to connect them to their monitors.

Grade Crossing Redesign

Improving grade crossing safety has long been one of the top priorities of the Federal Railroad Administration. From 1995 to 2004, the number of grade crossing collisions in the U.S. declined by 3 percent, the frequency of such collisions per million train miles decreased by 42 percent, and the number of fatalities fell by 36 percent. During the first 11 months of 2005, grade crossing collisions were down 5.1 percent, and fatalities declined 5.3 percent compared to the same period of 2004. In Massachusetts, funding exists under the Section 130 Program of MGL Chapter 160 for the upgrading and improving of railroad crossings.

Advance Warning Techniques

The Commonwealth of Massachusetts, the MBTA, and a majority of those in the railroad industry agree that the use of locomotive horns helps to promote safety at highway-rail grade crossings. Although Massachusetts law requires trains to blow their horns at highway-rail grade crossings, horn bans have been created by the legislature in many communities. The MBTA complies with these bans within those communities. In August 2006, the Federal Railroad Administration amended the June 2005 locomotive horn rule to

create six different quiet-zone categories. These quiet zones, within which each grade crossing must have flashing lights and gates, will be defined in conjunction with state agencies and railroads. Like other transit property owners across the U.S., the MBTA continues to await the final implementation date of the amended horn rule.

Meanwhile, the MBTA has taken steps to improve safety at its 200 public highway-rail grade crossings. Included among these steps is an investment in automatic warning systems, such as crossing gates, flashing lights, and warning bells, to be installed on almost all of the public grade crossings used by the MBTA.

Operation Lifesaver

Operation Lifesaver is an educational program created to stop deaths, injuries, and crashes at railroad grade crossings and along railroad rights-of-way. Crashes between trains and trucks are especially harmful, as they typically result in many casualties. Much of the hazardous material transported in the U. S. is moved by truck: the reduction of grade crossing collisions with trucks is especially important.

Operation Lifesaver Inc., an international, nonprofit organization, was established in 1972 to conduct this program. The program is a joint venture of U.S. railroads, highway safety agencies and organizations, and local, state, and federal government public safety agencies. In Massachusetts, as in all other states, certified volunteer speakers conduct free railroad safety briefings for people of all ages in order to assist them in making the proper decisions when around railroad tracks.

Cape Ann Transportation Authority

The Cape Ann Transportation Authority (CATA) provides bus and paratransit services to the Boston Region MPO communities of Gloucester, Essex, Ipswich, and Rockport. CATA is implementing the following safety measures:

- All drivers receive safety training; a safety trainer is on staff.

- Passenger safety information providing guidance for passengers on being safe while waiting for and onboard the vehicles is provided on its Web site and in printed materials distributed on vehicles.
- Buses and paratransit vehicles will be equipped with automatic vehicle locators that will relay location information to a central dispatcher.

Air Safety

At Massport's Logan International Airport in Boston, the increased police presence at the airport due to security provisions also enhances the environment for public safety. The primary provider of this security-enhanced public safety is Troop F of the Massachusetts State Police.

Bicycle and Pedestrian Safety

Safety is given first place in the list of considerations in the Massachusetts Highway Department's Project Development and Design Guide. The Design Guide states that the roadway system should "safely accommodate all users," including

bicyclists and pedestrians and those using mobility aids. In calling for consideration of all modes in the design and construction process, the Design Guide is providing for the growth of a safe and multimodal transportation network. It also provides design parameters to be used when constructing shared-use paths.

A well-designed shared use path provides safety to its users by creating a separate path away from motor vehicles, minimizing the number of street and driveways that must be crossed, and providing safe crossings of those streets and driveways that cannot be avoided. In addition, a well-designed trail also offers and promotes safety when integrated with other pedestrian and bicycle facilities, and highly-used places, such as public transit stations, parking lots, parks, schools, and employment and commercial areas.

The most important considerations for safe bicycle use on roadways include width, sight distance, and speed. The width should be enough, for example, to allow motor vehicles to pass bicyclists safely and to allow bicyclists to pass parked vehicles without being so close as to collide with a suddenly opening car door.

The major facilities for pedestrians traveling on the roadway system are sidewalks and crossings. A safe sidewalk protects pedestrians from moving vehicles, through either distance or barriers. Crossings need to be visible, both in terms of sight distance and in terms of being well marked.

Bicycle and pedestrian crashes are reported in the Massachusetts Registry of Motor Vehicles database. Table 7-2 shows the number of crashes from 1995 through 2001 in the Boston MPO region.

Safe Routes to School Program

Another provision of SAFETEA-LU is the Safe Routes to School Program. Funds for this program are provided through FHWA. EOT administers

TABLE 7-2

NUMBER OF BICYCLE AND PEDESTRIAN CRASHES IN THE BOSTON MPO AREA, 1995–2001

	PEDESTRIAN CRASHES			BICYCLE CRASHES		
YEAR	TOTAL	FATALITIES	INJURIES	TOTAL	FATALITIES	INJURIES
1995	1,722	46	1,615	895	3	774
1996	1,775	35	1,681	848	3	748
1997	1,790	40	1,683	817	3	742
1998	1,726	32	1,676	856	1	742
1999	1,594	34	1,554	655	2	581
2000	1,640	38	1,636	710	3	690
2001	1,446	33	1,360	571	6	481

the Safe Routes to School program in Massachusetts through its statewide travel-options program, Mass*RIDES*. The goal of the program is to improve walking and bicycling conditions for children traveling to school, through the program's "Five Es": education, encouragement, enforcement, engineering, and evaluation. A focus is placed on educating elementary school students, parents, and community members on the value of walking, bicycling, carpooling, using public transit, and taking school buses to and from school. The program also aims to increase physical activity and safety and decrease traffic congestion and air pollution. For more information on Safe Routes to Schools, see Chapter 6.

Freight Safety

Freight safety is an important issue due to the potential for great human and property losses in the event of an incident. Some of the issues for truck freight safety also pertain to highway safety in general and were discussed earlier in more depth. They are:

- Roadway design improvements
- Identification and mitigation of high-crash locations
- Railroad/highway grade crossings
- Lane departure crashes

Other issues discussed below that pertain to the trucking freight industry are the roles of associations and regulators, hours-of-service rules, and hazardous-materials transport.

The rail freight safety issues that are common to rail transit were addressed earlier in this chapter, and others are discussed below.

Some improvements to freight safety will also improve safety for other users of the transportation system. For example, the Commonwealth's policy that new and reconstructed bridges over rail lines be designed to accommodate double-stack rail cars, as well as the inclusion of the East Boston Haul Road in JOURNEY to 2030, will help to reduce the number of trucks on the roadway system in the MPO area.

Truck

Roles of Trucking Industry Associations and Government Regulators

Much of the safety advocacy for the truck freight mode comes from the industry's various trade associations and government regulators, as discussed below.

Federal Motor Carrier Safety Administration

The Federal Motor Carrier Safety Administration (FMCSA), a division of FHWA, promulgates regulations governing the trucking industry. The FMCSA recently established the Motor Carrier Safety Advisory Committee, which is expected to be fully operational in early 2007. This committee will advise and make recommendations to the FMCSA on safety programs and improvements, safety regulations, roadway design, dedicated truck lanes, and other safety issues of interest to the trucking industry.

Massachusetts Motor Transportation Association

The Massachusetts Motor Transportation Association is a nonprofit trade association that advocates for improvement to roadway design, promotes safety improvements for both highways and trucks, advocates for the creation of dedicated truck lanes, and serves the trucking industry in other ways as well.

Other Trucking Associations

The Regional Truck Council, the American Transportation Research Institute (formerly the American Trucking Research Institute), the American Trucking Foundation, and the American Trucking Association are some of the major trucking associations of which MPO region trucking firms are members. It is through these organizations that trucking concerns lobby local, state, and federal government agencies concerning highway improvements and other safety amenities and issues.

Hazardous-Materials Movement

Federal and state hazardous-materials regulations[1] restrict the movement of hazardous materials through highway tunnel structures. This affects many of the interstate highways in downtown Boston, including:

- I-90 Ted Williams Tunnel, traveling under Boston Harbor
- Central Artery
- Massachusetts Turnpike Extension under the Prudential building and Copley Square
- Tobin Bridge approach under City Square in Charlestown
- Sumner Tunnel
- Callahan Tunnel

This law is rigorously enforced by the Massachusetts State Police.

Hours-of-Service Rules

The Commonwealth of Massachusetts is in compliance with the hours-of-service (HOS) regulations promulgated by the FMCSA, which have the goal of improving safety by requiring periods of rest for long-haul drivers. The current HOS regulations took effect on October 1, 2005. Both the old and new regulations allow 11 continuous hours of driving after 10 continuous hours off duty. However, the new regulations require commercial motor vehicle drivers that use the sleeper berth provision to spend at least eight consecutive hours in their sleeper berth, plus two consecutive hours either in the sleeper berth, off duty, or any combination of the two. Under the old regulations, drivers were allowed to split their sleeper berth time into two-hour segments. The Massachusetts State Police enforce these rules in the Commonwealth.

Rail

Railroad Industry Associations and Government Regulators

Much of the safety advocacy for the railroad freight industry comes from its various trade

[1] Hazardous materials regulations: Title 49 of the Code of Federal Regulations (CFR), Section 397.6 and 397.9, Massachusetts General Law (MGL), Chapter 81A, and Massachusetts Code of Regulations (MRC), Title 730, Chapter 7.10 (1).

associations and government regulators, as discussed below.

Federal Railroad Administration

The USDOT's Federal Railroad Administration acts as both a regulator and a safety advocate for the railroad industry. It is responsible for:

- Rail safety regulations and enforcement
- Administration of railroad assistance programs
- Setting railroad safety policy
- Rehabilitation of Northeast Corridor passenger service
- Supporting intermodal transportation

Massachusetts Railroad Association

The Massachusetts Railroad Association is an organization of railroad companies operating in Massachusetts. Its stated goals are to share information and foster understanding of railroads' role in the safe and efficient movement of goods and people throughout the commonwealth.

Membership in the association includes:

- Bay Colony Railroad
- CSX
- Fore River Transportation
- Guilford Rail System
- Housatonic Railroad
- Massachusetts Central Railroad
- New England Central Railroad
- Pioneer Valley Railroad
- Providence and Worcester Railroad

Other Railroad Associations

The New England Railroad Club, the Association of American Railroads, the North American Rail Shippers Association, and the American Short Line and Regional Railroad Association are some of the other major railroad associations serving members of the MPO area. It is through these organizations that railroads lobby local, state, and federal government concerning railroad issues, including those related to safety.

Moving Hazardous Materials

The Hazardous Waste Common Carrier Agreement[2] requires railroads, including those operating in Massachusetts, to provide for the transport of hazardous waste or other dangerous cargo, up to and including radioactive nuclear waste, even if it is to pass through heavily populated urban areas. A large portion of the hazardous materials transported in the U.S. travels by rail, because, while not without risk, this mode is safer than transport over the roadways by truck. This law ensures that rail operators do not refuse hazardous materials for transport, in spite of the danger to the railroads and the areas through which hazardous materials pass.

[2] The Hazardous Waste Common Carrier Agreement, a combination of rules and regulations created by the Interstate Commerce Commission (ICC) (now the Surface Transportation Board (STB)), the USDOT, the Nuclear Regulatory Commission (NRC), common law, and other sources (all of which are based on the "common carrier obligation" outlined in U.S. Code, Title 49, Subtitle IV, Part A, Chapter 111, Subchapter I, Section 11101 (a) Common Carrier Transportation, Service, and Rates) states that a railroad may not deny service to any customer or fail to "…respond to reasonable requests for common carrier service…"

8

SECURITY

The Boston Region MPO's Vision for the Security of the Regional Transportation System

Security initiatives will be implemented to help protect the region from natural and human threats. Transportation infrastructure and its operation will be upgraded on an ongoing basis for the security of all users. Technologies will be employed to manage incidents, conduct emergency response, and support safe evacuations using various transportation modes.

To implement this vision, the MPO has developed a set of policy statements to guide its decision-making:

- Support designs and fund projects and programs that address security problems and enhance secure travel for all system users. This includes designs and projects that encourage motorists, public transportation riders, bicyclists, and pedestrians to share the transportation network securely.
- Support, through planning and programming, the installation, operation, upgrading, and timely maintenance of system infrastructure, including intelligent transportation systems (ITS), to provide for security.
- Participate in regional planning for security initiatives, such as evacuation and contingency measures, and homeland security.

Introduction

Security is an important component of the metropolitan transportation planning process. Metropolitan planning organizations are charged with considering ways to increase the security of the transportation system for motorized and nonmotorized users. Security has been designated as a new, stand-alone planning factor

by SAFETEA-LU (the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users), the current federal surface transportation legislation.

Security is defined as the freedom from intentional harm and tampering. Providing for security also includes planning for natural disasters. It sometimes overlaps with planning for safety. Security goes beyond safety and includes the planning to prevent, manage, or respond to threats to the region and its transportation system, such as those from terrorists that include arson, explosions, weapons of mass destruction, hostage situations, and tampering.

In the Boston Region MPO area, security must be provided on both the highway and transit systems. Approximately 1.2 million passenger-trips occur on the MBTA system each workday for commuting to jobs or school or for traveling to services, entertainment, or shopping. Approximately 12.3 million vehicle-trips per day by automobiles, bus rapid transit, and buses are made on the region's highways. The transit and highway systems are both essential for normal, day-to-day transportation in the region, and for any emergency response or evacuation services.

Some of the threats to the MPO area's transportation system include attacks on highway and transit viaducts, bridges, and tunnels, attacks on the various rolling stock and vehicle inventory such as buses, trolleys, subways, commuter trains, and commuter boats, and attacks on transit stations.

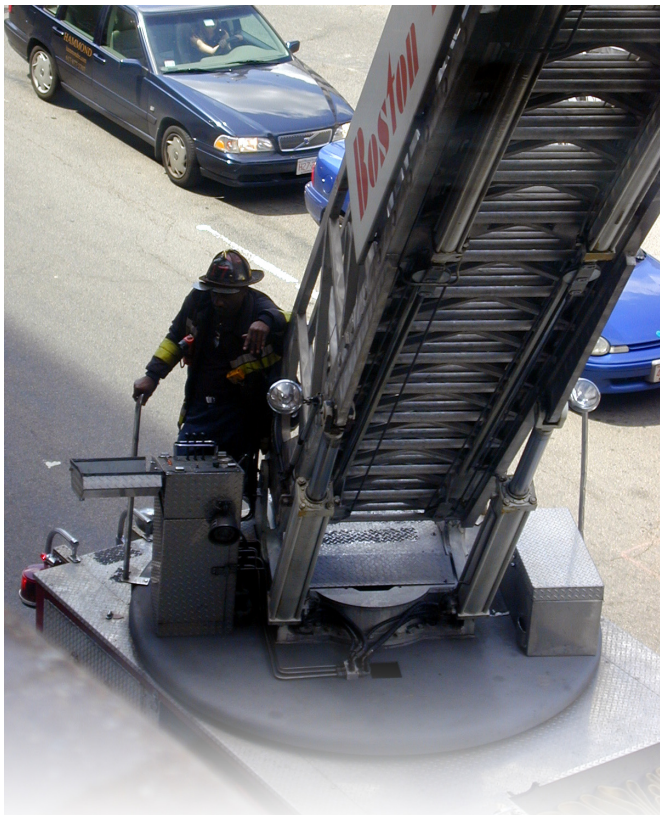
Planning for security for the region and in the region's transportation system is the responsibility of many agencies and entities. Their work in this area is interrelated and their responsibilities sometimes coincide, as security depends on extensive communication and coordination, in both the planning and execution of security measures. The Boston region benefits from federal and statewide security programs and from the involvement of regional and local entities. The MPO and many of its member agencies participate in a number of these planning activities that are conducted by other entities and have a role in approving funding for some security-related projects in the region. As security planning evolves, it is anticipated that the MPO will increasingly look at these issues within the context of its planning and programming. The regional model could be used to forecast mobility in the transportation system during an evacuation and to identify possible bottlenecks and other problems.

Agencies Involved in Security Planning in the Region

Homeland Security

The U.S. Department of Homeland Security (USDHS) is an overarching agency whose responsibilities include security planning for the transportation system. Its mission is to protect the United States from attacks through border and transportation security; emergency preparedness and response; chemical, biological, radiological, and nuclear countermeasures; information analysis; and infrastructure protection. The USDHS provides guidance and support for transportation security through the National Response Plan, which establishes protocols

for the federal government's coordination with state, local, and tribal governments, and with the private sector, for security events. This plan incorporates the best practices and procedures from all incident management disciplines, including emergency management, law enforcement, firefighting and first response, public works, and emergency medical services.



The USDHS administers the Transit Security Grant Program, which is funded by the Department of Homeland Security Appropriations Act of 2005. It grants money for security-related purposes for passenger rail, freight rail, and mass transit.

At the statewide level, the Massachusetts State Homeland Security Strategy, approved by USDHS in 2004, uses the National Response Plan guidelines to develop and maintain the Commonwealth's plan for all homeland security activities, such as regional preparedness, interoperability, and strategies for leading the various state agencies' management of security issues. These include agencies that are listed in the Regional Security section below. The state itself is divided into five Homeland Security Planning Regions and Advisory Councils (HSPRACs). They are:

1. Metro Boston Office of Homeland Security
2. Northeast Homeland Security Regional Advisory Council
3. Southeast Regional Advisory Council
4. Central Region Homeland Security Council
5. West Homeland Security Planning Region and Advisory Council

MPO cities and towns are included as members in all of the above HSPRACs except for the West. The work of these councils is discussed in more detail under the Massachusetts Homeland Security Planning Regions and Advisory Councils section below.

Regional Security

Regional security planning for the MPO area is conducted jointly on a multimodal basis by and among the federal, state, regional, and local agencies and entities listed below. The various law enforcement and other public safety agencies that have the most involvement in security planning are listed. As transportation agencies, several Boston Region MPO members are actively implementing security programs; the MPO participates in the planning and funding of some of these initiatives.

Entities Involved in Security Planning for the Boston Region

Federal

- Department of Homeland Security
- Federal Emergency Management Agency
- Federal Highway Administration
- Federal Motor Safety Carrier Administration
- Federal Transit Administration
- National Highway Traffic Safety Administration
- U.S. Department of Transportation

State

- Executive Office of Public Safety
- Executive Office of Transportation (EOT) – includes EOT's Office of Transportation Planning and the Transportation Security Roundtable
- Homeland Security Regional Planning and Advisory Councils
- Interoperability Working Group
- Massachusetts Aeronautics Commission
- Massachusetts Emergency Management Agency
- Massachusetts Governor's Highway Safety Bureau
- Massachusetts Highway Department
- Massachusetts Homeland Security Executive Committee
- Massachusetts Port Authority
- Massachusetts Registry of Motor Vehicles
- Massachusetts State Police; includes the Criminal Intelligence Section and the Fusion Center
- Massachusetts Turnpike Authority
- Regional Transit Security Working Group
- UMassSAFE – the multidisciplinary traffic safety research program of the University of Massachusetts

Regional

- Boston Region Metropolitan Planning Organization
- Cape Ann Transportation Authority
- Central Homeland Security Regional Planning and Advisory Council
- Massachusetts Bay Transportation Authority
- Metro Boston Homeland Security Regional Planning and Advisory Council
- Metropolitan Area Planning Council
- Northeast Homeland Security Regional Planning and Advisory Council
- Regional Transit Security Working Group
- Southeast Homeland Security Regional Planning and Advisory Council

Local

- Boston Emergency Management Agency
- Mayor of Boston's Office of Homeland Security
- Urban Area Security Initiative

The Federal Highway Administration (FHWA) provides guidance on planning for security, particularly for transportation agencies. FHWA advocates thinking about security in the terms of prevention and the "Four Ds of Defense": deter, deny, detect, and defend. FHWA promotes the installation of visible security measures (such as closed-circuit television cameras, intrusion alarms, and signs); routine security patrols; lighting improvements and obstruction removal; and the implementation of a controlled-lock and key-system, fencing, or bollards to prevent unauthorized access to critical locations.

Several Commonwealth of Massachusetts agencies have public security responsibilities; these agencies include the Executive Office of Transportation and the transportation agencies under it, the Massachusetts State Police, the Executive Office of Public Safety, and the National Guard.

Massachusetts Emergency Management Agency

The Massachusetts Emergency Management Agency (MEMA), through its Operations Division, manages and coordinates emergency response efforts for the commonwealth. It also operates the state Emergency Operations Center (EOC), where it monitors emergencies statewide 24 four hours per day, seven days per week. The EOC serves as the command and control center for the commonwealth during an emergency.

MEMA's Emergency Management Team is prepared and trained by the Operations Division. Membership in the Emergency Management Team comprises federal, state, local, private, and volunteer organizations, which are represented at the EOC during an incident. The Operations Division is also responsible for updating and publishing the Governor's Emergency Notification Roster and assuring that MEMA maintains a high degree of preparedness. MEMA also has a Disaster Recovery Division, which helps with local disaster victims and guides cities, towns, and individuals through recovery efforts, as well as working with the Department of Environmental Management on Flood Mitigation Programs. MEMA also provides coordination with the Federal Emergency Management Agency.

Massachusetts Homeland Security Planning Regions and Advisory Councils

The homeland security regions have each undertaken projects that relate to transportation security. In the Northeast Region, a study of critical infrastructure in 10 functional categories provided the Northeast Homeland Security Regional Advisory Council with a ranked assessment of critical infrastructure sites. The categories included transportation projects such as major highway interchanges. An assessment of personal-protective-equipment needs in the Northeast Region also identified the locations of many of the most important stationary hazardous materials and acknowledged that hazardous materials transported through the region also pose a risk.

In April 2006, the MBTA, the Executive Office of Public Safety, MEMA, and the regional homeland security councils discussed coordination. The meeting resulted in a list of action items regarding coordination of transportation security measures among the homeland security planning regions, regional transit entities, and the MBTA. More recently, MEMA established evacuation-planning steering committees in association with the four homeland security advisory councils that contain parts of the MBTA network. These committees are working to continue the evacuation planning work started in Boston in coordination with the City of Boston's emergency preparedness department, the MBTA, and the Executive Office of Transportation.

Massachusetts Statewide Anti-Terrorism Unified Response Network

The Massachusetts Statewide Anti-Terrorism Unified Response Network (SATURN) is an information-sharing and first-responder network that enhances existing public security delivery systems. SATURN is a new initiative that brings together fire, emergency management, and police resources from every Massachusetts community, and provides them with a process for receiving and exchanging information in the face of a terrorist threat.

Commonwealth Fusion Center

The Commonwealth of Massachusetts maintains a fusion center at the State Police General Headquarters, located in the Town of Framingham. A fusion center is defined by the Global Justice Information Sharing Initiative as "a collaborative effort of two or more agencies who provide resources, expertise and/or information to the center with the goal of maximizing the ability to detect, prevent, apprehend and respond to criminal and terrorist activity." The Commonwealth Fusion Center (CFC) operates 24 hours per day, seven days per week, providing terrorist-related intelligence, and public safety and security-related information, to the state's local, state, and federal public safety agencies and private organizations involved with safety and security. Trained analysts, each with a specialty in criminal and terrorist activity, furnish data, analysis, briefings, bulletins, threat levels, and risk assessments. In addition, the CFC also serves as a clearinghouse for information between the state's public and private safety and security agencies and organizations and the USDHS.

Highway System Security for the Boston Region

Highway system security is the responsibility of several traffic operations entities in the region that provide the command-and-control capability essential in a security event. They function as the centralized communications and coordination points for first responders from multiple agencies. These include MassHighway's Traffic Operations Center, the MassPike's Operations Control Center, the Massachusetts Inter-agency Video Information System, the Boston Transportation Department's Traffic Management Center, and the Commonwealth Fusion Center, which is discussed above. In addition, law enforcement and security on the commonwealth's interstate highway system, which includes the Massachusetts Turnpike, is provided by the Massachusetts State Police.

Massachusetts State Police

The Massachusetts State Police conducts traffic law enforcement and provides security on the Massachusetts Turnpike and other state-owned roads. It provides security through a variety of techniques, including, but not limited to, routine patrols using marked and unmarked cruisers, helicopter overflights, tollbooth surveillance, and crash and criminal investigations.

Massachusetts Interagency Video Information System

The Massachusetts Interagency Video Information System integrates video transmissions from MassHighway, the Boston Transportation Department, the MBTA, the Massachusetts State Police, and private traveler-information services (SmarTraveler and SmartRoute Systems). The system supports the distribution of video to partner agencies' control centers as well as to a password-protected Web site.

MassHighway's Traffic Operations Center

MassHighway's Traffic Operations Center (TOC) is located in South Boston. The TOC's primary mission is traffic incident management throughout the commonwealth. The TOC is the headquarters for the application of ITS technology.

From the TOC, reports on traffic incidents are relayed to the appropriate MassHighway district office, which assigns the necessary personnel and equipment required to abate the incident. The TOC also coordinates with the Masspike's Operations Control Center, the Boston Transportation Department's Traffic Management Center, and the City of Boston's Emergency Operations Center. There are several different systems that the TOC uses for real-time information about the highway system, including ITS elements such as loop detectors, which are embedded in the roadway, and video cameras. Other systems include remote-traffic-microwave-sensor radar units; more than 100 variable-message signs in place around the state; a global positioning sys-

tem to locate and monitor state police cruisers, snow plows, fire apparatus, ambulances, motorist-assistance CaresVans, and other emergency equipment; the central radio command system; and the Massachusetts Traffic and Emergency Response System. A back-up TOC is located at the Massachusetts State Police headquarters in Framingham.

The Masspike's Operations Control Center

The Masspike's Operations Control Center (OCC) is located in South Boston. The Massachusetts State Police's E-4 Administrative Unit, and MassHighway's relevant offices are located in the same building.

The OCC's 54 wide-screen, computer-controlled television monitors show the images from cameras that are trained on various parts of the Central Artery/Tunnel Project's roadways, listed below:

- Sumner Tunnel
- Callahan Tunnel
- I- 93 northbound from South Bay to Somerville
- I- 93 southbound from Storrow Drive Exit 26 to the South Bay
- Ted Williams Tunnel eastbound and westbound
- Prudential Tunnel eastbound and westbound
- Central Artery North Area (CANA) Tunnel southbound from the Tobin Bridge to points south and west
- Central Artery North Area (CANA) Tunnel northbound from I-93 northbound to the Tobin Bridge

The OCC performs many varied tasks, such as operating storm water pump stations, providing and controlling communications, monitoring carbon monoxide (CO) levels, controlling ventilation for the tunnels mentioned above, working with the Massachusetts State Police E-4 Units on enforcement actions, such as vehicle towing and

providing digital videos for motor vehicle accident investigations, and working with the Boston Fire Department on fire prevention and firefighting issues and activities.

The City of Boston's Traffic Management Center

The Boston Transportation Department (BTD) operates a Traffic Management Center (TMC), which is located in City Hall. The BTD's TMC monitors city traffic through the use of video cameras and embedded loop detectors. The TMC allows for real-time monitoring of traffic and incident management and provides integration and coordination, across jurisdictions, of emergency-response providers. The TMC is also capable of receiving and monitoring images from Central Artery Tunnel cameras and sharing that information with the Masspike's Operations Control Center.

Transit Security

Background

The MBTA and the Cape Ann Transportation Authority (CATA) are responsible for providing security on the MPO area's transit network. Transit system security is a regional concern. Issues to be addressed in planning for transit security are the age of the system, the types of structures in the system, the vulnerability of those structures, the lack of redundant and/or alternate system components and/or capacity, and the increased requirements (over and above personal safety requirements) to provide for anti-terrorism security.

Some of the methods being used by the MBTA to address transit security in the Boston Region are listed below. Portions of several initiatives, such as the Station Management Program, and items related to station security and automated fare collection, have been or are included in—and receive funding through—the region's Transportation Improvement Programs.

MBTA Transit Police Department

The MBTA Transit Police Department, employing 250 uniformed and plainclothes police officers, carries out its primary mission of maintaining security within the MBTA transit system. The MBTA police accomplish this through mobile, foot, and K-9 (canine) patrol teams on both scheduled and random patrols, all of which serve to maintain a high degree of visibility within the system. The Blue, Green, Orange, and Red Lines share four police substations, 15 police kiosks, and 115 police officers; additional surface patrols provide support for buses and commuter rail.

MBTA Transit Police Department's Special Operations Team

The MBTA Transit Police Department's Special Operations Team (SOT) is the MBTA's version of a SWAT (Special Weapons and Tactics) team. The SOT has eight specialty vehicles, which include an SOT rapid-response vehicle, a bomb disposal truck, radar units, and an incident command vehicle.

Secure Stations Initiative

The Secure Stations Initiative is one of the MBTA's programs for enhancing its systemwide operational security by improving its communications and security systems. This is a requirement of both the Massachusetts State Homeland Security Strategy and the Regional Transit Security Strategy. The Regional Transit Security Strategy, described below, was developed by the Regional Transit Security Working Group.

Any new construction, reconstruction, enhancement, or modernization project will include installation of, or upgrades to, the following communications systems:

- Closed-circuit television
- Public-address system
- Variable-message sign
- Security intrusion detection

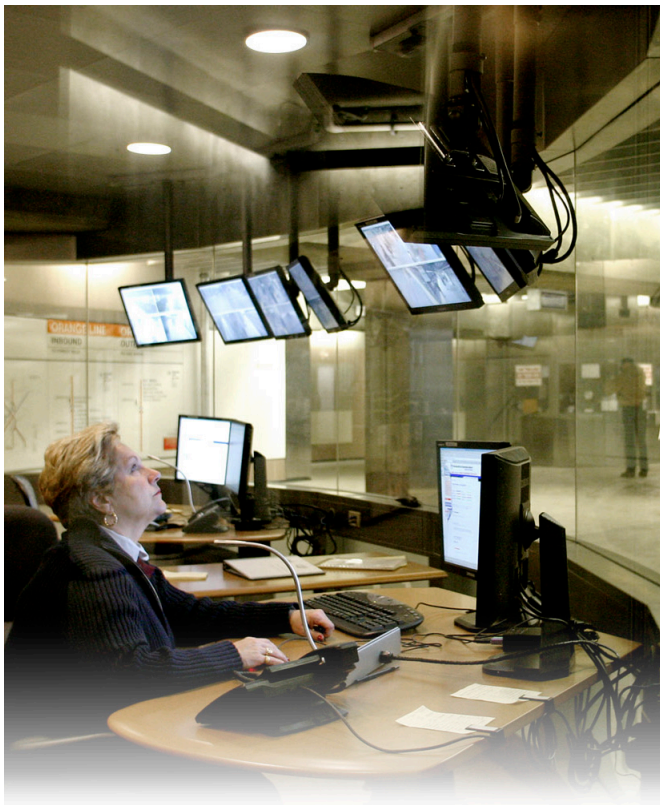
- Burglar alarm
- Fire alarm
- Police call box

The rapid transit stations' public-address systems currently provide travel information. A recorded security message from the MBTA general manager educates transit passengers about their role in maintaining system security; passengers are urged, "If you see something, say something."

MBTA Security Cameras

The MBTA has 402 security cameras in the subway system and is adding 186. The cameras are monitored from a number of different locations, including the MBTA's OCC, the Transit Police Department, and MEMA's Emergency Operations Center in Framingham.

In addition, the MBTA has embarked upon a program of installing security cameras in new buses. There is also a strong surveillance component the Hub Monitoring Stations Project, to the MBTA's Automated Fare Collection Project, and the Station Management Program Project, discussed in more detail in Chapter 7, Safety.



MBTA Station Security Program

In order to increase the overall safety and security of the system, the MBTA will spend $10 million in fiscal year 2007 for enhancements under the Station Security Program. These enhancements will include items such as new locks and doors on station utility and communications rooms.

MBTA Parking Facilities

Due to their proximity to operating subway and commuter rail stations, parking garages, such as the ones at the Red Line's Alewife and Quincy Adams Stations and the Route 128 Amtrak and commuter rail station, present additional security concerns to the MBTA over and above the ones already presented at a typical station. Special attention is paid to these facilities by the MBTA Transit Police Department. In addition, parking facilities receive additional scrutiny under the Secure Stations Initiative through the installation of closed-circuit television cameras, public-address systems, variable-message signs, security intrusion detection, alarms, and police-call-box systems.

Interoperability

One of the issues facing the MBTA in its emergency-response planning is that of interoperability. Interoperability is defined as the ability of radio equipment belonging to one department's emergency first responders to communicate with that of another department. Information on interoperability was also discussed in Chapter 7, Safety.

MBTA Operations Control Center

The MBTA operates and maintains an operations control center (OCC) in Boston for its rapid transit, light rail, and surface bus operations. The MBTA's OCC is capable of handling data acquisition for both infrastructure and traction power control, voice communications by either telephone or radio, centralized traffic control,

automatic vehicle-identification surveillance, and control of rail traffic. This facility is located in a theater-style room that allows the wall-sized display board to be viewed by the operations supervisor, emergency control personnel, and staff in the attached conference room. The OCC interfaces and shares information with MassHighway's Traffic Operations Center, the Masspike's Operations Control Center, the Boston Transportation Department's Traffic Management Center, the Massachusetts Interagency Video Information System, and the Commonwealth Fusion Center.

Cape Ann Transportation Authority Security Measures

The Cape Ann Transportation Authority (CATA) provides bus and paratransit services in the MPO-area communities of Gloucester, Essex, Ipswich, and Rockport.

CATA is implementing the following security measures:

- Security cameras installed around the transit operations, maintenance, and bus storage building
- Training for bus drivers on maintaining secure bus operation, including identification of suspicious articles or behavior
- Distribution of security material prepared by the MBTA
- Provision of an emergency message, "Call Police," to be displayed on the bus destination sign in the event of an incident

Amtrak Police

Amtrak provides regional transit security and law enforcement through the Amtrak Police. The Amtrak Police's 342 police officers, most of whom are stationed within the Northeast Corridor, Amtrak's busiest, provide security at Boston's South and Back Bay Stations and Westwood's Route 128 Station. The Amtrak Police is also responsible for security on 300 trains per day serving approximately 540 stations and operating on more than 22,000 miles of rail in 46 states.

Regional Transit Security Working Group

Any transit agency wishing to receive funding through the federal Transit Security Grant Program is required to participate in a Regional Transit Security Working Group (RTSWG). The primary purpose of the RTSWG is to develop a Regional Transit Security Strategy, the development of which is also required to receive funding under the Transit Security Grant Program. In early 2007, the USDHS granted the MBTA $15.3 million, the largest award the MBTA has ever received, to enhance the security of its trains and buses. The MBTA will use the money to improve video surveillance, start a pilot program to expand its biological, nuclear, radiological, and explosive material detection systems, and add additional surveillance cameras.

The Executive Office of Public Safety chairs the RTSWG, and the MBTA and MPO are members. The MPO brings a regional planning perspective to the work of the group and will also be called

upon to participate in the funding of regional transit-security initiatives and processes.

Operation Lifesaver

Operation Lifesaver is an educational program created to prevent collisions, deaths, injuries, and crashes at railroad grade crossings and along railroad rights-of-way, including those possibly initiated through terrorist activity. Information on Operation Lifesaver was discussed in Chapter 7, Safety.

Freight System Security

Many security measures are already in place for the region's freight system, and additional planning is underway. Transportation and public safety agencies and entities mentioned earlier in this chapter, as well as others discussed in this chapter, are participating in this undertaking.

Truck Security

The measures that provide security on our region's highways also provide security for the freight system. In particular, the Massachusetts State Police, through patrol and enforcement activities, provide security to the trucking industry. Another source of trucking security is MassHighway's permitting activities, which are conducted from its Commercial Vehicle Center in Milford.

Permitting activities by the Milford Commercial Vehicle Center consist of issuing permits to trucks to operate temporarily at various overloaded levels; the setting of requirements for escorts, signs, and/or flags; the determination of required liability insurance coverage; and the setting of restricted travel times and locations. The Massachusetts State Police Commercial Vehicle Enforcement Section (CVES) enforces permit requirements.

Using a combination of law and permit enforcement, education, roadside inspection, and crash investigation techniques, troopers from the CVES monitor the security and the mechanical and operational safety of commercial vehicles (trucks) that use the state's public roadway system. The CVES mission also includes the enforcement of hazardous-materials regulations.

Port Security

The requirements for providing security for the seaports of Massachusetts and the rest of the country are contained in the Maritime Transportation Security Act (MTSA). This federal legislation, passed in 2002, was created to protect U.S. seaports and waterways from terrorist attacks.

In addition, the International Ship and Port Facility Security Code provides guidance on minimium security arrangements for agencies guarding ports, the ports themselves, and the ships using those ports.

Under MTSA, seaport facilities and the vessels that use them are obligated to create security plans that may include provisions such as the establishment of screening procedures, patrols, restricted areas, personnel identification procedures, access control measures, and the installation of surveillance and monitoring equipment.

In addition, MTSA contains a provision requiring that Area Maritime Security Committees be created in all U.S. seaports to ensure the coordination of all security efforts by, and on behalf of, local, regional, state, and federal agencies, members of the maritime industry, and members of the public at large.

Other MTSA provisions include requirements for the creation of:

- A Maritime Transportation Security Plan
- A Vessel and Facility Security Plan
- Transportation security cards
- Background checks
- Submission of crew and cargo manifests

Other port security provisions, such as the Container Security Initiative and the Customs-Trade Partnership Against Terrorism, allow for the inspection of cargo destined for U.S. seaports to occur at the foreign port of origin.

The U.S. Bio-Terrorism Act requires that information on hazardous shipments be provided two hours prior to arrival at a border or seaport. This is more stringent than U.S. Customs requirements of one hour in advance of arrival.

The Transportation Worker Identification Credential program has rules for over 750,000 port owners and operators, port employees, longshoreman, mariners, truckers, and any others needing access to secure areas of seaports and vessels. This USDHS security process is administered by the Transportation Security Administration, and entails detailed background checks. Successful applicants are issued a "smart card" containing their name, photograph, an expiration date, and a unique serial number, along with an integrated-circuit chip storing a fingerprint template, a unique personal identification number, and a redundant unique identifier.

In the last four years, the Port of Boston has received over $8 million in grants from the USDHS. This money has been used, along with Massport funds, to install surveillance cameras and other security-enhancing equipment, such as, public-address systems, variable-message signs, security intrusion detection, alarm systems, and police-call-box systems. However, Massport has projected that the Port of Boston will receive only about $150,000 in 2007, even though it has been included in a higher risk category.

The recently enacted Safe Port Act of 2006 provides for continued funding for port security grants. It is a $6.7 billion spending bill that will provide comprehensive cargo chain security for all freight brought into the U.S. by sea. This will be accomplished by scanning 100 percent of imported shipping containers for radiation before they are loaded, which is the primary feature of this bill.

Rail Security

Hazardous Materials Movement by Rail

It is relatively safer to transport hazardous materials by rail than over the roadways by truck. Therefore, in the U.S. a large percentage of hazardous materials is transported by rail. The Hazardous Waste Common Carrier Agreement, which was created by the Interstate Commerce Commission (now the Surface Transportation Board), the U.S. Department of Transportation, the Nuclear Regulatory Commission, common law, and other sources, ensures that rail operators do not refuse to transport hazardous materials. This requirement, which covers radioactive nuclear waste and hazardous waste transported through heavily populated areas, creates considerable security challenges for municipalities along rail routes.

Airport Security

Massport operates Boston's Logan International Airport, Bedford's Hanscom Field, and the Worcester Regional Airport. The Massachusetts Aeronautics Commission is in charge of regulation and oversight of the other public airports in Massachusetts, including general aviation facilities located in the MPO area, such as Beverly Municipal Airport, Marlboro Airport, Norwood Memorial Airport, and Stow's Minute Man Air

Field. Together, Massport and the Massachusetts Aeronautics Commission are responsible for providing security to these airports and their users.

Massport has been recognized for leadership in the identification and use of cutting-edge airport security measures at Logan Airport. They include explosive detectors, infrared cameras, a 10-foot concrete perimeter security wall, the institution of a 250-foot exclusionary zone in Boston Harbor, and the presence of State Police troopers who are specially trained in the use of automatic weapons and other counterterrorism techniques. In addition, there are several hundred Transportation Security Administration personnel located at Logan to screen luggage and passengers before they enter aircraft. Future plans include adding security features to Massport's Logan Airport Parking Management System that would require screening passengers and luggage prior to their entry into any of the airport's terminals.

At airports overseen by the Massachusetts Aeronautics Commission, recognized nationally for small-airport security work, innovative techniques such as identification badges and aircraft registration database programs provide for the continued security of airport users.

Evacuation Planning

In some emergencies, evacuation of the population in some or all parts of the Boston region may be called for. To date, two evacuation plans have been developed in the region, and are discussed below.

The City of Boston's Evacuation Plan: Operation Exodus

The City of Boston's emergency evacuation plan is called Operation Exodus. The plan will use the MBTA system, local law enforcement, and the other regional public safety agencies to evacuate any area of the city that has been affected by a large-scale emergency to areas outside of the city proper. Cooperating entities include the Transportation Security Roundtable, the MBTA, the Executive Office of Public Safety, MassHighway, the Massachusetts State Police, the City of Boston, the Federal Emergency Management Agency, and the Massachusetts Emergency Management Agency.

Other Evacuation Planning

MEMA has formed evacuation planning steering committees in association with the three homeland security advisory councils within the MBTA network and the Metro Boston Homeland Security. They are developing evacuation plans for their regions in coordination with Boston, the MBTA, and the Executive Office of Transportation.

MAPC Natural Hazard Mitigation Planning: Evacuation Routes

MAPC has been working with 75 of its members, including several communities in the Inner Core Committee (one of the eight MAPC subregional groups), to create Natural Hazards Mitigation Plans. These plans, which are produced under the Federal Emergency Management Agency's Pre-Disaster Mitigation program and administered

in Massachusetts by the Massachusetts Emergency Management Agency and the Department of Conservation and Recreation, have been prepared for 29 communities in the Inner Core Committee, South Shore Coalition, and North Shore Task Force subregions. MAPC is currently working on plans for 46 additional cities and towns in the five remaining subregions: the North Suburban Planning Council, the Minuteman Advisory Group on Interlocal Coordination, the MetroWest Growth Management Committee, the SouthWest Advisory Planning Committee, and the Three Rivers Interlocal Council.

With assistance from MAPC, the communities have developed draft plans with substantial relevance to transportation, as they include databases and geographic information system maps containing layers of critical facilities and infrastructure with areas at risk from natural hazards such as flooding, hurricanes, geologic hazards, and winter storm damage. Many of the mitigation projects identified in these plans involve improvements to roadway-related drainage that would reduce flooding impacts in these communities. These plans can also be useful in determining which evacuation routes would be affected by a natural disaster.

9

REGIONAL EQUITY

The Boston Region MPO's Vision for Regional Equity

Regional equity and the needs of low-income and minority residents will be assessed through regular activities and technical analyses. Low-income and minority residents will share equitably with others in the access and mobility benefits of the transportation network. Environmental burdens from transportation facilities and services will be identified and minimized.

To implement this vision, the MPO has developed a set of policy statements to guide their decision-making:

- Continue the outreach to communities with a high proportion of low-income and minority residents to identify transportation needs.
- Assess regional equity by analyzing mobility, accessibility, and congestion for communities with a high proportion of low-income and minority residents.
- Fund projects that address identified regional equity issues and needs.

Definition

The MPO's regional equity policy is rooted in its definition of environmental justice, below:

> Environmental justice requires the MPO to examine the allocation of benefits and burdens, historically and currently, and planned for the future; to ensure that minority and low-income communities are treated equitably in the provision of transportation services and projects; and to provide full participation for minority and low-income communities to advise the MPO

during its planning and decision-making process.

The Role of Environmental Justice in the Boston Region MPO's Planning Process

The MPO's regional equity/environmental justice program builds on the foundation of previous MPO outreach and an analysis of the transportation needs of minority and low-income populations in the Boston region. The MPO has developed a regional equity program that focuses on direct outreach to community organizations that serve environmental justice areas in the region, including conducting and participating in organized forums.

The MPO integrates environmental justice into the planning process by encouraging and sharing input from its outreach efforts, by using environmental justice as a criterion in its planning documents, and by examining environmental justice issues in greater detail. After meeting with community organizations, the MPO staff summarizes the issues discussed and provides the MPO with a summary report. Each issue discussed is categorized and transmitted to other agencies if necessary. Relevant issues also inform the project selection process for the long-range transportation plan (the Plan) and the Transportation Improvement Program (TIP). Pertinent issues are also considered for further examination and study.

Environmental Justice Areas

In 2006, the MPO developed and began using a more detailed transportation model of the Boston region. While the previous version of the model was composed of 986 transportation analysis zones (TAZs), the new version of the model is composed of 2,727 TAZs. A TAZ is an aggregation of census geography based on demographic information and numbers of trips produced, and attracted within, its borders. Each zone contains population, employment, and housing information. The average TAZ has approximately 1,800 people.

The TAZ is the geographic unit for the analysis used to define environmental justice areas. With a larger number of TAZs as part of its model, the MPO was able to identify more groups of low-income and minority people in the region.

In addition to this change, the MPO also developed an expanded definition of environmental justice areas. The original 17 environmental justice areas were selected based on TAZs that either had a median household income of 50 percent of the region's median, or were over 50 percent minority with a median household income of 75 percent of the region's median. When the MPO considered the implications of the finer-grained model, it refined how environmental justice areas are defined. The new definition is:

> A TAZ will be considered an Environmental Justice Area if it is over 50 percent minority or has a median household income at or below 60 percent of the region's median. [60 percent of the region's median household income of $55,800 is $33,480.]

The MPO adopted this income threshold from a United States Department of Housing and Urban Development definition of low-income households, which is "60 percent of area median income."[1] TAZs must also have a minimum minority population of 200 people. Coupled with the finer-grained map, this new definition resulted in the addition of 11 environmental justice areas.

The original 17 environmental justice areas, composed of single or localized groups of TAZs, are in the following Boston neighborhoods and municipalities. (The number of environmental justice area TAZs compared to the total number of TAZs in a neighborhood or municipality is indicated in parentheses.)

The Boston neighborhoods of:

- Allston-Brighton (16 of 39 TAZs)
- Chinatown (12 of 19 TAZs)
- Dorchester (23 of 37 TAZs)
- East Boston (14 of 18 TAZs)
- Jamaica Plain (9 of 22 TAZs)
- Mattapan (19 of 20 TAZs)
- Roxbury (26 of 27 TAZs)
- South Boston (4 of 19 TAZs)
- South End (12 of 22 TAZs)

The municipalities of:

- Cambridge (14 of 88 TAZs)
- Chelsea (18 of 19 TAZs)
- Framingham (6 of 32 TAZs)
- Lynn (16 of 39 TAZs)
- Quincy (5 of 50 TAZs)
- Revere (7 of 24 TAZs)
- Salem (1 of 19 TAZs)
- Somerville (7 of 41 TAZs)

The additional 11 environmental justice areas are in:

The Boston neighborhoods of:

- Charlestown (1 of 9 TAZs)
- Fenway (23 of 29 TAZs)
- Hyde Park (9 of 14 TAZs)
- Roslindale (5 of 11 TAZs)

The municipalities of:

- Everett (4 of 18 TAZs)
- Malden (3 of 28 TAZs)
- Medford (2 of 26 TAZs)
- Milford (2 of 18 TAZs)
- Peabody (2 of 23 TAZs)
- Randolph (1 of 15 TAZs)
- Waltham (1 of 32 TAZs)

These 28 environmental justice areas are the focus of the outreach and analysis components of the MPO's regional equity program. Table 9-1 shows the total population, minority population, and percent of the MPO's median household income for all of the TAZs within a municipality or neighborhood that meet the low-income or minority threshold. Figures 9-1 and 9-2 show the location of the environmental justice areas in the region and urban core, respectively.

[1] The full definition is: "60 percent of area median income. Used as low income for the low-income housing tax credit and HOME programs." Office of Policy Development and Research of the U.S. Department of Housing and Urban Development, *Rental Housing Assistance – the Worsening Crisis: A Report to Congress on Worst Case Housing Needs,* March 2000.

TABLE 9-1

Environmental Justice Area Demographics

LOCATION OF ENVIRONMENTAL JUSTICE AREA (EJA)	TOTAL POPULATION OF EJA	MINORITY POPULATION OF EJA	PERCENT OF TOTAL POPULATION THAT IS MINORITY	EJA'S MEDIAN HOUSEHOLD INCOME AS A PERCENT OF THE REGION'S MEDIAN HOUSEHOLD INCOME
ALLSTON / BRIGHTON	27,932	11,073	40%	47%
CAMBRIDGE	22,921	14,195	62%	60%
CHARLESTOWN	3,627	2,593	71%	27%
CHELSEA	34,535	21,492	62%	54%
CHINATOWN	7,429	4,736	64%	30%
DORCHESTER	53,596	42,157	79%	67%
EAST BOSTON	30,241	17,011	56%	52%
EVERETT	2,956	978	33%	52%
FENWAY	33,565	10,924	33%	43%
FRAMINGHAM	11,247	6,121	54%	50%
HYDE PARK	23,214	17,403	75%	70%
JAMAICA PLAIN	13,547	10,106	75%	47%
LYNN	38,004	23,042	61%	46%
MALDEN	2,387	920	39%	56%
MATTAPAN	50,966	48,779	96%	60%
MEDFORD	6,109	2,247	37%	78%
MILFORD	2,977	516	17%	56%
PEABODY	3,141	682	22%	43%
QUINCY	7,745	2,131	28%	49%
RANDOLPH	1,622	876	54%	88%
REVERE	11,959	4,213	35%	51%
ROSLINDALE	12,344	8,477	69%	62%
ROXBURY	55,747	52,296	94%	50%
SALEM	2,921	2,173	74%	47%
SOMERVILLE	7,224	3,189	44%	52%
SOUTH BOSTON	8,500	3,756	44%	31%
SOUTH END	16,306	12,441	76%	42%
WALTHAM	1,788	919	51%	78%
TOTAL	**494,550**	**325,446**	**66%**	

FIGURE 9-1

Boston Region MPO Environmental Justice Areas

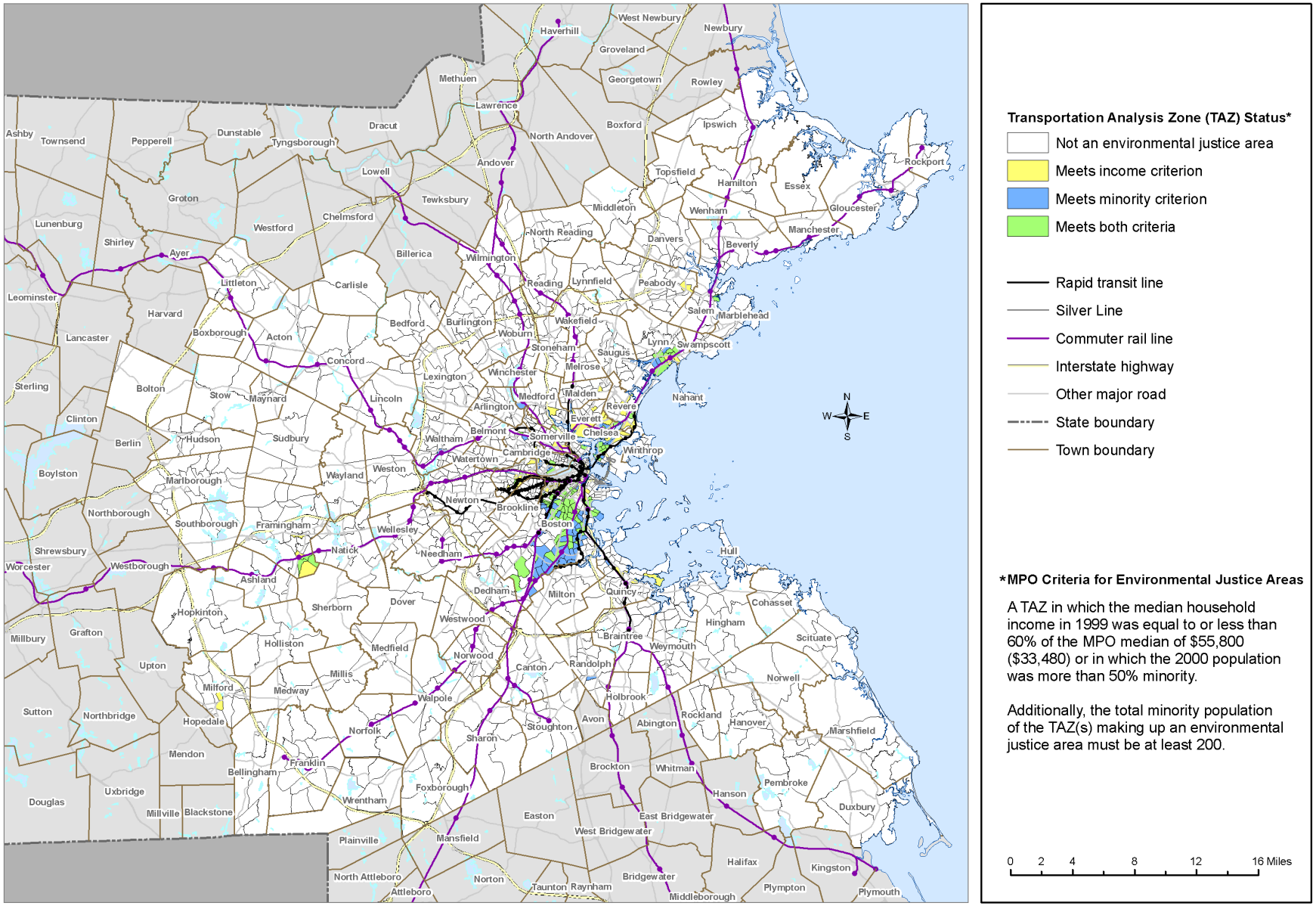
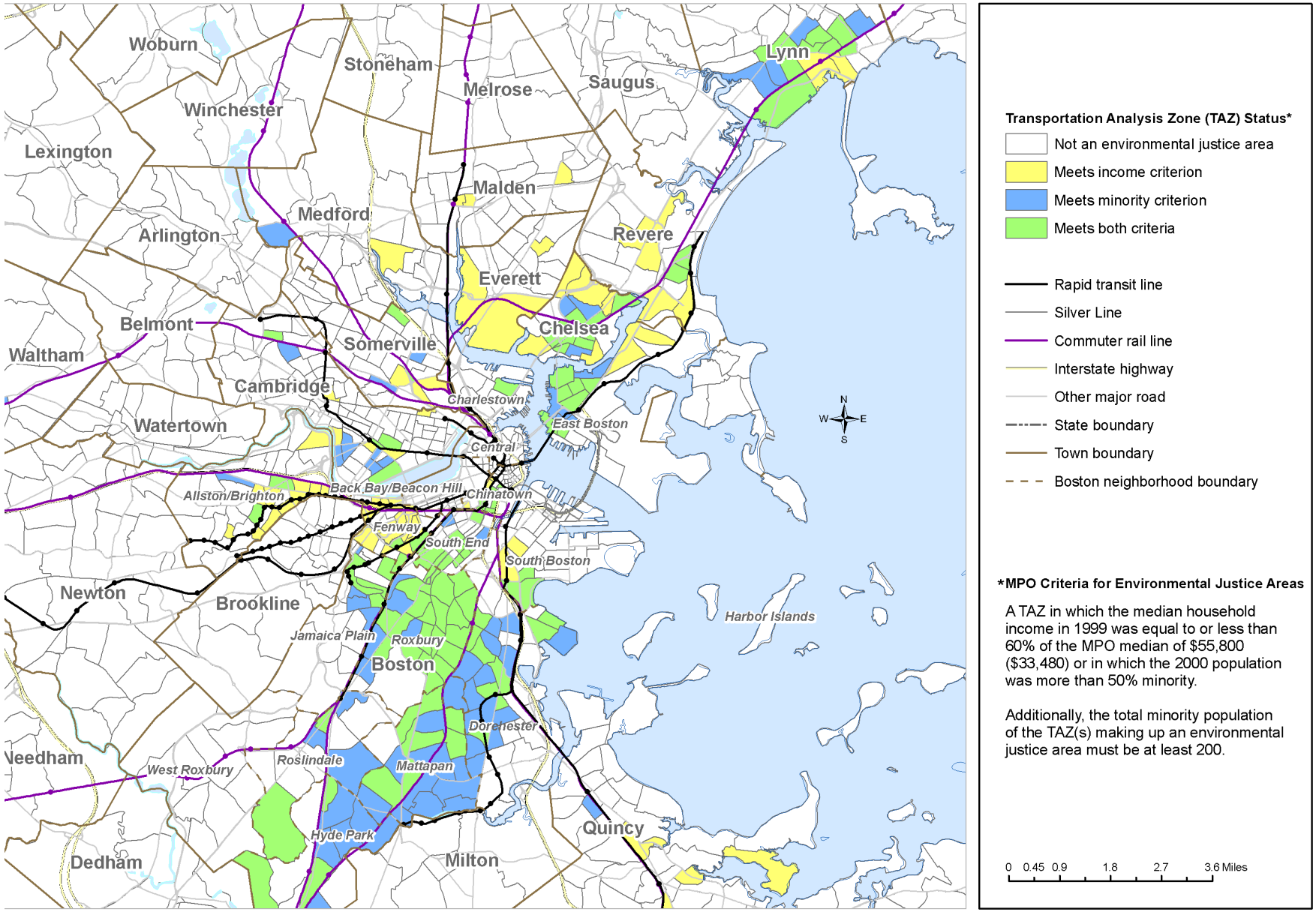


FIGURE 9-2

Boston Region MPO Urban Core Environmental Justice Areas



The Boston Region MPO's Regional Equity Program

The MPO has developed a regional equity program to identify transportation needs of minority and low-income populations and to provide awareness of opportunities for involvement in the planning process. This program focuses on direct outreach to social service organizations serving environmental justice areas in the region, including conducting and participating in organized forums. The Boston Region MPO's regional equity program is composed of three key elements: outreach, analysis, and integrating environmental justice into the planning process.

Outreach

The MPO takes a proactive, grassroots approach to identifying and articulating environmental justice issues in the region. Methods include gathering information on the transportation needs of minority and low-income populations for consideration in the development of studies and certification documents; identifying, sharing, and connecting new contacts and sources of information for the planning process; meeting new people interested in participating in the planning process; and serving as a conduit for ideas on improving transportation that can be relayed to other agencies.

In carrying out these methods, the MPO identifies social service and community contacts in the environmental justice areas involved in, and knowledgeable about, the transportation issues and needs of their areas. These contacts include social service organizations; community development corporations; regional employment boards; civic groups; business and labor organizations; transportation advocates; environmental groups; and environmental justice and civil rights groups. The MPO's process for working with these community organizations consists of gathering information, summarizing needs, and providing feedback once communication has begun.

Gathering Information

Gathering information about the transportation needs of minority and low-income populations is completed in one of three ways:

1. One-on-one interviews with community organizations are used to discuss transportation needs and burdens and facilitate participation. The MPO has learned that, in some cases, the people best positioned to speak about the transportation needs of environmental justice areas do not have the time and financial resources to travel to meetings in a central location or to participate in public forums. By visiting community representatives at their offices and facilitating one-on-one or small-group interviews, the MPO is able to obtain valuable information about the transportation needs of the area that inform the MPO during its transportation decision-making process. These discussions also provide opportunities to inform participants about the MPO and the metropolitan planning process.

2. Standardized surveys are also used to gather data for analysis and presentation to the MPO. Blank surveys are mailed to community contacts who are unable to schedule time for an interview.

3. The MPO staff also keeps track of forums and meetings planned by community organizations. When relevant, and as time permits, the staff attends these meetings to meet additional contacts, gather information, and provide input on questions specific to the MPO planning process as they arise.

Summarizing Needs

Summaries of the information gathered and copies of the surveys, maps, and any other notes and information are compiled and presented in briefing books for review by the MPO and are made available to contacts and interested parties in environmental justice areas. Prior to its inclusion in the briefing book and reports to the MPO, MPO staff interprets the needs identified by each community and classifies them as related to the Plan, TIP, Unified Planning Work Program (UPWP), service planning, or other planning processes.

Needs identified through the regional equity program include:

- Service improvements to existing transit, including more frequent service (shorter headways), better customer service, longer operating hours, on-time transfers, and an increase in destinations served. These comments were mainly for buses (including the LIFT in the Framingham area) and paratransit, but also for rapid transit (particularly the Green Line) and commuter rail (particularly the Fairmount Line).
- Updated, and more, amenities at transit stations and stops, including route signs, benches, schedules, and shelters.
- A reduction in traffic congestion, including truck volumes, and improvements in traffic flow on major roadways.

- Pedestrian and bicyclist improvements, including more paths, lanes, connections, crossing signs, racks on buses, and signage.
- Roadway and bridge improvements, including cleaning, repairing, and repaving.
- More bilingual information and signage, particularly at transit stops.
- Better parking enforcement.
- Improved accessibility at rapid transit and commuter rail stations.
- Additional commuter rail stations.
- Transportation to decentralized locations, including more reverse-commute options.
- A better balance between transit fares and level of service.

For a more detailed list of needs, with the MPO's follow-up actions, see Appendix E.

Providing Feedback to Community Organizations

The MPO provides feedback to community organizations involved in the MPO regional equity

process by providing a written summary, in draft form, of their discussions with MPO staff for their review, and by classifying the needs as related to the Plan, TIP, UPWP, service planning, or other entity. Communication is ongoing, as the MPO staff keeps community organizations updated with information. Notices of current and planned MPO activities (including MPO-sponsored meetings, open houses, workshops, or meetings sponsored by other agencies, if known) that are related to the community's needs are also sent to the organizations when relevant.

Analysis

The MPO performs a systemwide analysis on current conditions, the set of projects that are currently funded by the MPO, and the set of projects recommended in this Plan. The analysis focuses on mobility, accessibility, and emissions for communities with a high proportion of low-income and minority residents. Chapter 14 details the results of this analysis.

Integration with Planning Process

The MPO integrates environmental justice concerns into the planning process by encouraging and sharing input from its outreach efforts, by using environmental justice as a criterion in its planning documents, and by examining environmental justice issues in greater detail.

The MPO holds several open houses and workshops every year on various topics; these events include forums for discussing certification documents and UPWP studies. Environmental justice contacts are encouraged to attend and to provide input at each of these events. The MPO also holds periodic meetings that focus on environmental justice, and gives presentations on its regional equity program whenever requested to by a community organization. Environmental justice contacts are notified of public review periods and are encouraged to provide input. MPO staff summarizes input from these events and distributes it to MPO members.

The potential impact of a proposed project in environmental justice areas is a criterion in the long-range transportation plan and TIP project ranking processes. The MPO staff gives projects that are estimated to benefit environmental justice areas positive ratings and projects that may burden these areas negative ratings. The MPO considers these ratings when deciding what projects should be listed in the Plan or TIP, and which should receive funding.

Summary

The MPO is committed to attaining regional equity and environmental justice and will continue to seek the equitable distribution of benefits and burdens in the transportation system. This commitment will produce results through ongoing compliance with its own policies and consideration of environmental justice issues through its evaluations. The MPO will continue to expand its outreach to environmental justice areas and broaden its direct contacts with minority and low-income residents in these areas in order to maintain the flow of information, and to strengthen communication and its working relationships.

10

ENVIRONMENT

The Boston Region MPO's Vision for the Environment

Transportation-planning activities and projects will strive to reduce air quality degradation and other environmental degradations caused by transportation. Vehicle emissions (carbon monoxide [CO], nitrogen oxides [NOx], volatile organic compounds [VOCs], particulates, and carbon dioxide [CO_2]) will be reduced by modernizing transit, truck, and automobile fleets and through increasing transit mode share.

Transportation projects will consider the management and minimization of soil and water contamination, such as highway and rail right-of-way runoff, and wetland impacts. Construction of transportation facilities will avoid or minimize negative impacts to natural resources. Transportation planning will also promote project design that preserves cultural resources such as community character and cohesiveness, quality of life, and historic and scenic resources; protects greenfields, open space, wildlife, and ecosystems; and advances sustainability and health-promoting transportation options. Transportation agencies will work with environmental and cultural resource agencies to achieve these ends.

To implement this vision, the MPO has developed a set of policy statements to guide its decision-making:

- Give priority to projects that maintain and improve public transportation facilities and services, so as to increase public transportation mode share and reduce reliance on automobiles.
- Give priority to projects that reduce congestion or manage transportation demand to improve air quality.

- Support, through planning and programming, projects that make transportation in the region more sustainable.
- Promote the use of low-polluting or alternative fuels, efficient engine technology, and other new, viable technologies that protect our resources.
- Consider environmental issues during project selection; in particular, air quality and the reduction of pollutants (CO, NOx, VOCs, particulates, and CO_2), the protection of water resources (soil and water contamination, stormwater management, and wetlands impacts), greenfields and open space, and wildlife and ecosystem preservation; and value those projects that reduce negative impacts.
- Recognize value in transportation projects that preserve natural and cultural resources, including visual, historic, aesthetic, noise, community cohesiveness, and local quality of life values.
- Recognize, in evaluations, projects that respect community character in their purpose and design.
- Consult with environmental and cultural resource agencies and entities on environmental effects, particularly through the existing National Environmental Policy Act/Massachusetts Environmental Policy Act (NEPA/MEPA) processes.
- Encourage, through planning and programming, transportation choices that promote a healthy lifestyle, such as walking and bicycling.

Introduction

The policies above are those that are pertinent to this chapter. The issues of land use and economic development, which are closely connected to the environment, are discussed in Chapter 11. Air quality conformity issues are discussed separately in Chapter 15. Some categories of policies do not address environmental issues directly and yet have significant influence upon the environment. For example, the MPO's policy on system preservation can have a positive effect by discouraging the implementation of projects that might impinge on environmentally sensitive or simply undeveloped areas. Policies and actions supporting bicycle, pedestrian, intelligent transportation systems (ITS), and public transportation also favor the protection of the environment.

This chapter describes the environmental process involved in project selection and development. This process strives to protect and enhance the natural and manmade resources of our region: water supply and quality, wetlands and open-space land, floodplain, fish and wildlife, endangered species, historical and archaeological sites, and air quality. This chapter responds to a federal directive in SAFETEA-LU to describe the process by which concern for the environment is reflected in transportation planning in the MPO region.[1]

The next section of this chapter presents a visual overview of the Boston Region MPO area in

[1] *Interim Guidance for Implementing Key SAFETEA-LU Provisions on Planning, Environment, and Air Quality for Joint FHWA/FTA Authorities,* "Planning Provisions," September 2, 2005, modified March 20, 2006. Metropolitan and statewide plans—environmental mitigation: "Metropolitan and statewide transportation plans must include a discussion of types of potential environmental mitigation activities, to be developed in consultation with federal, state and tribal wildlife, land management, and regulatory agencies." Note: there are no tribal entities in the Boston Region MPO area.

Metropolitan and statewide plans—new consultations: "MPOs and states must consult, as appropriate, with state and local agencies responsible for land use management, natural resources, environmental protection, conservation, and historic preservation in developing long-range transportation plans."

terms of environmental parameters. The subsequent (and final) section describes the collaborative relationship between transportation and environmental agencies during project development. This chapter was prepared in consultation with MassHighway, the MBTA, and the MEPA Unit of the Executive Office of Environmental Affairs.

Environmental Overview of the Region

Figures 10-1 through 10-8, provided at the end of this chapter, present the following overviews of the Boston Region MPO area: Areas of Critical Environmental Concern (acec), special flood hazard areas [FEMA Q3 flood plain], wetlands, water supply and well head protection areas, protected open space, Natural Heritage and Endangered Species Program Priority Habitats, historic places on the State Registry, and air quality. The projects that have been recommended in the Plan are included on each of these figures. They are listed in Table 10-1, which immediately precedes the figures.

Areas of Critical Environmental Concern

The 28 Areas of Critical Environmental Concern (ACECs) in Massachusetts are recognized for their unique, significant natural and cultural resources. Individual communities nominate candidates for ACEC designation, and the Secretary of Environmental Affairs determines whether to designate the area as an ACEC. The ACEC designation helps to ensure that any activities undertaken in or near the ACEC have minimal negative impacts.[2]

Statewide, the 28 ACECs, located in 73 towns, cover almost a quarter million acres. Figure 10-1 indicates the 12 that are located at least partially in the Boston Region MPO area:[3]

- *Canoe River Aquifer,* 17,200 acres, designated in 1991; Easton, Foxborough, Mansfield, Norton, Sharon, and Taunton
- *Central Nashua River Valley,* 12,900 acres, designated in 1996; Bolton, Harvard, Lancaster, and Leominster
- *Cranberry Brook Watershed*, 1,050 acres, designated in 1983; Braintree and Holbrook
- *Fowl Meadow and Ponkapoag Bog,* 8,350 acres, designated in 1992; Boston, Canton, Dedham, Milton, Norwood, Randolph, Sharon, and Westwood
- *Golden Hills,* 500 acres, designated in 1987; Melrose, Saugus, and Wakefield
- *Miscoe-Warren-Whitehall Watersheds,* 8,700 acres, designated in 2000; Grafton, Hopkinton, and Upton
- *Neponset River Estuary,* 1,300 acres, designated in 1995; Boston, Milton, and Quincy

[2] The Executive Office of Environmental Affairs has defined the following specific impact areas: (1) marine and aquatic productivity, (2) surface-water and groundwater quality, (3) habitat values, (4) storm damage prevention or flood control, (5) historic and archeological resources, (6) scenic and recreational resources, and (7) other natural resource values of the area.

[3] Source: www.mass.gov/dcr/stewardship/acec/listACEC.pdf.

- *Parker River/Essex Bay,* 25,500 acres, designated in 1979; Essex, Gloucester, Ipswich, Newbury, and Rowley
- *Rumney Marshes,* 2,800 acres, designated in 1988; Boston, Lynn, Revere, Saugus, and Winthrop
- *Weir River,* 950 acres, designated in 1986; Cohasset, Hingham, and Hull
- *Westborough Cedar Swamp,* 1,650 acres, designated in 1975; Hopkinton and Westborough
- *Weymouth/Hingham Back River,* 950 acres, designated in 1982; Hingham and Weymouth

Flood Hazard

Figure 10-2 indicates Federal Emergency Management Agency (FEMA) Q3 Special Flood Hazard Areas. A simplified definition of these areas is that they are within 100-year floodplains.

There are 20 FEMA classifications, 13 of which are included in the Special Flood Hazard category. An example of a classification is Base Flood Elevation Determinations (BFEDs). BFEDs are the computed elevations to which floodwater is anticipated to rise during the base flood. Federal, state, and local policies direct proponents of most transportation projects to minimize construction and implement mitigation measures in areas categorized as within a 100-year floodplain.[4]

As can be seen in Figure 10-2, FEMA Q3 Special Flood Hazard Areas are located throughout the region. Large concentrations occur in some locations, especially along the coast in Marshfield, Scituate, Cohasset, Hull, Revere, Lynn, Nahant, Essex, and Ipswich.

Wetlands

Figure 10-3 shows designated wetlands in the region. It indicates the following categories: marsh/bog, wooded marsh, cranberry bog, salt marsh, open water, reservoir (with Public Water System Identification), tidal flats, and beach/dune. As can be seen in the figure, designated wetlands are spread throughout the region. They can be seen, however, in greater density outside of Route 128 than inside.

Water Supply and Wellhead Protection Areas

Figure 10-4 shows areas related to water used for human consumption. There are surface water protection areas as well as those associated with wells. The three categories for surface water protection refer to proximity to water: zone A is closest, zone B is farther, and zone C is farther still but somewhere within the watershed. The wellhead protection areas include the recharge areas for wells. Also depicted on the map are locations of wells, existing and proposed.[5]

Figure 10-4 shows that, while water supply sources are found throughout the region, there are fewer sources inside of Route 128.

[4] Source: www.mass.gov/mgis/q3.htm.

[5] Source: www.mass.gov/mgis/pws.htm.

Protected Open Space

Figure 10-5 shows land that is protected open space. There are four levels of protection: perpetuity, limited, term limited, and none. The first category, perpetuity, means that the parcel can never be developed. No protection means that the land is available for development. The middle two categories are not as clearly defined. In general, limited protection implies that there are extra impediments to development. The level and type of extra protection varies. Term limited protection means the land is protected now, but not necessarily in the future. This includes term conservation restrictions and term deed restrictions.

As may be seen in Figure 10-5, protected open space is found throughout the region, much of it protected in perpetuity. There are small parcels as well as many large protected areas.

Natural Heritage and Endangered Species Program Priority Habitats

Figure 10-6 presents information on habitats as provided by the National Heritage and Endangered Species Program (NHESP). Three categories are presented: NHESP Certified Vernal Pools, NHESP Estimated Habitats of Rare Wildlife, and NHESP Priority Habitats of Rare Species. Priority Habitats of Rare Species are the habitats of state-listed rare species, both plants and animals. Estimated Habitats of Rare Wildlife is a subset of Priority Habitats that shows habitats for state-listed rare wildlife, but not those for plants.[6]

Vernal pools, also defined by NHESP, are not permanent bodies of water. Because they are devoid of fish, they provide safe breeding grounds for many amphibians and invertebrates. A vernal pool typically fills in the autumn and is completely dry by mid- or late summer. Some may dry not every year but often enough to prevent fish habitats from developing.[7]

As may be seen in Figure 10-6, there are many large areas described as Priority or Estimated Habitats. Again, these areas are primarily outside of Route 128. There are particularly large concentrations on the South Shore. Vernal pools are found throughout the region.

Historic Places

Published annually by the Massachusetts Historical Commission, the State Register of Historic Places is a compilation of historic places based on local, state, or national designations of significance.[8] Since 1982, the Commission has developed a list of more than 60,000 properties in the commonwealth. Figure 10-7 indicates all of the listings that are available in digital-map form (the listings through 1997). Newly designated properties are published annually and updated regularly. The Commission also maintains information on archeological sites. That information is not part of the public record.

As may be seen in Figure 10-7, there are many sites scattered throughout the MPO region, particularly inside of Route 128. Some are specific sites and others are historic districts.

[6] Information obtained from National Heritage and Endangered Species Program website: www.mass.gov/dfwele/dfw/nhesp/nhenv priohab.htm.

[7] Information obtained from National Heritage and Endangered Species Program website: www.mass.gov/dfwele/dfw/nhesp/nhvernal.htm

[8] Information from website of Mass. Secretary of State: www.sec.state.ma.us/mhc/mhcidx.htm.

Air Quality

Reducing air pollutants is a goal for the MPO in its selection of transportation projects and programs. It is specifically required through the federal Clean Air Act, which requires all MPOs in areas that are not meeting air quality standards to ensure that they are not increasing emissions of specific pollutants. The pollutants that the Boston Region MPO is required to address in this Plan are volatile organic compounds, nitrogen oxides, and carbon monoxide. These three pollutants and the actions required by the MPO are described in more detail in Chapter 15, Air Quality Conformity Determination. Two additional pollutants, particulate matter and carbon dioxide, are of concern to the MPO although it is not required through federal regulations to address them. The MPO has begun to focus on ways it can help in reducing these two pollutants and will continue to do so throughout the timeframe of this Plan.

Particulate matter is a mixture of microscopic solids and liquid droplets suspended in air. Fine particulates can be emitted directly or formed in the atmosphere from mobile-source emissions. These particles can get deep in the lungs, and some may even get into the bloodstream. Recent research suggests that individuals—particularly the elderly, children, or those with diabetes or preexisting cardiac or pulmonary disease—living in close proximity to major roads face a significantly higher risk of cardiopulmonary problems than those with less exposure to vehicle emissions.

In particular, emissions of particulate matter from motor vehicles are receiving increased attention as a potential public health risk. One initiative underway in Massachusetts is the school bus retrofit project sponsored by the state Department of Environmental Protection and being undertaken and funded as a Congestion Mitigation Air Quality program. This project will retrofit the state's school bus fleet, significantly reducing particulates, hydrocarbons, and carbon monoxide. In addition, if more of the freight currently moved by truck could be carried by freight rail in the region, the resulting reductions in both congestion and truck emissions could have a positive air quality impact. Although vehicles and fuels are getting cleaner, people are driving more, which is counteracting some of the progress towards clean air that could be achieved through technology. Figure 10-8 indicates areas within the MPO with significant motor-vehicle traffic volumes. Policy and planning steps are necessary to address the threat to public health, since technology alone cannot resolve this issue.

Carbon dioxide (CO_2) is present in the earth's atmosphere at low concentrations and acts as a greenhouse gas. Greenhouse gases help to warm the earth's atmosphere and are so called because they simulate the effect of a greenhouse, trapping heat within the atmosphere and contributing to an increase in the earth's temperature. The burning of fossil fuels from mobile sources causes an increase in CO_2 emissions and contributes to atmospheric warming and global climate change. In January 2007, Governor Deval Patrick signed the Regional Greenhouse Gas Initiative, committing Massachusetts to a multi-state effort to reduce emissions of CO_2 and address global climate change. In April of the same year, the Supreme Court ruled that the Environmental Protection Agency has the authority to regulate heat-trapping gases in automobile emissions. This decision may have important implications for how CO_2 is regulated across the region's transportation system. The MPO will continue to support projects and programs that reduce emissions of CO_2 in the region.

Environmental Input during Project Development

The MPO's policies determine which projects of regional significance are programmed in the Regional Transportation Plan. Guided by the nine policies stated at the beginning of this chapter, the MPO considers environmental effects as it assigns ratings to potential projects, with the goal of favoring projects that either maintain or improve the status quo. The regionally significant

projects that best support all the policies of the MPO are selected for the Plan.

A project's environmental effects are assessed at the macro level for the Plan. The detailed study and review of a project's specific effects on the environment occurs during design and prior to the project's being programmed in the Transportation Improvement Program. Environmental oversight occurs at the federal, state, and local levels. The National Environmental Policy Act (NEPA) guides federal oversight.[9] Conservation commissions provide local guidance.

The primary mechanism for state environmental review is the MEPA process. The level of analysis required for a given project is determined by a series of triggers. If a project meets certain criteria, for example, an environmental impact report (EIR) is required. Some of these triggers are directly related to transportation.[10] A transportation project, however, may trigger MEPA review in other ways, related to wetland impacts, for example. Findings may result in the need for mitigation of environmental impacts. Examples of mitigation measures to minimize impacts on adjacent areas are narrowing of a roadway or increase of slope. A trail might be built on a boardwalk to minimize impacts on wetlands or wildlife. Or additional land might be set aside to replace an impacted floodplain.

The MPO signatory operating agencies, MassHighway, the MBTA, Massport, and MassPike, have procedures for environmental reviews. MassHighway's Design Guide contains a very detailed description of the MEPA process.[11] While this description applies specifically to MassHighway projects, it gives an excellent overview of the procedures and requirements involved in the environmental review process for all projects in Massachusetts.

Chapter 10 Figures

The following pages present the eight figures that were referred to in the discussions in this chapter. The table below provides a key to the projects shown in the figures.

[9] The National Environmental Policy Act of 1969, as amended (Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982).

[10] Major transportation projects such as new interchanges, new rapid transit lines, new airports, or new runways trigger an Environmental Notification Form (ENF) and a mandatory Environmental Impact Review (EIR). Other triggers in this category include the generation of 3,000 or more new Average Daily Traffic volumes or construction of 1,000 or more parking spaces (both the latter at a single location), etc.

An ENF would at least be required for a new airport taxiway, new roadways at least one-quarter mile long, widening of a roadway by four feet or more for one-half mile or more, cutting of five or more public shade trees of 14 or more inches in diameter at breast height, eliminating 300 or more feet of stone wall, etc.

[11] Massachusetts Highway Department Project Development and Design Guide, 2006. See especially chapter 2, "Project Development."

TABLE 10-1

List of Recommended Projects

KEY NUMBER ON FIGURES	HIGHWAY PROJECTS	COST
1	BEDFORD, BILLERICA & BURLINGTON: MIDDLESEX TURNPIKE IMPROVEMENTS	$14,400,000
2	BEVERLY TO PEABODY: ROUTE 128 CAPACITY IMPROVEMENTS	$293,743,000
3	BOSTON: EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE	$17,169,100
4	BOSTON: ROUTE 1A/BOARDMAN STREET GRADE SEPARATION	$13,686,000
5	BOSTON: RUTHERFORD AVENUE	$100,695,500
6	BOSTON LOGAN AIRPORT: CONSOLIDATED RENTAL CAR FACILITY	$453,000,000
7	BRAINTREE: BRAINTREE SPLIT	$45,573,000
8	CANTON: I-95/I-93 INTERCHANGE	$164,228,000
9	CANTON: I-95 NORTHBOUND/DEDHAM STREET RAMP & BRIDGE	$3,500,000
10	CONCORD: CONCORD ROTARY/ROUTE 2	$81,033,000
11	CONCORD & LINCOLN: ROUTE 2/CROSBY'S CORNER GRADE SEPARATION	$31,500,000
12	DANVERS & PEABODY: ROUTE 1/ROUTE114 CORRIDOR IMPROVEMENTS	$94,808,000
13	EVERETT, MALDEN & MEDFORD: RIVER'S EDGE BOULEVARD (FORMERLY TELECOM CITY BOULEVARD)	$20,802,000
14	EVERETT & MEDFORD: ROUTE 16 (REVERE BEACH PARKWAY)	$189,616,000
15	FRAMINGHAM: ROUTE 126/135 GRADE SEPARATION	$101,291,000
16	HUDSON: ROUTE 85 IMPROVEMENTS	$8,075,000
17	MALDEN, REVERE, & SAUGUS: ROUTE 1 IMPROVEMENTS	$131,678,000
18	MARLBOROUGH & HUDSON: I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE	$37,773,000
19	NEEDHAM & NEWTON: NEEDHAM STREET/HIGHLAND AVENUE	$10,538,000
20	QUINCY: QUINCY CENTER CONCOURSE, PHASE 2	$9,580,000
21	READING & WOBURN: I-93/I-95 INTERCHANGE	$234,025,000
22	REVERE: MAHONEY CIRCLE GRADE SEPARATION	$30,387,000
23	REVERE: ROUTE 1/ROUTE 16 INTERCHANGE	$6,295,000
24	REVERE: ROUTE 1A/ROUTE 16 CONNECTION	$93,795,000
25	SALEM: BOSTON STREET	$3,148,000
26	SALEM: BRIDGE STREET	$4,790,000
27	SOMERVILLE: I-93/MYSTIC AVENUE INTERCHANGE	$118,510,000
28	WEYMOUTH, ABINGTON, HINGHAM, & ROCKLAND: SOUTH WEYMOUTH NAVAL AIR STATION ACCESS IMPROVEMENTS	$42,000,000
29	WEYMOUTH: ROUTE 18 CAPACITY IMPROVEMENTS PROJECT	$24,000,000
30	WEYMOUTH TO DUXBURY: ROUTE 3 SOUTH ADDITIONAL LANES	$426,637,000
31	WILMINGTON & READING: I-93/ROUTE 129 INTERCHANGE IMPROVEMENT PROJECT	$23,950,000
32	WOBURN: NEW BOSTON STREET BRIDGE	$4,862,000

TABLE 10-1 (CONT.)

LIST OF RECOMMENDED PROJECTS

KEY NUMBER ON FIGURES	TRANSIT PROJECTS	COST
33	BOSTON: FERRY EXPANSION: RUSSIA WHARF/SOUTH STATION	$2,200,000
34	BOSTON: SILVER LINE PHASE III: SOUTH STATION–BOYLSTON CONNECTOR	$1,067,484,000
35	COMPACT COMMUNITIES: URBAN RING 2	$1,954,000,000
36	REVERE TO LYNN: NORTH SHORE TRANSIT IMPROVEMENTS	$695,600,000
37	SOMERVILLE: CONSTRUCT ORANGE LINE STATION AT ASSEMBLY SQUARE	$25,000,000
	REGIONWIDE: PURCHASE 100 NEW BUSES	$68,428,000
	BOSTON REGION: SIP COMMITMENTS	$743,130,000

FIGURE 10-1

Areas of Critical Environmental Concern

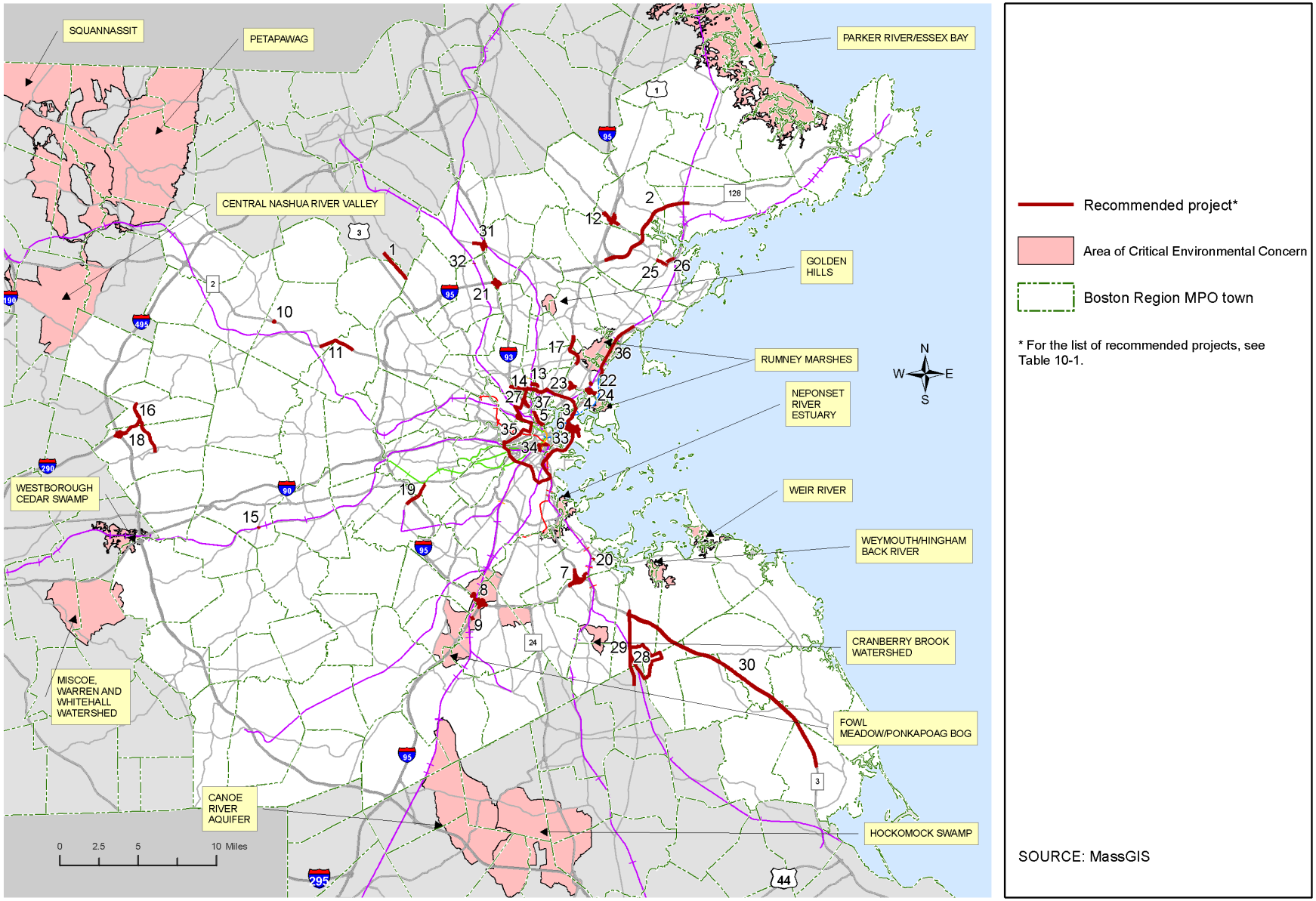
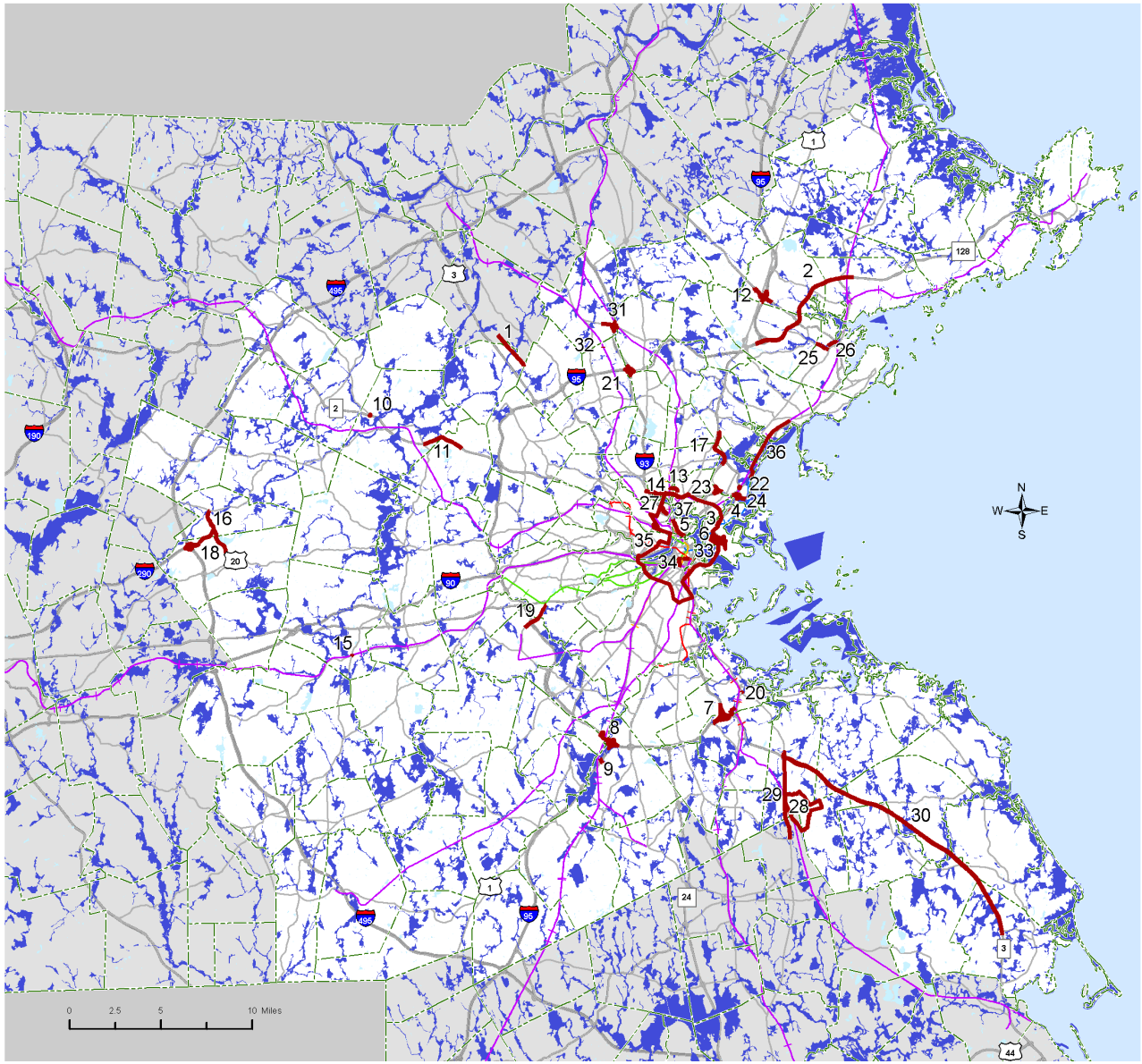


FIGURE 10-2

FEMA Q3 Special Flood Hazard Areas



Recommended project*

Special Flood Hazard Area

Boston Region MPO town

* For the list of recommended projects, see Table 10-1.

SOURCE: MassGIS

FIGURE 10-3

WETLANDS

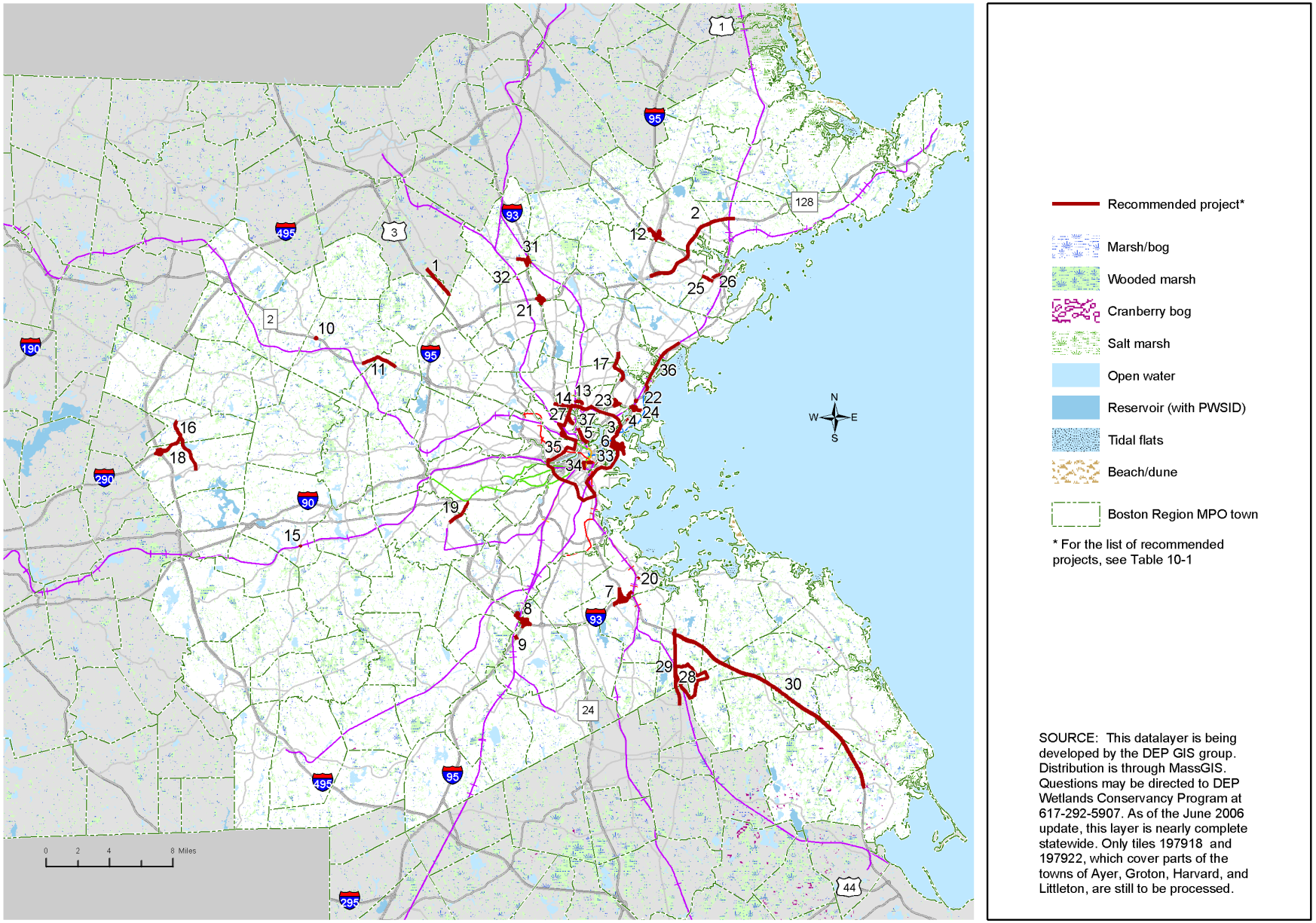


FIGURE 10-4

Water Supply and Wellhead Protection Areas

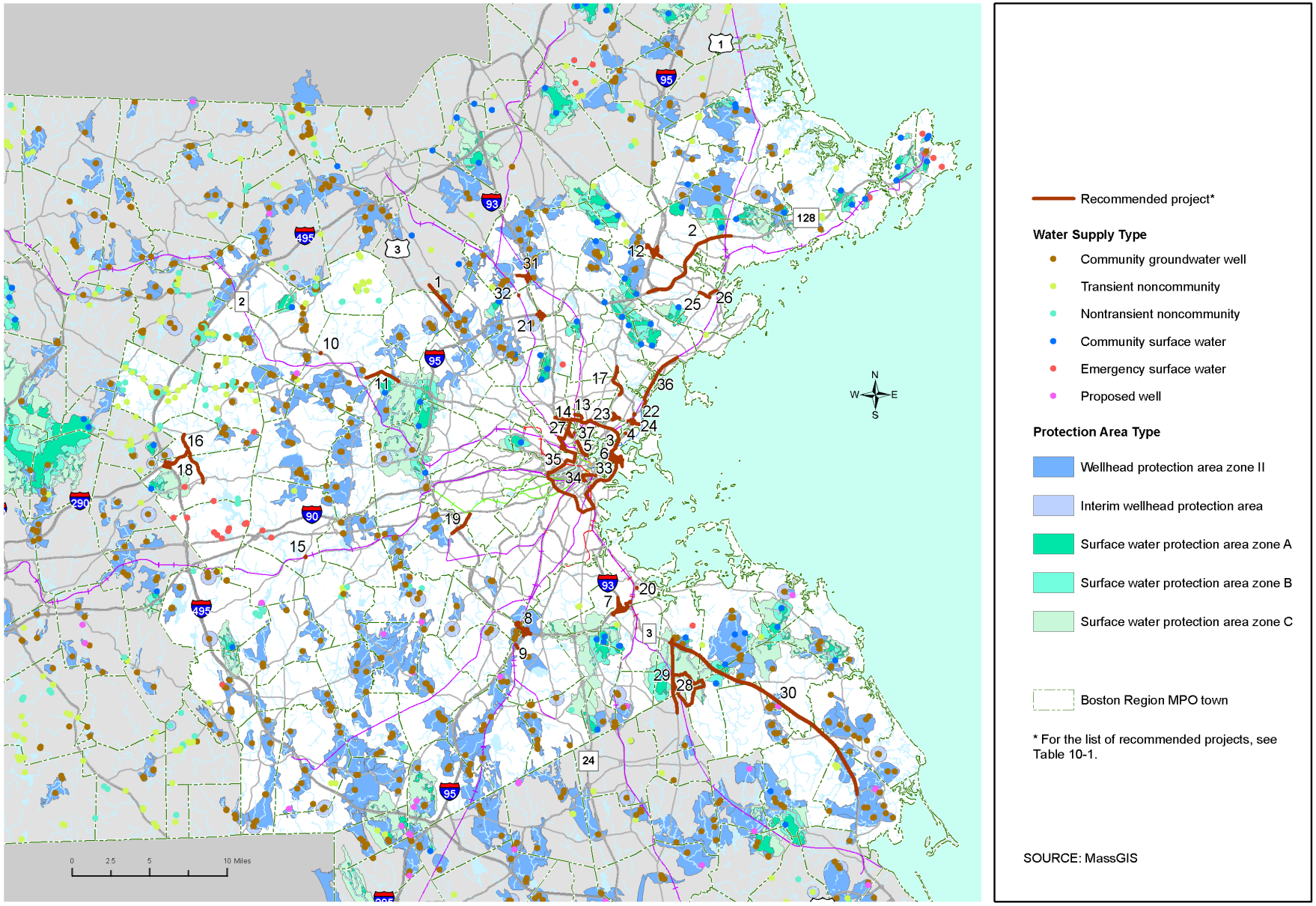
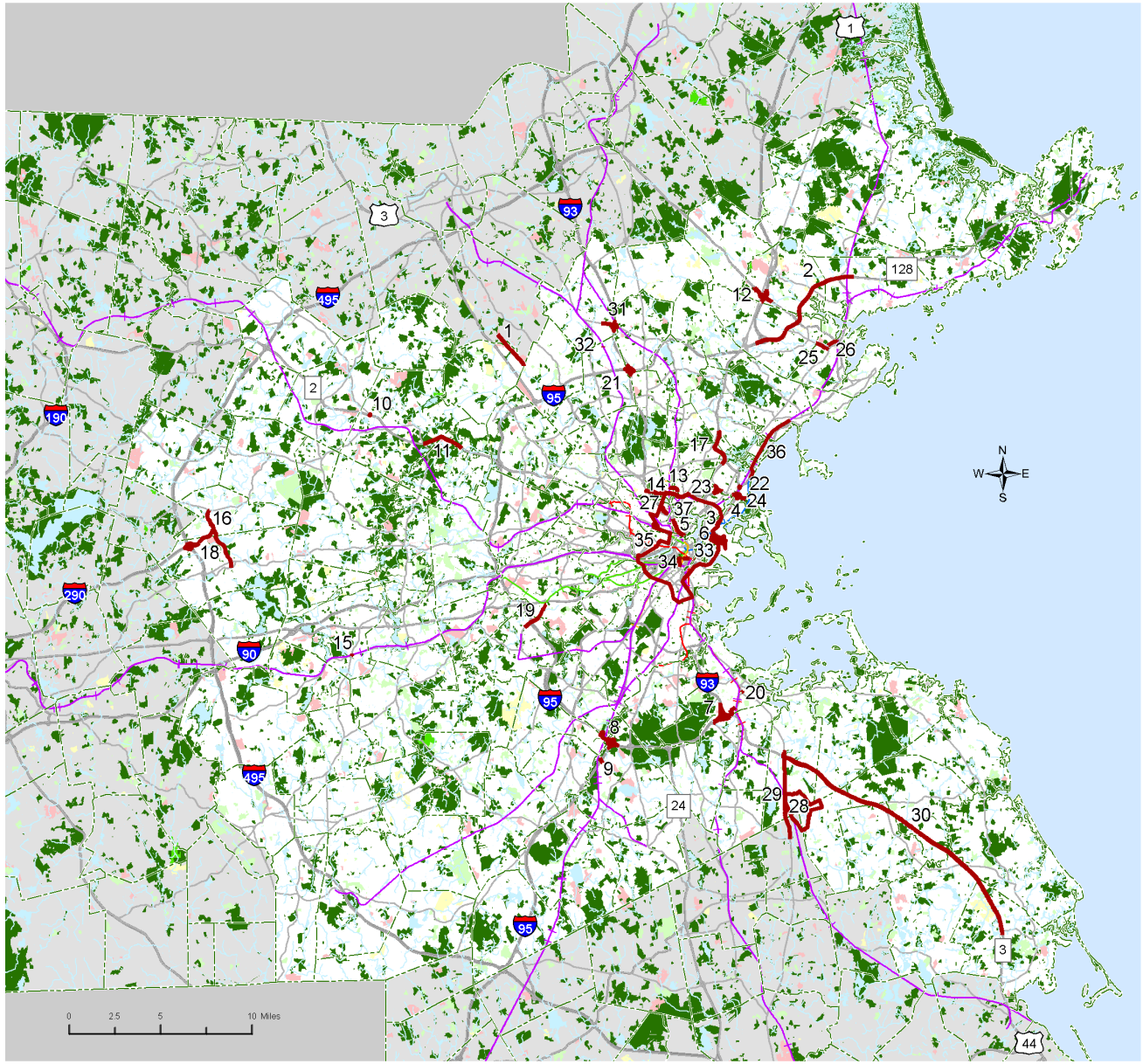


FIGURE 10-5

PROTECTED OPEN SPACE



Recommended project*

Level of Protection

- Perpetuity
- Term limited
- Limited
- Unknown
- None

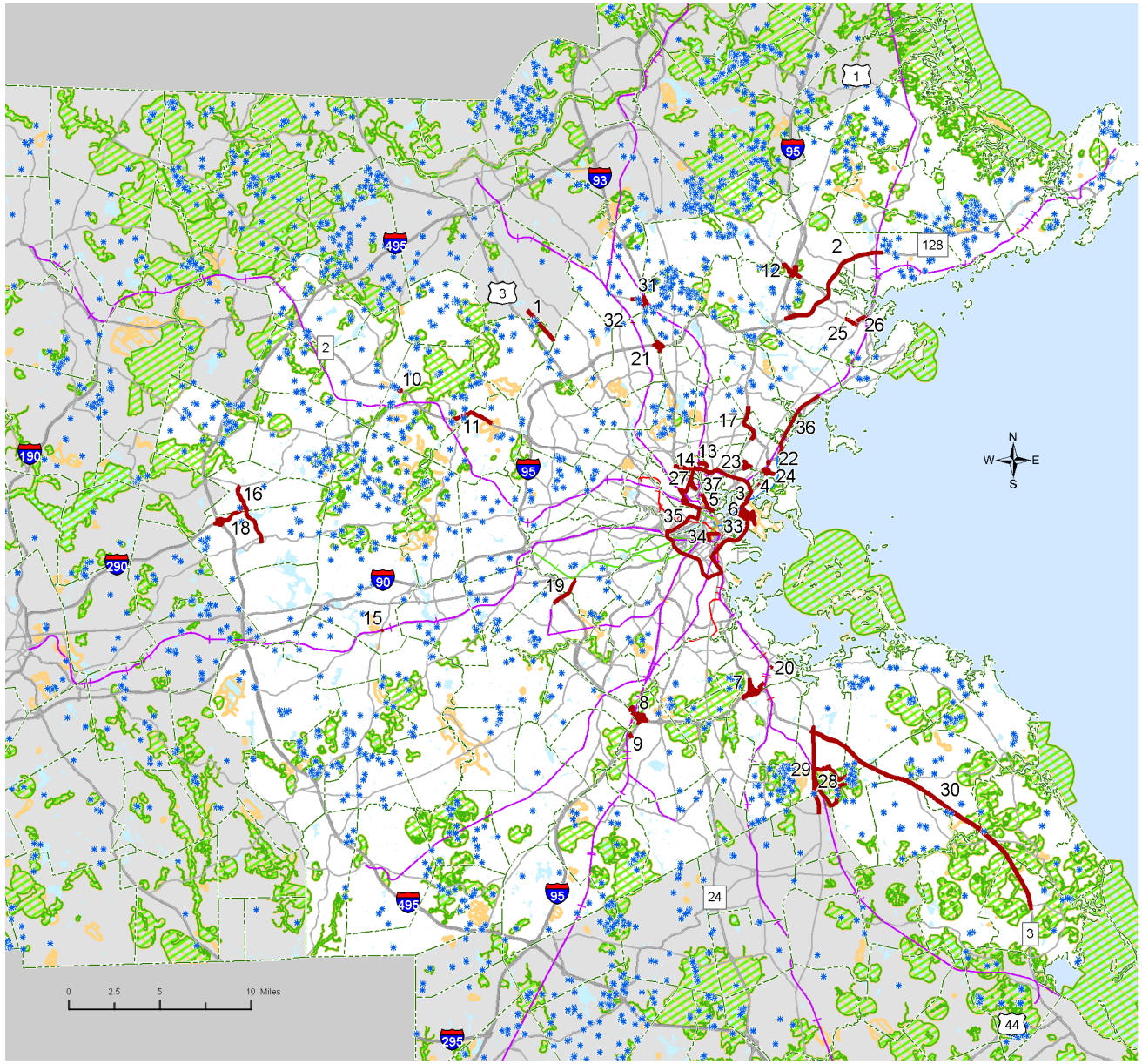
Boston Region MPO town

* For the list of recommended projects, see Table 10-1.

SOURCE: MassGIS

FIGURE 10-6

National Heritage and Endangered Species Program Priority Habitats



NHESP Certified Vernal Pool

Recommended project*

NHESP Estimated Habitat of Rare Wildlife

NHESP Priority Habitat of Rare Species

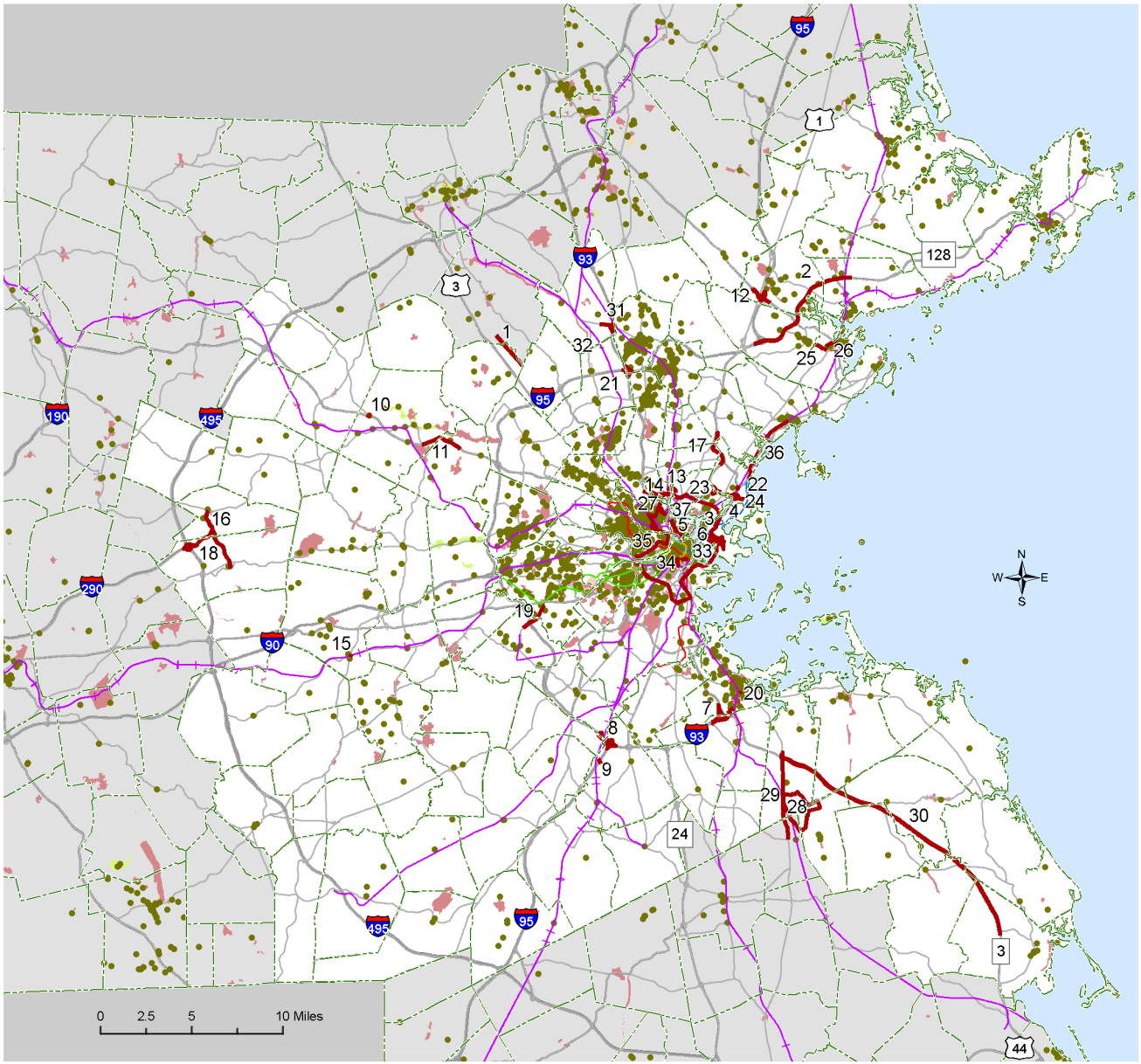
Boston Region MPO town

* For the list of recommended projects, see Table 10-1.

SOURCE: MassGIS

FIGURE 10-7

Historic Places on the State Register



Recommended project*

Historic site

Historic district**

Boston Region MPO town

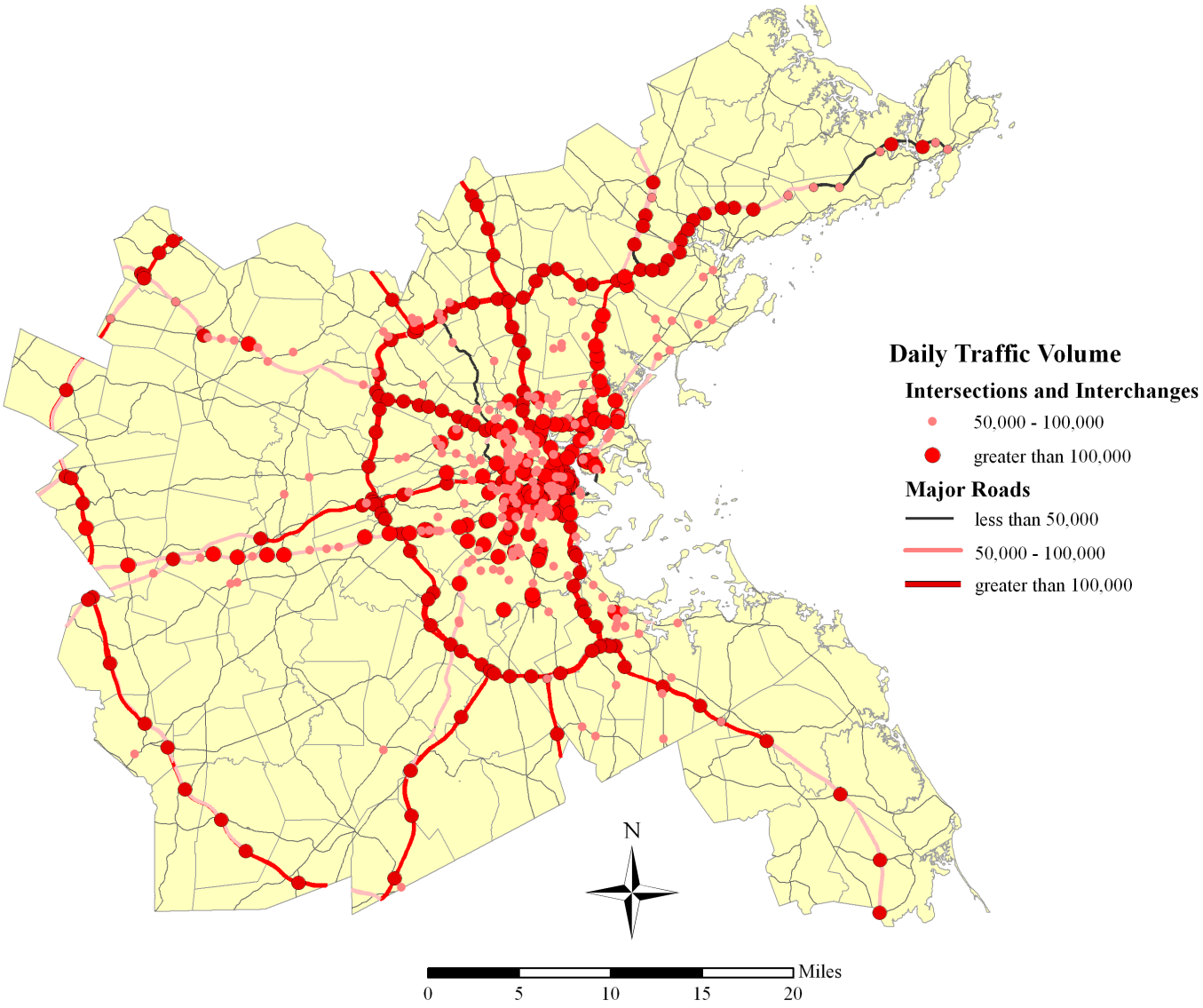
* For the list of recommended projects, see Table 10-1.

** The colors are meant to differentiate one district from another.

SOURCE: The State Register of Historic Places (SRHP). This is a beta version and does not reflect listings past 1997. Users should consult the most recent State Register of Historic Places (available at the State House Bookstore) for updates. Listings are regularly updated in the weekly State Register.

FIGURE 10-8

Significant Motor-Vehicle Traffic Volume Locations



11

LAND USE AND ECONOMIC DEVELOPMENT

The Boston Region MPO's Vision for Land Use and Economic Development

Multimodal transportation will serve business, residential, and mixed-use centers. Transit, bicycle, and pedestrian facilities will be linked in a network to a growing inventory of denser residential developments, employment and commercial centers, and major destinations. Transportation investments will focus on centers of economic activity and areas with adequate water, sewer, and other public infrastructure. Transportation rights-of-way will be used to maximize public benefits.

Transportation planning will be integrated with land-use and economic-development planning to the greatest extent possible in order to achieve increased mobility options, foster sustainable communities and transportation, and expand economic opportunities and prosperity. Transportation improvements will include those necessary to facilitate the movement of freight throughout the region.

To implement this vision, the MPO has developed a set of policy statements to guide its decision-making:

- Link transportation planning with land-use and economic-development plans, particularly in areas identified for development by state, regional, and local planning.
- Make transportation investments where existing or planned development will encourage public transportation use, walking, and bicycling.
- Give priority to projects in areas identified in local and regional plans as being suitable for concentrated development and/or redevelopment, including brownfield redevelopment; support initiatives that increase sustainability.

- Consider both existing development and potential zoning densities in transportation decision-making and give priority to projects that support them.
- Consider the appropriate use and maintenance of transportation rights-of-way to maximize public benefits.
- Put priority on transportation investments related to existing centers of economic activity; or to areas with adequate water and sewer infrastructure; or to municipal centers or areas targeted for economic development.
- Support, through planning and programming, transportation improvements that provide transportation links for economic activities such as freight movement.

In this chapter, the land use and economic development policies, goals, and programs that influence state and regional land use decisions and MPO transportation decisions are discussed. The process for deciding on future land use and development patterns for the region, the methods and assumptions for developing demographic projections, and the MPO's preferred land use scenario, based on recommendations from the MAPC MetroFuture program, are explained. Finally, the use of the regional model and the development of information resulting from the integration of the preferred land use scenario with various possible transportation networks, including the modeling results, are described.

Relationship between Land Use, Economic Development, and Transportation Planning

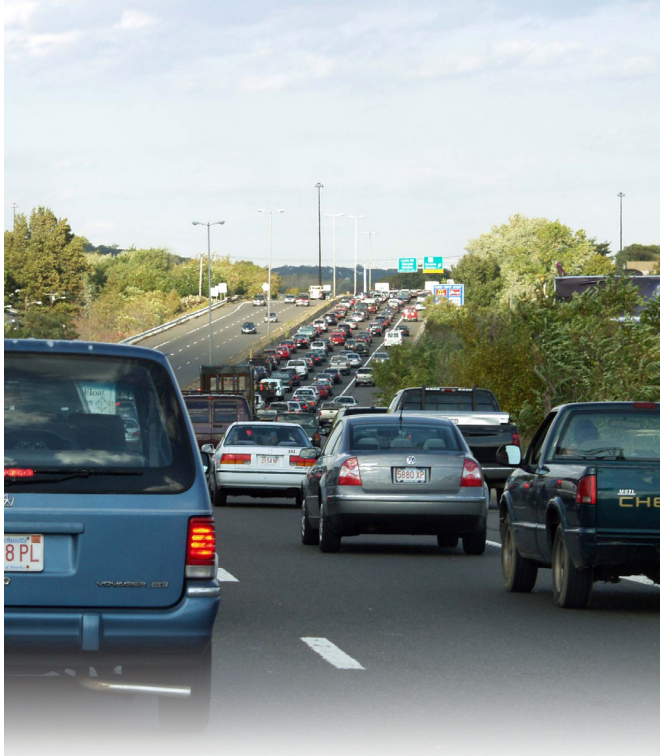
Transportation, land use, and economic development are inextricably intertwined. Increases in population, employment growth, and expanded land use create additional demand for travel. The spatial location of housing, jobs, and retail facilities determines how well the demand can be met, how costly transportation will be to provide, and whether alternatives to the automobile (walking,

bicycling, and public transit) can succeed. In turn, transportation facilities and services result in impacts (both positive and negative) on the landscape, the environment, and the demand for different land uses. Recent travel demand modeling results for the Boston region suggest that changes in land use that create denser future developments located near existing transportation facilities will have a more positive impact on reducing congestion, increasing mobility, and improving air quality than all the new transportation projects the region can afford to build in the next 23 years.

It is important to coordinate transportation planning decisions and land use planning decisions so they are complementary, not contradictory. This is difficult, since transportation funding decisions are made at the regional and state levels, and land use decisions are primarily made by municipalities. However, extended public discussion on the relationship between land use, transportation, and economic development has clarified their links and has guided state, regional, and much local project-based decision-making in the direction of considering all three elements.

The transportation infrastructure also supports the region's economic activity. This interrelationship is widely recognized. Businesses, industries, and service providers rely on the network to move products and supplies and to provide access for workers and other travelers.

There are measurable economic impacts from congestion—in lost productivity and increased costs of goods and services. Quality of life is affected as, making the region a less desirable a place to live and work, perhaps leading highly skilled workers to leave.



Transportation planning and decisions about federally funded (and some state-funded highway) investments in the transportation infrastructure are managed by state agencies and the 13 MPOs in the Commonwealth. This work is conducted in compliance with federal regulations and guidance (reflecting contemporary best practices) and in consultation with regional organizations, municipalities, and many interested parties. State and MPO decision-makers apply the perspectives and policy positions of the entities they represent in their work, so transportation planning reflects a broad base of needs and views. The Boston Region MPO embraces the contemporary views regarding the interrelationship of transportation planning with land use and economic development plans. As a regional transportation forum, the MPO considers these plans as it evaluates which proposed projects in the region will best meet the region's transportation needs.

The MPO considers land use and economic development in its project-prioritization and funding processes so that transportation spending will respond both to current conditions and to future needs likely to result from local and regional plans and priorities. The selection process for projects in JOURNEY TO 2030 included consideration of land use and economic development factors. Those factors are also included in the criteria the MPO uses to select projects for funding in its Transportation Improvement Program (TIP). The TIP criteria are posted on the MPO Web site, www.bostonmpo.org.

Federal and State Policies and Programs

Federal and state policies in place in Massachusetts and being applied in the Boston region are beginning to reframe transportation and land use decisions in a way that produces integrated results: enhanced mobility and transportation options, improved accessibility, and economic benefits.

Federal Policies and Programs

Federal policy and guidance on compliance with federal regulations asks that MPOs consider land use and economic development in decision-making and coordinate cooperatively with state and local agencies responsible for land use management. There should be comparisons of potential regional transportation plans with the economic development and growth patterns planned at the local level. In its long-range planning, when the MPO decides where to invest, that decision should be based partly on existing

and known needs and partly on consideration of state, regional, and local plans for the future.

The Federal Highway Administration (FHWA) supports linking land-use and transportation planning and development and has developed a tool kit for MPOs to use to advance their practices in this area. FHWA also promotes "smart growth" (see following section) policies and programs through information dissemination and through several programs it administers.

The Transportation, Community, and System Preservation Program (TCSP) is a program of discretionary grants for research on ways to integrate these elements into planning and practices in order to improve the transportation system, provide access to jobs and commercial centers, encourage private investments that support efficient transportation, and reduce environmental impacts and the need for high-cost transportation improvements. MAPC used TCSP funding in 2002 for a project in the MetroWest area of MAPC that demonstrated the importance of land use diversity, design, and density in reducing congestion, vehicle-miles traveled, and air pollution.

In addition, the Transportation Enhancement Program (discussed in detail in Chapter 5) is a funding category specified for at least 10 percent of a state's Surface Transportation Program funds. Some projects that support the connection between land use and transportation, such as pedestrian and bicycle facility improvements and context-sensitive design elements, can be funded under this program. An Enhancement Committee staffed by MAPC conducts regional review of enhancement proposals.

Statewide Policies and Programs

Smart Growth

"Smart growth" is a statewide policy that has been particularly influential recently in guiding thinking relative to integrated transportation/land-use decision-making in the Boston Region MPO area. It is a land use development principle that is commonly understood as encouraging compact, mixed-use development that enhances the built environment of a community and that, among other outcomes, minimizes environmental impacts, supports air quality, and promotes energy efficiency and economic activity. Smart growth takes maximum advantage of existing transportation and community infrastructure such as transit, water, and sewer facilities; it encourages efficiencies in public and private investments by building in accessibility to this infrastructure. It helps focus housing and economic development in areas where these land uses can be supported with minimized negative impact. In addition, consideration of freight distribution needs can reduce impacts on communities and travel distances. Transit, bicycle, and pedestrian modes become more viable.

Transit-oriented development (TOD) is one strategy for achieving smart growth. In this strategy, new and rehabilitated housing, retail outlets, services, recreational facilities, and job centers are sited in areas within walking distance of public transit. In addition, TOD encourages denser, more compact land uses. Mixed-use develop-

ment, bringing housing, jobs, and needed services in closer proximity to each other and to transit, is encouraged. There are many intended benefits, including improving mobility, making possible reduced reliance on the single-occupant motorized vehicle, and reducing congestion; a corollary benefit is potentially helping to reduce air pollutants and energy consumption. In addition, planners cite quality-of-life benefits, sprawl reduction, and the creation of more pleasant community environments as results of TOD.

Many of the MPO's and state's transportation and land use policies have their roots in executive orders and programs implemented in the 1990s and early 2000s in the various regional and state offices and agencies, including the Governor's Office and the Executive Office of Environmental Affairs (EOEA). In addition, more than 15 years ago, MAPC developed MetroPlan, a forward-thinking regional plan that drew attention to the importance of smart growth in strategizing for the future of metropolitan Boston.

Early Land Use Policies and Programs

Of the land use policies and programs developed over the past several decades and currently at work in Massachusetts, the early ones include:

- Executive Order 385 of 1996, "Planning for Growth," directed that development and economic activity should not contribute to sprawl. It gave assistance to regional and municipal planners, encouraging development where there was adequate infrastructure and where environmental resources were protected and impacts minimized.
- The EOEA Community Preservation Initiative of 1999 provided funding for municipalities conducting build-out analyses to demonstrate the impact of developing their remaining undeveloped land.
- Executive Order 418 (2000) provided grants of $30,000 to municipalities to assist in their planning for housing, open space, economic development, and transportation. More than 220 municipalities produced a Community Development Plan for their community.
- The Community Preservation Act of 2000 allowed the creation of municipal Community Preservation Funds (CPFs) to be used to pay for open space, historic preservation, and affordable housing. The CPFs must be approved by municipal referendum and are funded by surcharges on local property taxes matched by state funds. As of July 2006, 34 of the 101 municipalities in the MPO area had CPFs.

The following subsequent laws, policies, and programs have crystallized land use planning and further supported the integrated consideration of land use, economic development, and transportation planning:

- Chapter 43 of the Acts of 2003 authorized the District Improvement Financing (DIF) Program, which allows municipalities to pay for public works and infrastructure projects using future, incremental tax revenues collected in a predefined district. This investment stimulates private investment, which then results in the predicted additional tax revenue
- Chapter 40R, of 2004, encourages municipalities to set up "smart growth zoning districts" in areas close to transit, in municipal and commercial centers, and where there are underused properties. In these districts, zoning overlays allow developers flexibility if proposals comply with certain smart growth requirements for density and affordable housing. In addition to state incentive payments for 40R development, Chapter 40S provides payments to offset unmet education expenses for new students in developments.

Proposed legislation, the Community Planning Act, formerly known as the Massachusetts Land Use Reform Act, would update the Commonwealth's planning and zoning laws and would encourage municipal updates of local master plans.

Contemporary Land Use Initiatives

The Commonwealth currently provides funding and support for several sustainable-development and economic development programs that can connect to transportation planning.

- The Priority Development Fund is a source of below-market, publicly funded loans and grants supporting development of housing for low- and moderate-income residents.
- Transit-oriented-development programs include two managed by the Department of Housing and Community Development (DHCD): 1) Financing for Affordable Rental Housing, providing $22 million for affordable housing near transit, and 2) Planning Assistance for Housing Production. The MBTA and DHCD are working together to provide financing for housing development at MBTA-owned locations. MassHousing and the MBTA are also joining together in the Take the T Home mortgage program for T users. MassHousing funds have been used to build approximately 45 housing developments within one fourth mile of mass transit.
- Chapter 40R, the Smart Growth Zoning Overlay District Act, provides incentives for municipalities to adopt zoning bylaws that encourage smart growth, including development near transit services. The associated Chapter 40S Smart Growth School Cost Reimbursement, provides for reimbursement for some public school cost increases (minus related increased revenues) incurred as a result of smart growth development.
- The Commercial Area Transit Node Housing Program is a $10 million, five-year program managed by DHCD that is designed to increase housing (including affordable units) in commercial areas served by transit.
- The Transit-Oriented Development Infrastructure and Housing Support Program (TOD Bond Program) promotes TOD by providing funding for pedestrian, bicycle, and parking facilities in mixed-use developments (preferably TOD developments) near a transit station that meet affordability criteria.
- The Public Works Economic Development (PWED) Program helps municipalities fund transportation infrastructure projects needed for economic development.
- The Community Development Action Grant Program (CDAG) funds municipal projects designed to stimulate economic development that will positively affect deteriorating neighborhoods and provide jobs for low- and moderate-income workers. Projects funded can include support for transportation infrastructure such as roadways, sidewalks, or rail spurs. This program is managed by DHCD.
- The Smart Growth Technical Assistance Grant Program, under the Executive Office of Environmental Affairs, supports smart growth by encouraging municipalities to implement smart growth zoning and adopt planning practices and measures that advance sustainable development and increase a

municipality's competitiveness for some state grants and loans; grants of up to $30,000 per municipality are available.

- The Office for Commonwealth Development, DHCD, and the MBTA provide technical assistance to municipalities interested in learning more about smart growth, sustainable development, and transit-oriented development and in pursuing these grant and loan opportunities. The MBTA works with municipalities to plan TOD on surplus MBTA land (or air rights) near transit stations.

Regional Land Use and Economic Development Planning

Land use decisions and many economic development decisions in Massachusetts are controlled directly by local municipalities through zoning. This planning is guided by a significant body of laws and regulations enacted by the state Legislature and guided by executive orders, policies, and funding programs. However, regional planning agencies, created by an act of the Legislature in 1963, serve as independent public bodies of the Commonwealth within which state and local officials can address issues of regional importance.

The Metropolitan Area Planning Council (MAPC) is the regional planning agency representing 101 cities and towns in the metropolitan Boston area. Its area and boundaries correspond exactly with those of the MPO region. The MAPC region consists of 22 cities and 79 towns and is divided into eight subregions. Council membership consists of community representatives, gubernatorial appointees, and city and state agencies that collaborate in the development of comprehensive plans and recommendations in areas of population and employment, transportation, economic development, regional growth, and the environment. The Council also provides technical assistance and advocacy to its member communities. MAPC is one of 14 voting members of the Boston Region MPO.

The MPO relies on MAPC for developing the region's population and employment projections for use in the travel modeling conducted by the MPO. MAPC also provides a coordination and consultation function with the region's municipalities regarding these projections and the review and evaluation of land use and economic development plans and their relationship to the MPO's planning.

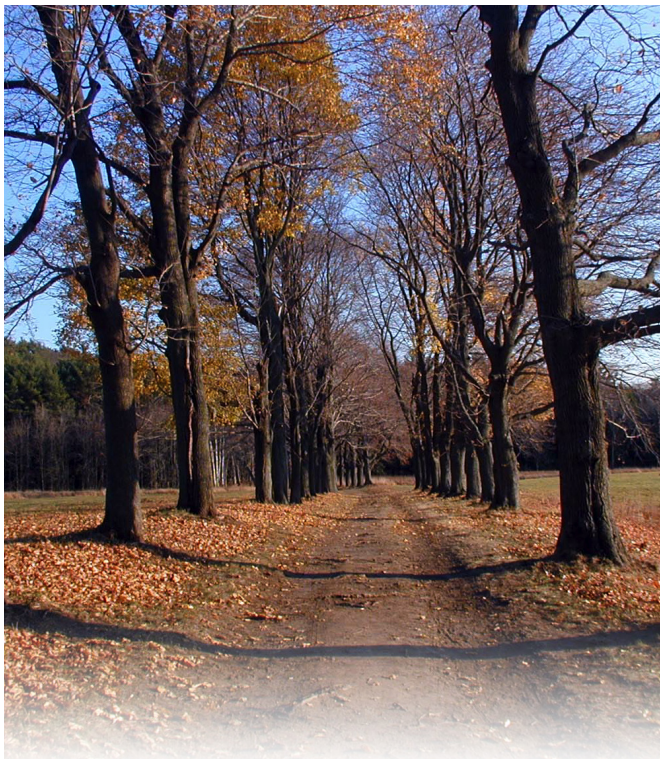
MAPC Smart Growth Principles for the Boston Region

Good planning practice should generate patterns of growth that will benefit the people of the MPO area and the communities where they live. With such growth come new jobs, opportunities for advancement, homes for people of various incomes, and many other amenities of life.

By contrast, current growth patterns often waste precious resources, degrade the natural and built environments, and exacerbate inequality throughout the region. Over time, this can harm the region's competitiveness and damage many of the characteristics that make the MPO area a special place to live.

Smart growth is designed to promote development while protecting the environment, encouraging social and economic equity, and conserving energy and water resources. Smart growth will refocus a larger share of regional growth within central cities, urbanized areas, near transportation nodes, and in communities already served by infrastructure. It will reduce the share of regional growth that occurs on newly urbanizing land, on farmland, and in environmentally sensitive areas. It will encourage more density in some places, to save precious land in other places. Such principles can promote the long-term sustainability of the MPO area.

As the regional planning agency for the MPO area, MAPC adopted 15 smart growth principles. They are:



1. Encourage community and stakeholder collaboration in development decisions.
2. Integrate people and place.
3. Promote regional equity and reduce local and regional disparities.
4. Strengthen regional cooperation.
5. Promote distinctive, attractive communities with a strong sense of place.
6. Preserve open space, farmland, and critical environmental resources.
7. Encourage development in currently developed areas to take advantage of existing community assets.
8. Mix land uses.
9. Take advantage of compact development design and create walkable neighborhoods.
10. Promote economic development in ways that produce jobs, strengthen low- and moderate-income communities, and protect the natural environment.
11. Create a range of housing opportunities and choices in cities and towns throughout the region.
12 Promote more transportation choices through the appropriate development of land.
13. Develop predictable, fair, and cost-effective regulatory approvals for smart-growth-oriented developments.
14. Encourage fiscal policies that support smart growth.
15. Enable smart growth by reforming existing zoning.

Economic Development

The economic vitality of the MPO area is dependent upon a strong transportation infrastructure. From commuting to commerce, the means by which people and goods are moved impact the region's ability to attract new growth, support existing industry, and position itself prominently in the global marketplace. Continued and careful investment in the region's roads, bridges, public transportation system, and rail freight capacity is critical to the long-term success of the MPO area.

Economic Development Centers

A fundamental principle of smart growth is that development should take place in areas where infrastructure capacity already exists, rather than areas where additional infrastructure or capacity expansion is needed. Infrastructure is defined to include natural, manmade, and human resources. There are many benefits to such a practice:

- State and local government saves money that would otherwise be needed to build schools, lay out roads and track, widen transportation rights-of-way, and/or extend water and sewer service. Freight distribution can be rationalized by providing rail options and regional distribution centers, which may also reduce emissions and congestion.

- Private corporations are less likely to be asked to contribute to such projects, thereby reducing the costs of development.
- Since areas with manmade infrastructure also tend to have larger populations, businesses can be located nearer prospective markets and employees.
- Travel times for customers and workers may be reduced.
- Open space and water resources may be conserved.
- Strategies for creating jobs for currently underemployed and unemployed residents of the region can be enhanced.
- Strategies to attract and retain talented young workers can also be enhanced.

MAPC is developing a map series, the Smart Work Place Project, which can serve to guide businesses and municipalities as they seek out places to grow. The maps will show where the major elements of infrastructure, in all of its forms, already exist. By contrast, the map will also show areas where development would be less desirable.

Transportation-Related Economic Initiatives

MAPC is designated by the Economic Development Administration (EDA), an agency within the U.S. Department of Commerce, as an Economic Development District pursuant to the Public Works and Economic Development Act of 1965. This designation gives MAPC the authority to propose job development strategies that involve collaboration among public- and private-sector partners. MAPC periodically develops a Comprehensive Economic Development Strategy (CEDS) for metropolitan Boston that identifies regional trends and conditions and encourages a unified approach to regional economic development goals.

The CEDS includes a listing, called the Priority Projects List, of qualified development projects in metropolitan Boston that seek funding from the EDA's Public Works Grant Program. This program directs funds to economically distressed communities to upgrade their physical infrastructure in order to attract new industry, encourage business expansion, and generate private-sector jobs and investment. Inclusion on the list is an EDA prerequisite for funding consideration.

In order to present the region's most competitive projects to EDA, MAPC's Economic Development Committee recently revisited and strengthened criteria used to screen projects for placement on the list. The new criteria highlight projects that are ready to go, are supported within the community, and reflect principles of smart growth.

Population and Employment Projections for JOURNEY to 2030

Developing the MPO's new regional transportation plan required projections of population and

employment totals to the year 2030. As a first step, MAPC created two scenarios (which are also used in its new regional Plan, MetroFuture). From these scenarios, population, household, and employment projections were prepared which the MPO used to select its preferred land use scenario and define inputs for the modeling necessary for JOURNEY TO 2030.

MAPC staff used standard cohort-survival and shift-share methodologies to make the population, household, and employment projections. For the scenarios considered, MAPC assumed that the future will be mostly like the recent past. Population growth for the region is based on the state birth and death rates, by age-sex-race cohorts for the region. Net population migration for the region is also based on the migration trend in the 1990s and recorded in the 2000 census. MAPC projected employment for the region as a whole based on its share of the nation's economy in 10 economic sectors, based on Bureau of Labor statistics. Projections were then prepared for municipalities.

The regional transportation model includes 164 communities in eastern Massachusetts. Within each community, the population and employment projections need to be further broken down into transportation analysis zones (TAZs), which are based on United States Census block or block group geography. The share of the total regional population and employment belonging to each community and TAZ varies between the scenarios, based on the assumptions of each.

The projections have been improved through an extensive public review process in which the 101 municipalities in the MPO region, six adjoining regional planning agencies, and two collaborating agencies were invited to comment. Many entities and individuals did so, and their comments were considered and often resulted in modifications.

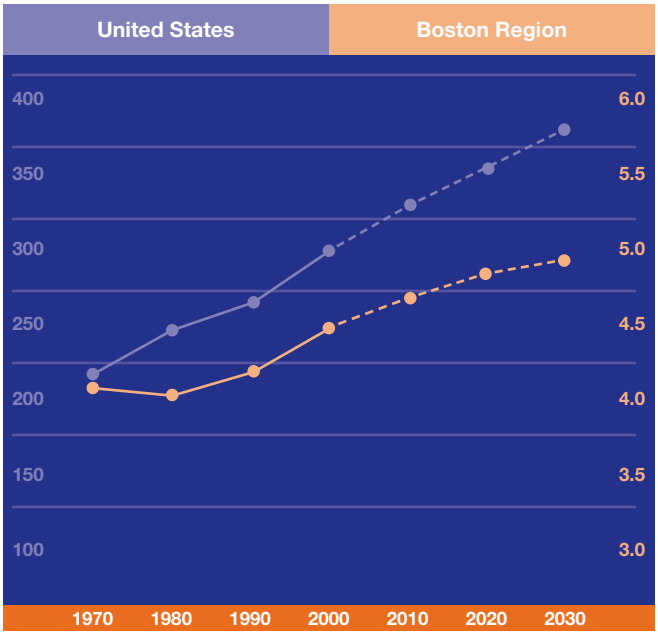
Further details on these projection methodologies are available at http://www.mapc.org/data_gis/data_center/2006_Projections/2006ProjectionMethodologyFinal.doc.

Several fundamental demographic and economic trends for Boston versus the national and global economy apply to all scenarios:

- **Growth that is slow but steady:** The region's population may grow by 11 percent from 2000 to 2030, creating a need for over 300,000 new housing units. Figure 11-1 compares past and projected population growth in the region to national population growth.

FIGURE 11-1

POPULATION GROWTH (IN MILLIONS), UNITED STATES VS. BOSTON REGION



- **An aging population:** Over the coming decades, the over-55 population in the region is expected to increase by 75 percent. By 2030, one third of the population will be over the age of 55.
- **Increasing diversity:** Immigrants are a key component of the projected population growth. By 2030, almost one quarter of the region's residents will be foreign-born and one-third will be Hispanic, or Black, Asian, or of another non-White race.
- **A changing economy:** The largest job gains are expected in professional services, educa-

tion, and health care; manufacturing employment in the region is expected to decline.

- **Global change:** Increasing demand for oil and depletion of supplies is likely to drive up energy prices. Global warming may alter the region's temperature and rainfall patterns and will increase the need for renewable energy technology.

For JOURNEY TO 2030 development, projections of population, households, and employment were available for two scenarios, "Current Trends" and "Smart Growth Plus." The different assumptions and implications of these two scenarios are described below.

"Current Trends" Projections

Under this scenario the future is assumed to look much like the recent past. Areas with recent growth in jobs and housing will continue to grow, existing resource and infrastructure constraints will not limit development, and large numbers of people will commute into the eastern Massachusetts area from outside the region in response to a projected shortage of resident workers. The following discussion provides further details.

The Region's Population

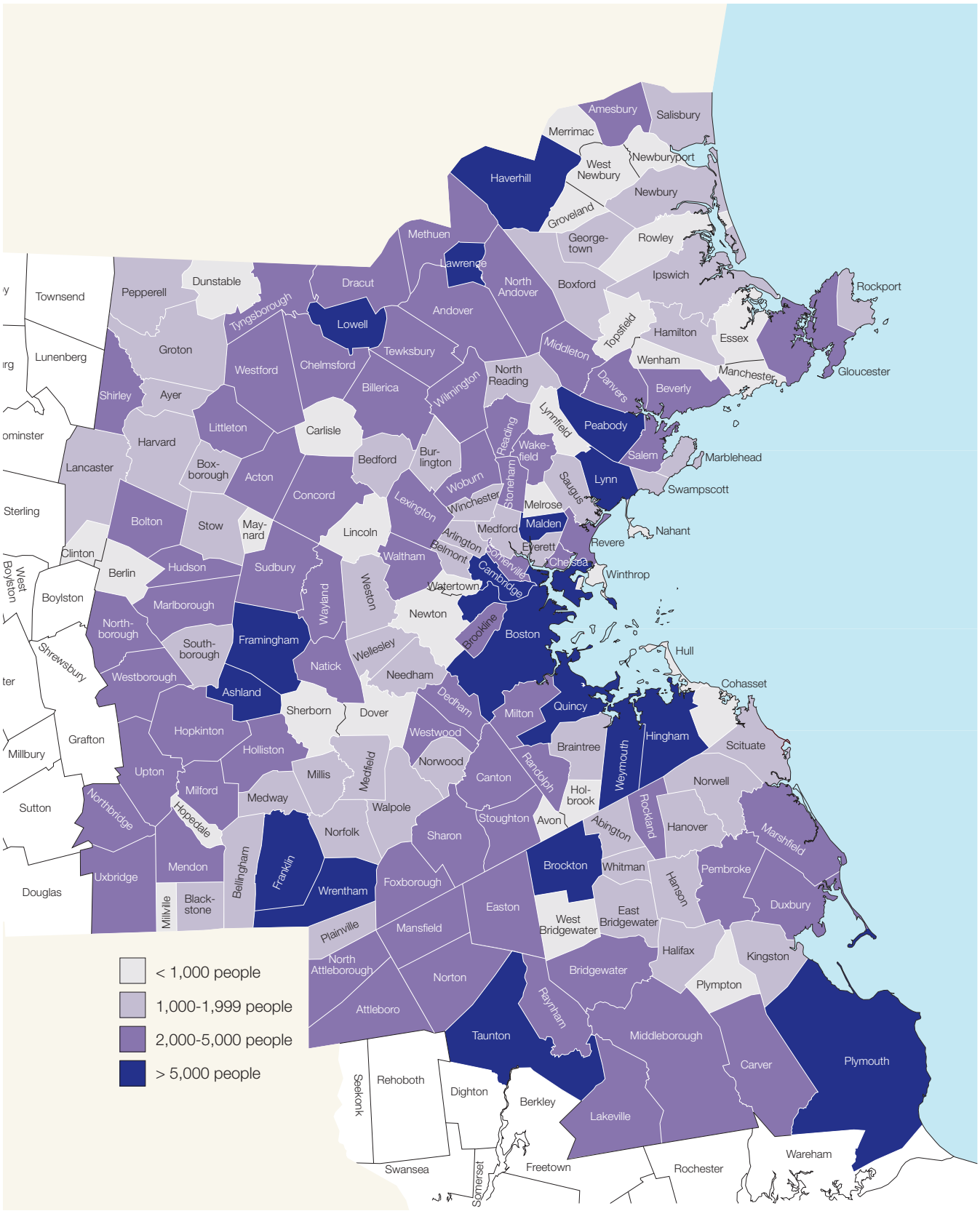
Key projections for population in this scenario are that: the region is on track to add 465,000 people by 2030, an increase of 10.8 percent. The population will be aging, with fewer school-age children in 2030 and a dramatic spike in the over-55 population. The region will be losing people to other states, but international immigration will be a critical part of the region's growth. There will be more diversity, as minorities grow to almost a third of the total population. Most growth in non-White populations may take place in a dozen cities, the racial mix of the region's suburbs changing very little.

Many suburbs will continue to grow rapidly, and the region's urban centers may grow faster than in recent decades. The largest population increases are expected in urban centers such as Boston, Cambridge, and Lynn and in a half-dozen suburban towns (such as Plymouth and Weymouth) with very large housing developments on the horizon. In terms of percentage gain, the fastest growth rates will be in developing suburbs along Interstate 495 with abundant unprotected open space. Figure 11-2 shows the level of 2000–2030 population growth projected for each municipality in the region.

Effects of this scenario are that there will likely be a need to build 300,000 new housing units in the region. Continued development in urban centers and maturing suburbs will require redevelopment of commercial and industrial properties and increased emphasis on apartment buildings and townhouses. New zoning will be needed in many suburbs to accommodate this growth. In addition, rapid growth in outlying suburbs—beyond the reach of regional water and transit systems—will increase pressure on local roads and watersheds. Approximately 130,000 acres of open space may be lost to residential development.

FIGURE 11-2

Population Growth, 2000–2030



High housing costs or a sluggish economy may drive more residents to move to other states, depleting the region's supply of skilled labor. Slow growth could turn into no growth if more people move out of the region or fewer immigrants move in.

The Region's Economy

Key projections for the economy in this scenario are that the region may add 240,000 jobs from 2000 to 2030, an increase of 10.3 percent. This is slower than the expected national employment growth. Figure 11-3 shows the projected gains in employment by sector under the Current Trends scenario.

Service sectors will have the largest number of new jobs, while declines in manufacturing employment will continue. High-tech employment may grow more slowly than general employment. There may be a shortage of skilled workers and a surplus of workers without college degrees.

Municipal-level employment projections indicate that the largest job gains will be in the Inner Core of the region and along major highways in communities that are already major job centers. It is expected that four major job centers, comprising 27 communities, may account for half of the job growth. Meanwhile, 20 communities may experience job losses, as shown in Figure 11-4.

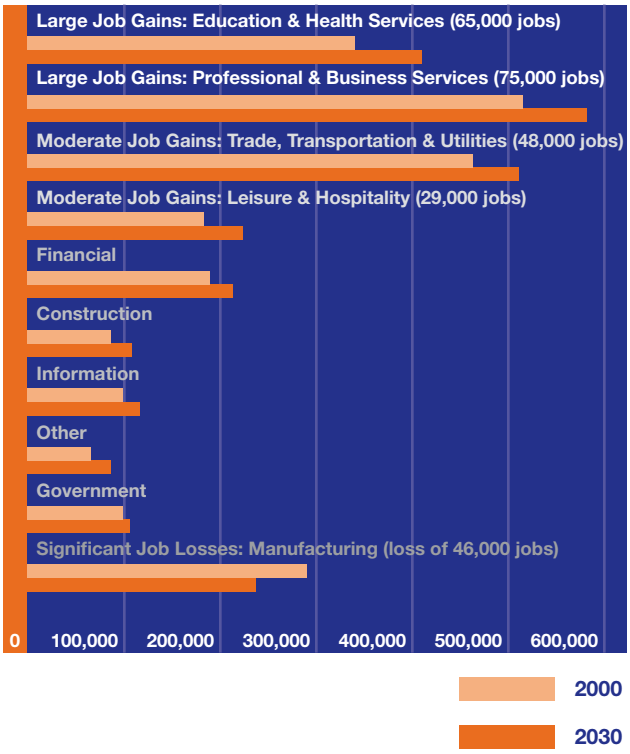
Effects of this scenario are that most workers will be commuting by car, as the three suburban job centers have excellent highway access but limited transit access. Anticipated job growth in some communities may not materialize if local water supplies are limited and other sources cannot be found.

The Region's Housing Future

Key projections for housing in this scenario are that the region must build more than 300,000 housing units by 2030. The region's housing needs will be changing. By 2030, the average household will have fewer people, and one-third of the region's residents will be over the age of 55.

FIGURE 11-3

EMPLOYMENT BY SECTOR, 2000–2030



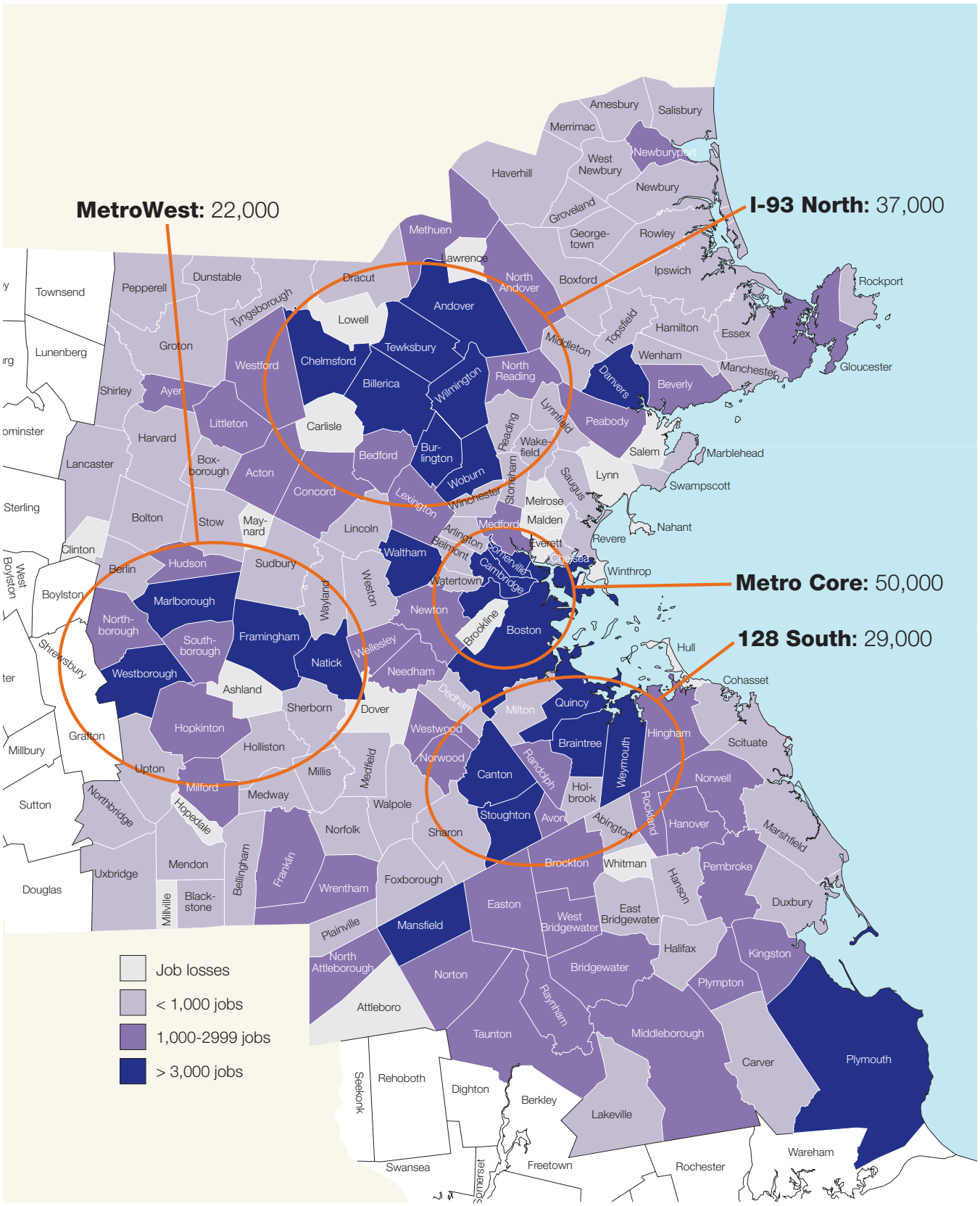
However, the emphasis on large, expensive, single-family homes in low-density suburbs will consume more than 120,000 acres of open space, while failing to meet the needs of the region's aging and increasingly diverse population. Fifty-five low-density suburbs—one-third of the region's communities—are expected to produce fewer than 100 apartments or condominiums each. Cities and high-density suburbs will grow their housing stock through redevelopment and infill (including some brownfields remediation), but urban revitalization may displace long-time residents who may be unlikely to find affordable options elsewhere. More than 90 percent of new urban housing will be created through redevelopment, and over two-thirds of new housing is expected to be apartments or condominiums.

The "Smart Growth Plus" Projections

The Smart Growth Plus scenario was chosen as the MPO's preferred land use scenario and was

FIGURE 11-4

Employment Gains, 2000–2030



used for the JOURNEY TO 2030 model inputs. It was developed by altering a number of assumptions from the Current Trends scenario. MAPC staff worked with approximately 20 members of MetroFuture's Inter-Issue Task Force (IITF) to develop the Smart Growth Plus scenario.

Total Regional Population and Employment

Regional totals for population (4,775,600 residents for the 164 communities in the regional transportation model area) and jobs (3,255,890) remained approximately constant for both scenarios. The allocations between and within municipalities were changed based on the changing assumptions below.

Water Consumption and Supply

The IITF first chose to assume implementation of state-recommended conservation goals (Massachusetts Water Policy, EOEA 2004), which decreased water consumption by approximately 15 percent and kept most municipalities from exceeding current Water Management Act limits. Municipalities that still exceed their limits in spite of conservation are then assumed to have a cap on growth. Growth projected for those communities was therefore reallocated to other municipalities based on a) adjacency, b) water availability, and c) transit access.

Land Preservation

The IITF chose to conserve more open space in this scenario. The Massachusetts State Land Conservation Plan (SLCP) prepared by the Department of Conservation and Recreation (DCR) in consultation with other public agencies and environmental organizations was used. Land with an SLCP rating of four or higher was removed from the class of vacant developable land. In addition, all agricultural land was conserved.

Community-Oriented-Development Areas

The IITF outlined a set of criteria as characteristic of locations that are well suited to development. MAPC relied heavily on these criteria to identify areas for concentrated development and increased the density of new growth allocated there. These areas were the priority development areas for growth within communities. The primary criteria included:

- Proximity to transit
- Proximity to existing sewer systems
- Proximity to town and village centers
- Underutilized commercial areas
- Areas of higher existing density

Additional considerations included: areas identified as priorities through Master Plans and community comments; avoiding residential growth adjacent to major highways; and professional judgment. Figure 11-5 shows the areas identified by MAPC as well-suited to community-oriented development.

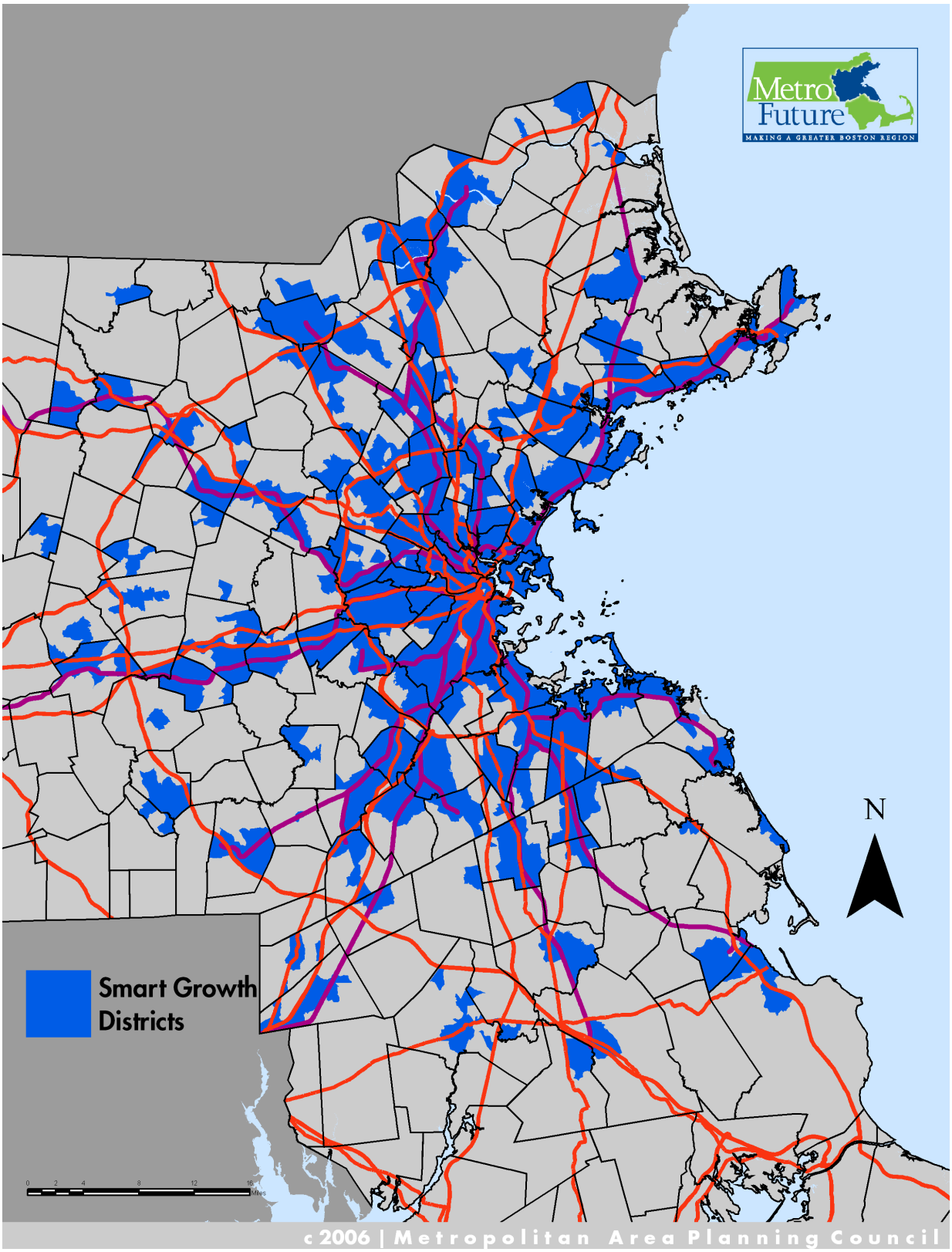
In the Smart Growth Plus scenario, about 1.2 million households (over 70 percent of the regional total) will be located in these concentrated development areas. As these areas comprise 518,000 acres (less than 30 percent of the regional area), growth will be at higher densities than in the rest of the region. Much of this growth will occur through redevelopment near transit stops and village centers. Therefore, a greater percentage of residents will likely be within walking distance of transit and activity centers, and the number of transit and walk trips, as well as walk times, will increase.

Educational Attainment and Labor Force Participation Rates

Smart Growth Plus seeks to address the total labor shortage as well as the structural skills mismatch projected for 2030 under the Current Trends scenario by advancing low-performing cohorts to regional average high school graduation rates, beginning in 2010 with the 15-25 age cohort. Because labor force participation rates generally are greater for people with higher edu-

FIGURE 11-5

COMMUNITY-ORIENTED-DEVELOPMENT AREAS, "SMART GROWTH PLUS" SCENARIO



cational attainment, this raises the overall labor force participation for Smart Growth Plus. It also addresses the structural jobs/skills mismatch by erasing the surplus of 75,000 workers without a high-school degree and, effectively, distributing these workers among higher skill levels, reducing the shortages there. Figure 11-6 shows the reduced levels of shortage.

Differences between Current Trends and Smart Growth Plus

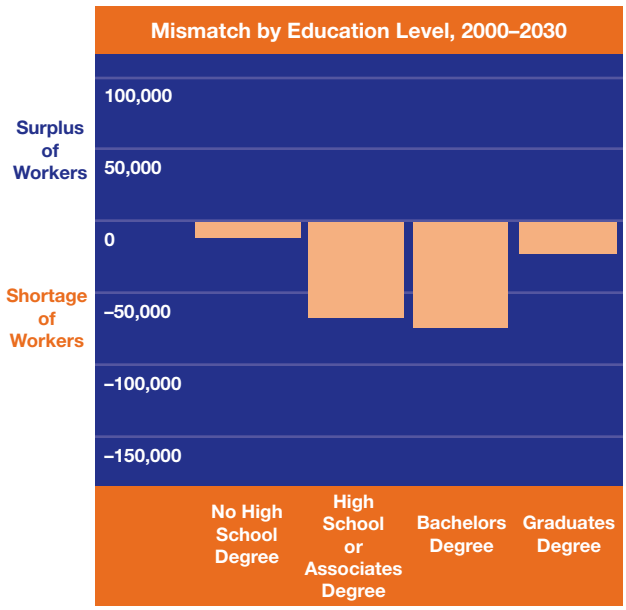
Based on these differing assumptions of the Current Trends and Smart Growth Plus scenarios, population and employment totals were reallocated between and within communities. The effects of this on various important characteristics of the region are presented below.

Water Consumption and Supply

Population and employment projections were reduced below the projected Current Trends totals in 18 municipalities which would otherwise still have exceeded their Water Management Act (WMA) supply constraints. This regional growth was reallocated to 23 communities with good transit access and adequate water supply. See Table 11-1.

FIGURE 11-6

REDUCED JOBS-SKILLS MISMATCH



Land Preservation

In Smart Growth Plus, additional land is conserved without constricting the supply needed to accommodate residential and commercial growth. See Table 11-2.

Effects of this are that there is a 30 percent decrease in the amount of at-risk land and an adequate supply of land remains for the projected growth. The new land-conservation assumptions will reduce by 139,000 acres the amount of buildable land used for new "greenfield" development.

Educational Attainment and Labor Supply

The changes in educational attainment and labor force participation rates result in 17,000 new resident workers filling jobs that required travel from outside the region under Current Trends. See Table 11-3.

Effects of this are that there are more resident workers in the region to fill the new jobs, so that there will be less in-commuting from outside the region. The region has a more highly skilled labor force and is thus a more competitive region.

Development

By focusing new development in the Community Oriented Development Areas (CODAs), 67 percent of new housing units and 82 percent of new jobs would be located in these higher-density, transit-oriented locations (versus 53 percent of new housing and 73 percent of new jobs under Current Trends). See Table 11-4. The median residential density in the CODAs would be 7.9 units per acre, a level that should support transit service.

The Impact of Land Use and Economic Development Changes on Transportation

The differences between the Current Trends and Smart Growth Plus scenarios are reflected in the

TABLE 11-1

Water Constraints

	CURRENT TRENDS	SMART GROWTH PLUS
COMMUNITIES EXCEEDING WMA	51	18
REGULATORY SHORTAGE	17 MILLION GALLONS/DAY	5.5 MILLION GALLONS/DAY
RESIDENT EQUIVALENTS	116,000	23,600
EMPLOYEE EQUIVALENTS	79,000	9,683

TABLE 11-2

Land Conservation

	CURRENT TRENDS	SMART GROWTH PLUS
TOTAL "BUILDABLE LAND" (ACRES)	452,000	313,000
RESIDENTIALLY ZONED LAND (ACRES)	395,000	269,000
COMMERCIALLY/INDUSTRIALLY ZONED LAND (ACRES)	57,000	44,000

TABLE 11-3

Labor Supply

	CURRENT TRENDS	SMART GROWTH PLUS
LABOR SUPPLY GROWTH IN REGION	59,000 JOBS	70,000 JOBS
LABOR SHORTAGE	179,000 (7.0% OF ALL JOBS)	162,000 (6.6% OF ALL JOBS)

transportation model results. Table 11-5 summarizes the regional results from both scenarios.

The impacts on travel of the different land use patterns are shown in the results reported in Tables 11-3 and 11-5. The concentration of development in community oriented development areas results in higher transit and non-motorized trip shares and less vehicle travel. The increase in education attainment levels and a resulting increase in labor force participation rates by residents in the region results in an increase of 17,000 new regional residents participating in the workforce. This reduces the number of out-of-region workers commuting into the region to fill jobs, resulting in 44,257 fewer person-trips daily.

The Incorporation of Land Use and Economic Considerations into JOURNEY to 2030

Two transportation demand model runs were made to assist in the MPO's selection of a preferred land use scenario. The first model run used the Current Trends demographic projections to the year 2030, in combination with the Modified 2004 Regional Transportation Plan (RTP) transportation network. This transportation

TABLE 11-4

Focused Development

	COMMUNITY-ORIENTED-DEVELOPMENT TAZs	OTHER TAZs
CURRENT TRENDS: % OF NEW HOUSING UNITS	53%	47%
SMART GROWTH PLUS: % OF NEW HOUSING UNITS	67%	33%
CURRENT TRENDS: % OF NEW EMPLOYMENT	73%	27%
SMART GROWTH PLUS: % OF NEW EMPLOYMENT	82%	18%

TABLE 11-5

Travel Impacts: Current Trends versus Smart Growth Plus (164 Municipalities)

	BASE YEAR 2000	CURRENT TRENDS SCENARIO 2030	SMART GROWTH PLUS SCENARIO 2030	DIFFERENCE BETWEEN SCENARIOS
TOTAL PERSON-TRIPS	28,421,655	31,278,324	31,234,066	44,257
VEHICLE-MILES TRAVELED	108,785,491	123,557,371	122,696,813	860,558
AUTO MODE SHARE	76.16%	74.88%	74.50%	0.39%
TRANSIT MODE SHARE	7.14%	7.14%	7.24%	-0.10%
NONMOTORIZED-MODE SHARE	16.70%	17.98%	18.26%	-0.28%

network included projects in the 2004-2025 Plan and two additional projects: the Green Line Extension to West Medford and Union Square, and 1,000 new park-and-ride spaces in the region (two projects under consideration as substitute projects to the State Implementation Plan transit commitments).

The second model run used the same transportation network but substituted the Smart Growth Plus land use scenario discussed above. The results of these model runs were compared and discussed with the MPO and made available to members of the public. Based on the MAPC recommendation and the modeling results, the MPO selected Smart Growth Plus as its preferred land use scenario for JOURNEY TO 2030. Smart Growth Plus was chosen because it helps to implement the MPO's vision for the region and advance the MPO's transportation policies.

Land use scenarios are important to MPO planning, as they provide basic inputs to the regional travel model. The MPO staff uses its regional travel model to forecast future travel and air emissions conditions for alternative transportation networks. This information provides the MPO with a preview of the possible benefits and burdens of projects and programs under consideration for inclusion in future regional transportation networks.

The regional model is a computer simulation of the transportation system and its use. It is used to estimate daily transit ridership, highway traffic volumes, and levels of emissions, primarily on the basis of projections of study area demographics and planned highway and transit improvements. By varying the demographic projections and alternative transportation network project sets as inputs into the model, the MPO staff forecasts the effects of alternative investment decisions and generates information to help guide the selection of projects for JOURNEY TO 2030.

Next, the 2030 No-Build transportation network was modeled. This model run used the preferred land-use scenario and the existing transportation network, with no expansion or improvements beyond those currently under construction, advertised, or in the federal fiscal year (FFY) 2007 element of the FFYs 2007–2010 Transportation Improvement Program. These results were used as the baseline for comparing the effects of alternative sets of transportation improvements in the build scenario(s).

After this run was completed, employment and population inputs to this model were updated to include recently available information for several areas in the MPO region. The 2030 No-Build and the 2030 Modified 2004 RTP transportation network were used and the model re-run. These results were discussed with the MPO and members of the public.

An environmental justice analysis was conducted comparing the No-Build with the 2030 Modified RTP network results. Comments on this analysis were gathered from representatives of minority and low-income populations and members of the public.

Considering the model run results, the analyses, and public comments, the MPO's Transportation Planning and Programming Committee identified a second network of projects for 2030 as the set of expansion and improvement projects recommended in this Plan. A complete description of this network is given in Chapter 13. These model results are also included in Chapter 13.

MAPC's MetroFuture – A Plan for the Future of the MAPC Region

MetroFuture is MAPC's recent initiative to update MetroPlan, the agency's 1990 regional development plan. This large-scale participatory initiative is developing a vision for the region's future and a strategy to get there. Residents, advocates, businesses, elected officials, and many others continue to participate in conversations about the region's future. The project, which has been funded in part by the MPO, was launched in 2002 by MAPC and such partners as the Boston Foundation, Boston College Citizen Seminars,

and the University of Massachusetts, Boston, and is using public participation, data analysis, and cutting-edge technologies to inform and involve individuals across the region in this collaborative decision-making process.

Four Alternative Futures

Since 2002, MetroFuture has involved over 3,000 people in a discussion about the future of the region. In the first phase of the project, thousands of participants contributed their vision for the region. Projections of what the region might be like in the year 2030 if current trends continue were then developed. The phase one visions plus other input received from the extensive outreach, including expert advice and technical analysis, contributed to the creation of three additional futures for the region. They show what the MPO area's growth and development might look like through 2030 if different sets of land use choices are made.

The four futures are: "Let It Be" or Current Trends; "Little by Little" or Smart Growth Plus (both of which were used in the development of JOURNEY TO 2030 and discussed earlier in this chapter); "Winds of Change"; and "Imagine." Each alternative future has its own set of costs and benefits, but each successive one reflects increased implementation of the smart growth principles and results in increasingly minimized transportation impacts, among other benefits.

None of these alternatives is the future. The following paragraphs summarize the four possible futures: the current trend and three alternative scenarios prepared for MetroFuture.

"Let it Be" or Current Trends describes what the region might be like in 2030 if current trends continue. Sprawling development, unaffordable housing, educational inequity, and unsustainable water withdrawals are all likely to get worse. Demographic changes and lagging urban schools may combine to create a shortage of highly skilled workers and at the same time a shortage of jobs for low-skill workers, with an overall labor shortage of 175,000 workers. Restrictive zoning in most suburban towns could create limited housing opportunities for working families and fixed-income seniors, and large-lot development would lead to the loss of 150,000 acres of open space. Continued dispersal of housing and jobs would increase dependency on the automobile.

"Little by Little" or Smart Growth Plus is what the region might be like if cities and towns implement many of the smart growth tools. In most cities and towns, population and employment growth would be the same as under Current Trends, but communities would take steps to change the location and pattern of growth at the local level, allowing for shorter trips and more walking and transit use. This approach would change some of the trends in the Current Trends scenario, but the region would still face a significant shortage of highly skilled workers, the loss of 90,000 acres of undeveloped land, and continued transportation challenges with a dispersed population and employment base.

"Winds of Change" is what the region might be like if communities made major efforts to ad-

dress challenges regionally, with individual cities and towns sharing in the costs and benefits of growth. This alternative would significantly change the regional distribution of growth and would minimize many of the current trends, with just 30,000 acres of open space lost over the coming decades and a significant increase in the amount of highly skilled labor in the region. This alternative would require new land use planning tools and a great increase in regional cooperation, including some regional decision-making on planning and land use issues. The emphasis on redeveloping town centers and urban areas would require careful planning and investments to protect quality of life for existing residents, reduce local traffic impacts, and protect historic resources and community character.

"Imagine" is what the region might be like if communities prioritized responses to 21st century global challenges such as climate change, energy independence, and growing international economic competition. New investment in public education and higher education would be designed to make this the best-educated region in the world, where three-quarters of the working-age population would have an associate's or bachelor's degree, creating a large surplus of well-educated workers to attract cutting-edge research institutes and industries. Almost all new growth would be high-density, mixed-use, transit-oriented development in town centers and urban neighborhoods, minimizing consumption of open space and maximizing the potential for public transit. Extensive public spending on renewable energy technology and conservation would drastically reduce energy and water consumption, protecting the region from spikes in energy costs and periods of drought, while supporting the development of new industries and job growth. An expansive land protection program would purchase or otherwise protect nearly all of the region's undeveloped land for recreation, agriculture, energy generation, and resource conservation.

A Preferred Future

MAPC is continuing to work with citizens in the region to identify a consensus around a preferred future scenario. MAPC will present the regionally preferred alternative for approval by regional leaders at a Boston College Citizens Seminar on May 1, 2007. After that, the last phase of MetroFuture begins, developing strategies to achieve that future, including the implementation of a future Regional Transportation Plan that supports the preferred alternative. The MPO will consider the preferred land use alternative chosen as part of MetroFuture as part of an amendment to JOURNEY TO 2030.

12

THE FINANCIAL PLAN

Introduction

For this Plan, the estimated transportation revenue from existing and available sources, both public and private, must be compared with the estimated cost of constructing, maintaining, and operating the existing and planned transportation system through 2030. If this comparison reveals a revenue gap, the financial plan must identify revenue sources to cover the shortfall and provide strategies to ensure the availability of such revenue.

This financial plan is limited to the components of the regional transportation system over which the Boston Region MPO has some funding or programming jurisdiction. These components are the Statewide Road and Bridge Program (including highway funding for alternative modes), the Central Artery/Tunnel project, and the regional public transportation system.

The Statewide Road and Bridge System

EOT has forecast highway revenues through 2030 for the 13 MPOs in the Commonwealth. Highway revenues consist of federal and state funds made available on an annual basis to the Commonwealth. The projections for the time period 2007–2010 are the targets provided to the MPO by EOT for the Transportation Improvement Programs (TIPs). EOT developed these estimates based on FHWA-provided estimates of expected federal funding.[1] The funding levels for 2011 through 2030 are projections from 2010 revenues. The estimate for each year is approximately 3 percent higher than the previous year's funding.[2]

[1] *Statewide Transportation Improvement Program* (STIP), FFY 2007–2010, Appendix B, Guidance Documents and Regional Targets, p. 11.

[2] An annual allotment of $25 million per year of redistribution funds was assumed by EOT. Also, an annual increase of 3

TABLE 12-1

Estimated Revenue from Existing Sources

PROGRAM	2007–2010*	2011–2020	2021–2030	RTP TOTAL
MAJOR INFRASTRUCTURE**	$117,000,000	$521,000,000	$744,000,000	$1,382,000,000
INTERSTATE MAINTENANCE	$93,000,000	$332,000,000	$491,000,000	$916,000,000
BRIDGES	$220,000,000	$705,000,000	$988,000,000	$1,913,000,000
OPERATIONS, MAINTENANCE, & IMPROVEMENT	$408,000,000	$1,634,000,000	$2,466,000,000	$4,508,000,000
TOTAL FUNDING AVAILABLE	**$838,000,000**	**$3,192,000,000**	**$4,689,000,000**	**$8,719,000,000**

* This funding is based upon the STIP and was adjusted, where necessary, to reflect amounts not currently programmed. Major Infrastructure, Interstate Maintenance, and Bridges are only programmed in the first three years of the STIP and have been adjusted by the average amount to provide a four-year picture, while non–federal aid roadway maintenance funds, which are not programmed in the STIP, have been assumed based upon historic trends.

** The funding under this program in the 2007–2010 reflects the amount programmed using Bridge funds for the Route 128 Transportation Improvement Project, and $21 million in HPP funding for Rutherford Avenue/Sullivan Square that is not yet programmed in the STIP.

EOT has projected federal funding based upon current apportionment levels as constrained by federally imposed obligation limits, while state funds are based upon recent trends in non–Central Artery funding. Funding available for the Statewide Road and Bridge Program is determined after deducting the costs of certain programs. These programs include the Central Artery/Tunnel project (CA/T), metropolitan and statewide planning, cost adjustments, and extra work orders. This available funding represents the amount of funding that can reasonably be expected based upon existing revenue sources, and represents the upper limit for the Plan's financial constraint.

In addition to providing this figure, EOT provided programmatic guidance for certain defined programs: Major Infrastructure (defined by the MPO as any non-bridge project costing more than $25 million in 2007 dollars), Interstate Maintenance, and Bridges. This guidance was developed based upon estimates of statewide funding allocated among MPOs based upon need-based formulas. Major infrastructure funding was determined using the Massachusetts Association of Regional Planning Agencies (MARPA) developed targets to apportion highway funding among the MPOs. Under the MARPA targets, the Boston region MPO assumes that it will receive approximately 43 percent of all available highway funds. The Bridge funding was based on the number of bridges in the Boston Region and the Interstate Maintenance funding was based on the percentage of interstate lane mileage in the region. The guidance is not binding for financial constraint purposes and was intended simply to provide an order-of-magnitude estimate for the affected programs.

Table 12-1 shows projections of available highway revenue for the Boston Region MPO for the years 2007 through 2030, by program. The estimates are summarized into three time periods: a four-year increment, from 2007 through 2010, to reflect the current TIP, and ten-year increments, from 2011 through 2020 and 2021 through 2030, to reflect air quality milestone years.

percent was applied, but not to the distributed funds. As an example, the estimate for 2017 is computed by taking the estimate of 2016, subtracting the $25 million of redistributed funds added in 2016, then multiplying what remains by 3 percent, and then adding $25 million of redistributed funds for 2017. This yields a year-to-year increase of 2.86 percent for 2010–2011 (the lowest increase) to 2.92 percent for 2029–2030 (the highest increase). It's important to bear in mind that these estimates are speculative, especially for later years. Actual funding levels will depend on many factors, primarily future federal and state policies.

TABLE 12-2

Allocation of Estimated Revenue From Existing Sources

PROGRAM	2007–2010	2011–2020	2021–2030	RTP TOTAL
MAJOR INFRASTRUCTURE*	$117,000,000	$555,000,000	$1,587,000,000	$2,259,000,000
INTERSTATE MAINTENANCE	$93,000,000	$332,000,000	$491,000,000	$916,000,000
BRIDGES	$220,000,000	$705,000,000	$988,000,000	$1,913,000,000
OPERATIONS, MAINTENANCE, & IMPROVEMENT	$408,000,000	$1,600,000,000	$1,623,000,000	$3,631,000,000
TOTAL FUNDING AVAILABLE	**$838,000,000**	**$3,192,000,000**	**$4,689,000,000**	**$8,719,000,000**

* The funding under this program in 2007–2010 reflects the amount programmed with Bridge funds for the Route 128 Transportation Improvement Project, and $21 million in High-Priority-Projects (HPP) funding for Rutherford Avenue/Sullivan Square that is not yet programmed in the STIP.

In developing this plan, the MPO has been guided by the information provided by EOT, but has opted to make certain adjustments to reflect the MPO's assessment of current needs, within the overall financial constraint imposed by existing revenue sources. Specifically, this plan allocates significantly more revenue to major infrastructure projects than recommended in the guidance provided by EOT. This decision results in a reallocation of funding from the Operations, Maintenance, and Improvement Program into the Major Infrastructure Program and is a reflection that in the Boston region many of the projects necessary to operate, maintain, and improve the existing system are of such a significant magnitude as to qualify as major infrastructure projects. Table 12-2 shows the plan's allocation of EOT's projections of available highway revenue for the Boston Region MPO from 2007 through 2030, by program.

The Plan allocates funding to certain projects that are defined by federal regulations as being regionally significant for air quality purposes (expansion projects). Some of these projects are of a significant enough magnitude that they will be funded from the Major Infrastructure Program, while others of a smaller cost from the Operations, Maintenance, and Improvement Program. Table 12-3 shows all of the highway projects that are specifically recommended in this Plan, whether as a major infrastructure project, a regionally significant project (expansion) for air quality conformity, or both. Table 13-3 (in Chapter 13) lists the costs of these projects.

The Central Artery/Tunnel Project

The source of the cost and revenue figures for the Central Artery/Tunnel (CA/T) project in this Plan is the *Cost/Schedule Status of the Central Artery/Tunnel Project,* Massachusetts Turnpike Authority, April 1, 2005. The numbers in the MassPike report were current as of December 2004. It is estimated that the project's overall cost will be $14.625 billion. This has not changed since the 2004 Regional Transportation Plan. Of the $14.625 billion estimated total, $13.6 billion has already been expended. The project is considered 96 percent complete.

(Note: Although some or all of these numbers have changed since December 2004, MassPike has not released any new numbers since April 2005. MassPike expects to update these numbers in June 2007. MPO staff will incorporate the updated numbers when they are available.)

Project Funding Summary

Table 12-4 indicates the sources of funds for the CA/T project, the percentage of the total cost by source, and funds expended as of December

TABLE 12-3

Major Infrastructure and Expansion Highway Projects in the Recommended Plan

PROJECT	TYPE OF PROJECT*	COST
MIDDLESEX TURNPIKE (BEDFORD, BURLINGTON, AND BILLERICA)	EXP	$14,400,000
ROUTE 128 CAPACITY IMPROVEMENTS (BEVERLY TO PEABODY)	MI/EXP	$293,743,000
EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE (BOSTON)	EXP	$17,169,100
ROUTE 1A/BOARDMAN STREET GRADE SEPARATION (BOSTON)	EXP	$13,686,000
RUTHERFORD AVENUE/SULLIVAN SQUARE (BOSTON)	MI	$100,695,500
CONSOLIDATED RENTAL CAR FACILITY (LOGAN AIRPORT, BOSTON)	MI/EXP	$453,000,000
I-93/ROUTE 3 INTERCHANGE – BRAINTREE SPLIT (BRAINTREE)	MI/EXP	$45,573,000
I-93/I-95 INTERCHANGE (CANTON)	MI/EXP	$164,228,000
I-95 (NB)/DEDHAM STREET RAMP (CANTON)	EXP	$3,500,000
CONCORD ROTARY (CONCORD)	MI	$81,033,000
ROUTE 2/CROSBY'S CORNER (CONCORD AND LINCOLN)	MI/EXP	$31,500,000
ROUTE 1/114 CORRIDOR IMPROVEMENTS (DANVERS AND PEABODY)	MI/EXP	$94,808,000
RIVER'S EDGE BOULEVARD [FORMERLY TELECOM CITY BOULEVARD] (EVERETT, MALDEN, AND MEDFORD)	EXP	$20,802,000
REVERE BEACH PARKWAY (EVERETT, MEDFORD, AND REVERE)	MI/EXP	$189,616,000
ROUTE 126/135 GRADE SEPARATION (FRAMINGHAM)	MI	$101,291,000
ROUTE 85 IMPROVEMENTS (HUDSON)	EXP	$8,075,000
ROUTE 1 IMPROVEMENTS (MALDEN AND REVERE)	MI/EXP	$131,678,000
I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE (MARLBOROUGH AND HUDSON)	MI/EXP	$37,773,000
NEEDHAM STREET/HIGHLAND AVENUE/WINCHESTER STREET (NEWTON AND NEEDHAM)	EXP	$10,538,000
QUINCY CENTER CONCOURSE, PHASE 2 (QUINCY)	EXP	$9,580,000
I-93/I-95 INTERCHANGE (READING AND WOBURN)	MI	$234,025,000
MAHONEY CIRCLE GRADE SEPARATION (REVERE)	EXP	$30,387,000
ROUTE 1/ROUTE 16 INTERCHANGE (REVERE)	EXP	$6,295,000
ROUTE 1A/ROUTE 16 CONNECTION (REVERE)	MI	$93,795,000
BOSTON STREET (SALEM)	EXP	$3,148,000
BRIDGE STREET (SALEM)	EXP	$4,790,000
I-93/MYSTIC AVENUE INTERCHANGE (SOMERVILLE)	MI/EXP	$118,510,000
NAVAL AIR STATION ACCESS IMPROVEMENTS (WEYMOUTH)	MI/EXP	$42,000,000
ROUTE 18 CAPACITY IMPROVEMENTS (WEYMOUTH)	EXP	$24,000,000
ROUTE 3 SOUTH ADDITIONAL LANES (WEYMOUTH TO DUXBURY)	MI/EXP	$426,637,000
I-93/ROUTE 129 INTERCHANGE (WILMINGTON AND READING)	EXP	$23,950,000
NEW BOSTON STREET BRIDGE (WOBURN)	EXP	$4,862,000

* Exp = Expansion – Project adding capacity to the roadway or transit system
MI = Major Infrastructure – Project costing $25 million or more

TABLE 12-4

CA/T Project Funding Sources, by Amount and Expenditures, through December 31, 2004

SOURCE	TOTAL TO BE EXPENDED	EXPENDITURES THROUGH 12/31/04
FEDERALLY FUNDED CONTRACTS	$7,049,000,000	$6,955,000,000
GRANT ANTICIPATION NOTES (FEDERAL AID)	$1,500,000,000	$1,500,000,000
COMMONWEALTH BONDS	$1,588,000,000	$1,544,000,000
STATE INTEREST ON MASSPIKE FUNDS	$45,000,000	$45,000,000
TRANSPORTATION INFRASTRUCTURE TRUST FUND	$2,410,000,000	$1,871,000,000
MASSPORT CONTRIBUTION	$302,000,000	$302,000,000
MASSPIKE FUNDS	$1,591,000,000	$1,371,000,000
INSURANCE TRUST INTEREST	$140,000,000	$55,000,000
TOTAL	**$14,625,000,000**	**$13,643,000,000**

31, 2004. The following sections discuss federal funding, state funding, and remaining project obligations.

Federal Funding

Excluding Grant Anticipation Notes (GANs), federal aid accounts for 48 percent of project funding for the CA/T project. Accounting for full federal reimbursement for the GANs principal, the federal portion is approximately 58 percent. GANs are essentially loans, with future federal transportation allocations used as collateral. The Commonwealth funds yearly interest payments from annual appropriations, while principal payments will be drawn from future federal highway apportionments.

FHWA instituted an administrative cap on the project in 2000. Under this cap, the project cannot exceed $7.049 billion in federal obligations, plus $1.500 billion in GANs repayments, for a total federal participation level of $8.549 billion.

State Funds

Like all federally funded highway projects, the Central Artery/Tunnel project requires matching funds from state sources. General obligation bonds, revenue from two trust funds, and Massport and MassPike funds compose the state match. General obligation bonds are estimated to contribute $1.633 billion. The revenue from the Insurance Trust Fund is estimated to generate $140 million for the project.

In May 2000, the Massachusetts General Court enacted Metropolitan Highway System legislation creating the Central Artery and Statewide Road and Infrastructure Trust Fund. The Infrastructure Trust Fund authorized $1.35 billion in bonds to be funded from the following sources: reinstated registry and license fees, the Massachusetts Turnpike Authority ($200 million), the Massachusetts Port Authority ($65 million), Commonwealth debt service savings, and investment earnings on balances in the Trust Fund. The projections for the performance of the fund are based on a number of factors, including market forces, which are estimated by the Central Artery Finance Plan.

In addition to the above $65 million, Massport paid $300 million for certain segments of the project located near Logan Airport. In addition to $200 million to the Turnpike Infrastructure Fund, MassPike is expected to contribute up to $1.85 billion to the project.

Remaining Project Obligations

The MPO estimates that it will program $505.605 million in federal funding for the project during

federal fiscal years (FFYs) 2007–2010 and $685.675 million during FFYs 2011–2014. The GANs repayment schedule from the Central Artery Finance Plan indicates repayments of $110 million in FFY 2007, $117 million in FFY 2008, $127 million in FFY 2009, and $151 million in FFY 2010. The payments in FFYs 2011, 2012, 2013, and 2014 are estimated to be $159 million, $166 million, $177 million, and $184 million, respectively.

The Regional Public Transportation System

The MBTA projections of long-range revenues and expenses are included in the Silver Line, Phase III Finance Plan (Finance Plan) of the federal New Starts program application, submitted in August 2006 and approved for preliminary engineering in December 2006. The Finance Plan includes projections through 2030 and is the basis for the projections in this Plan. A summary of how the MBTA funds operations and capital investments is provided below.

Funding MBTA Operations

Recent fiscal reform legislation (Section 151 of Chapter 127 of the Acts of 1999) altered the way the MBTA is funded. The MBTA Enabling Act (Chapter 161A of the Massachusetts General Laws) established dedicated sources of revenue and mandated the MBTA to operate as an independent, financially self-sustaining public transportation agency. Prior to the enactment of this legislation, the Commonwealth funded the MBTA in arrears—in other words, it reimbursed the MBTA for expenses that had already been incurred. The Enabling Act and the new financing mechanism for the MBTA have been referred to as Forward Funding to reflect the fact that the MBTA's costs will no longer be funded in arrears.

Commencing July 1, 2000, the MBTA no longer received Net Cost of Service assistance or debt assistance. Instead, under the Enabling Act, the MBTA receives a dedicated revenue stream consisting of assessments paid by the 175 cities and towns in accordance with the Enabling Act, and one cent of every five cents of the statewide sales tax collected. (The dedicated sales tax, together with the municipal assessments, make up the dedicated revenues.)

In addition to the dedicated revenues, the MBTA's operations are funded by fare revenue and non-fare revenue; non-fare revenue includes revenue from advertising, parking, concessions, real estate sales, and interest income. Sales tax revenues are expected to equal $734 million in FFY 2007, increase at an annualized average rate of 5.9 percent through FFY 2010, and continue growing by an average of 3.9 percent per year through FFY 2030. The total sales tax revenue over the life of the Plan from FFY 2007 through FFY 2030 is estimated to be $30.5 billion.

Funding MBTA Capital Investments

The MBTA's capital program is primarily funded by two major sources: revenue bonds and federal grants; other sources include project financing, the pay-as-you-go/Capital Maintenance Fund, and state appropriations. Prior to Forward Funding, the MBTA's nonfederal portion of the capital program was funded by General Transportation System bonds issued by the MBTA and backed by the Commonwealth Guaranty. Under Forward Funding, the MBTA's non-federal portion of the capital program is primarily funded in the early years by revenue bonds secured by the dedicated revenues under two separate categories (assessment bonds and sales tax bonds) established under the Enabling Act. The assessment bonds are secured by the assessments paid by the 175 cities and towns in the MBTA district, and the sales tax bonds are secured by the sales tax revenues received by the MBTA.

The MBTA's goal is to preserve sufficient funding for the operating budget, and it cannot allow debt service expenses to increase in relation to operating expenses. Taking this into consideration, the MBTA is seeking to make a transition from complete reliance on debt financing to greater

use of pay-as-you-go financing of capital projects. It is, however, anticipated that the General Court (state legislature) will appropriate additional capital funds for projects required by legal commitments pre-dating the Forward Funding legislation and for other projects mandated by new legislation. (See Chapter 161A, Section 18, of the Massachusetts General Laws, as amended, and the following page of this Plan, for more details.)

Operations and Maintenance Costs

The MBTA's operating expenses include wages, benefits, payroll taxes, materials, supplies, services, and purchased transportation. In the Finance Plan, operating expenses for FFY 2007 are projected to total $985 million. The Finance Plan also assumes a 3.9 percent average annual increase through FFY 2010, and a 3.3 percent average annual increase thereafter. This percentage reduction in later years is part of an MBTA policy to increasingly reduce operating expenditures. Additional allowances are made for net operating costs (fare revenues minus operating costs) of expansion projects assumed to be implemented in this Plan within this time frame. Over the life of the Plan, projected operating expenses are approximately $35.3 billion for the existing system and an additional $3.1 billion for the expansion projects included in this Plan. These projects include ongoing MBTA expansion projects (Greenbush Commuter Rail and Blue Line Modernization); Silver Line Phase III; projects required under the State Implementation Plan; expansion projects recommended by the Boston Region MPO (100 Additional Buses, Blue Line to Lynn, and Urban Ring Phase 2) and expansion projects recommended in other MPOs' Regional Transportation Plans (Fall River/New Bedford Commuter Rail, and Fitchburg Line Improvements).

Prior to Forward Funding, operating shortfalls were covered by the Commonwealth. The transition to Forward Funding required the MBTA to be fully responsible for its finances, thus creating the need for reducing operating costs while providing efficient transit services to the region. The financial reform legislation provided the MBTA with the tools necessary to develop a sensible approach to controlling the growth of operating expenses.

MBTA bonds were backed by the Commonwealth prior to the enactment of the Forward Funding legislation. Upon the effective date of the legislation, however, contract payments from the state ceased and all outstanding debt became the responsibility of the MBTA. The projected debt service payments for new debt and prior-obligation debt over the life of the Plan equal approximately $15.4 billion while debt service for Silver Line Phase III totals approximately $922 million.

Similar to debt service expenses, obligations under prior lease agreements became the sole responsibility of the MBTA upon the effective date of the Forward Funding legislation. These obligations are related primarily to "safe harbor" lease agreements executed in the 1980s for various MBTA rolling stock. Under such agreements, nonfederal shares of rolling stock were sold to private corporations and leased back to the MBTA. The corporations received tax benefits for such transactions, in the form of deductions for depreciation. These leases will terminate in 2013, and payments will total approximately $83 million.

An additional requirement of the Forward Funding legislation was a mandate that the MBTA maintain a cash surplus equal to 0.5 percent of the sum of the annual allocation to the MBTA from the state sales tax and the assessments on cities and towns in the MBTA district. Over the life of the Plan, this requirement equals approximately $175 million. Added to the MBTA's contribution to the Surplus/Deficiency Fund (similar to a stabilization fund), the legislatively required operating surplus over the life of the Plan totals approximately $424 million.

Table 12-5 shows the projected operating and maintenance costs of the current MBTA system from FFY 2007 through 2030.

TABLE 12-5

Projected Operations and Maintenance Costs of the MBTA Transit System

CATEGORY OF COST	2007–2010	2011–2020	2021–2030	TOTAL
OPERATIONS – EXISTING SYSTEM	$4,139,000,000	$13,149,000,000	$17,987,000,000	$35,275,000,000
DEBT SERVICE – EXISTING SYSTEM	$1,624,000,000	$5,685,000,000	$8,041,000,000	$15,350,000,000
DEBT SERVICE – SILVER LINE III	$12,000,000	$380,000,000	$530,000,000	$922,000,000
OPERATING LEASE PAYMENTS	$52,000,000	$31,000,000	$0	$83,000,000
MARGINAL COST OF MBTA EXPANSION PROJECTS*	$29,000,000	$289,000,000	$512,000,000	$830,000,000
MARGINAL COST OF COMMONWEALTH EXPANSION PROJECTS**	$0	$610,000,000	$1,665,000,000	$2,275,000,000
SURPLUS/DEFICIENCY FUNDS	$24,000,000	$80,000,000	$320,000,000	$424,000,000
TOTAL OPERATING COSTS	**$5,880,000,000**	**$20,224,000,000**	**$29,055,000,000**	**$55,159,000,000**

* Greenbush Commuter Rail, Blue Line Modernization, 100 Additional Buses, and Silver Line Phase III
** SIP Commitments, Blue Line to Lynn, Urban Ring Phase 2, Fall River/New Bedford Commuter Rail

Revenues for Funding Operations and Maintenance

The revenues available to fund MBTA operations and maintenance over the life of this Plan comprise the following sources: operating revenue, dedicated sales tax revenue, local assessments, a subsidy to fund projects mandated by the State Implementation Plan, and non-fare revenue. Under anticipated allocation formulas, the MBTA will receive minimal federal aid for operating expenses. Table 12-6 lists the MBTA's projected revenues from FFYs 2007 to 2030.

In the Finance Plan, operating revenue projections from the existing system total $381 million in FFY 2007 and $14.7 billion over the life of the Plan. These projections incorporate an assumed 10 percent fare increase in 2010. Revenue from planned projects is deducted from operating costs of those projects to yield the marginal costs reflected in Table 12-5, presented above.

Since July 1, 2000, the MBTA has no longer received Net Cost of Service assistance, which had been unlimited, or Section 28 assistance. Instead, under the Enabling Act, the MBTA receives a dedicated revenue stream consisting of the amounts assessed on cities and towns of the MBTA in accordance with the Enabling Act, and revenue from the dedicated sales tax. The dedicated sales tax is equal to whichever is greater: the amount raised by a 1 percent statewide sales tax, which equals 20 percent of the existing statewide 5 percent sales tax, or the base revenue amount (BRA, which was $734 million in FFY 2007). In either case, the funds come from existing sales tax receipts, subject to upward adjustment under certain circumstances set forth in the Enabling Act. Over the period 2007 to 2030, projected sales tax revenue equals approximately $30.5 billion.

In addition to the sales tax revenue, the MBTA receives funding through local assessments in accordance with a statutory formula. The 175 municipalities within the MBTA's district pay an assessment to the MBTA on an annual basis. The amount paid by each municipality varies according to the population and the level of service provided. Local assessments are projected at $139 million in FFY 2007 and $149 million in FFY 2010, with an average increase thereafter

of 2.4 percent per year through FFY 2030. (The maximum increase allowed under the limitations established by Proposition 2 1/2 in each year starting in 2007 is 2.5 percent.) Over the life of this plan, projected local assessment revenue equals approximately $4.46 billion.

The final component of the system revenue is non-fare revenue, such as that derived from parking fees, advertising, concessions, rent, interest income, utility reimbursements, and non-operating revenues such as income earned on investments and sale of property. The Finance Plan projects that non-fare revenue will amount to $95 million in FFY 2007, and will increase to $105 million in FFY 2010. After FFY 2010, it is assumed that non-fare revenue will increase by 2.6 percent per year on average. Over the life of this Plan, projected non-fare revenue equals approximately $3.21 billion.

Assuming that the long-term projections included in the Finance Plan hold true, additional revenue will need to be made available to the MBTA, either through an annual appropriation, debt relief, or other means. However, if increases in revenue occur through improvement in the sales tax growth rate or through other mechanisms, the amount of subsidy required may be reduced accordingly. Subject to legislative appropriation, the Finance Plan anticipates that the MBTA will receive funding from the state as needed to finance the marginal costs of the commonwealth's expansion projects. Over the life of this Plan, projected additional revenue needed to finance these projects equals approximately $2.28 billion.

As shown earlier in Table 12-5, the projected operating and maintenance costs of the MBTA over the period of this Plan are $55.159 billion, while Table 12-6 shows revenues of $55.108 billion, resulting in a projected deficit of $51 million. This deficit, measuring less than one-tenth of one percent of the total operating budget, is considered negligible.

Capital Program Funding

The MBTA capital program is composed of five funding programs:

- Federal aid
- Bond proceeds
- Project financing
- Pay-as-you-go financing (Capital Maintenance Fund)
- Special state appropriations or other appropriate financing (e.g., debt relief)

The total proceeds from all capital program funding sources from 2007 through 2030 are estimated at $22.7 billion.

TABLE 12-6

Projected MBTA Operatiing Revenue from the Transit System

REVENUE SOURCE	2007–2010	2011–2020	2021–2030	TOTAL
FARE REVENUE	$1,706,000,000	$5,564,000,000	$7,432,000,000	$14,702,000,000
SALES TAX	$3,193,000,000	$11,096,000,000	$16,178,000,000	$30,467,000,000
LOCAL ASSESSMENTS	$577,000,000	$1,712,000,000	$2,170,000,000	$4,459,000,000
NON-FARE REVENUE	$399,000,000	$1,221,000,000	$1,585,000,000	$3,205,000,000
ADDITIONAL REVENUE FOR COMMONWEALTH EXPANSION PROJECTS	$0	$610,000,000	$1,665,000,000	$2,275,000,000
TOTAL OPERATING REVENUE	**$5,875,000,000**	**20,203,000,000**	**$29,030,000,000**	**$55,108,000,000**

Federal Aid

The federal appropriations program established under SAFETEA-LU specifies formulas that govern the dispersal of nondiscretionary federal funds. A total of $338 million in appropriations are scheduled for FFY 2007, with that figure decreasing to a minimum of $217 million in FFY 2011, and increasing thereafter at an annual average rate of 2.1 percent through FFY 2030. This results in a total estimate of $6.40 billion in federal funds over the life of the Plan, excluding New Start program grants.

Currently, federal discretionary New Starts program funds are projected to be secured for three MBTA projects:

1. Silver Line Phase III: $634 million (60 percent of total costs) is anticipated between 2007 and 2017.
2. Blue Line to Lynn: $348 million (50 percent of total costs) is anticipated between 2010 and 2018.
3. Urban Ring Phase 2: $977 million (50 percent of total costs) is anticipated between 2010 and 2018.

The combined total of New Starts funds for these projects over the life of the Plan would be $1.96 billion. The total federal aid projected to be available to the MBTA during the life of the Plan from all such programs combined is thus $8.36 billion.

The Boston Region MPO believes that it is reasonable to assume this level of federal financial support based on New Starts funding that the MBTA has previously received. Projects that have received New Starts funding include Silver Line Phase II; Urban Ring; and North Shore Transit Improvements. In TEA-21, the previous federal transportation legislation, Congressman John F. Tierney secured a $50 million authorization for a possible extension of the Blue Line. This authorization has helped fund the current initiative. The MBTA has worked to define the alternatives for the Urban Ring and North Shore corridors. Both the Urban Ring and North Shore projects are currently under review within the draft environmental impact statement process. It is anticipated that the Urban Ring and North Shore Transit Improvements projects will be competitive in the New Starts selection process, since this type of funding has already been received to fund the current studies being performed for these projects. Table 12-7 shows all of the transit projects that are

TABLE 12-7

Major Infrastructure and Expansion Transit Projects in the Recommended Plan

PROJECT	TYPE OF PROJECT*
ARBORWAY RESTORATION OR SUBSTITUTE PROJECT (BOSTON)	MI/EXP
RED LINE – BLUE LINE CONNECTOR (BOSTON)	MI/EXP
RUSSIA WHARF FERRY (BOSTON)	EXP
SILVER LINE PHASE III (BOSTON)	MI/EXP
GREEN LINE TO BALL SQUARE (BOSTON, MEDFORD, AND SOMERVILLE)	MI/EXP
URBAN RING PHASE 2 (COMPACT COMMUNITIES)	MI/EXP
100 ADDITIONAL BUSES TO IMPROVE SERVICE ON EXISTING ROUTES (REGIONWIDE)	MI/EXP
NORTH SHORE TRANSIT IMPROVEMENTS (REVERE TO LYNN)	MI/EXP
ASSEMBLY SQUARE ORANGE LINE STATION (SOMERVILLE)	MI/EXP

* Exp = Expansion – Project adding capacity to the roadway or transit system
MI = Major Infrastructure – Project costing $25 million or more

specifically recommended in this plan, whether as a major infrastructure project, a regionally significant (expansion) project for air quality, or both.

Bond Proceeds

The MBTA issues bonds to pay for the local share of all capital projects. The Finance Plan assumes that the MBTA will issue $12.2 billion in revenue bonds over the life of this Plan, including $635 million for the construction of Phase III of the Silver Line.

State Appropriations

The MBTA will receive state funding of $36 million from FFY 2007 through FFY 2010 for ongoing projects. In addition, the Commonwealth has previously committed to funding the nonfederal share of any additional expansion projects beyond Phase III of the Silver Line. Based upon current assumptions contained in this Plan, it is estimated that the Commonwealth's capital subsidy for the expansion projects contained in this Plan (SIP Commitments, Blue Line to Lynn, and Urban Ring Phase 2) will be $2.07 billion, with other sources totaling $59 million. It is understood that efforts to secure additional funding will require the involvement of EOT, the Executive Office of Administration and Finance, and the Legislature, and such additional funding is subject to annual appropriation.

Table 12-8 provides a breakdown of the MBTA capital program by funding source. Based upon historic trends, the Boston Region MPO assumes in this Plan that over time the capital maintenance needs of the MBTA will consume approximately 90 percent of all MBTA capital revenues (excluding those from the special state appropriations discussed above). This will leave approximately 10 percent (plus any special state appropriations) for capital expansion projects.

MBTA capital maintenance needs include infrastructure projects, such as signal and track upgrades; system enhancement projects; and accessibility projects, such as improvements necessary to comply with the Americans with Disabilities Act (ADA) Key Station Plan. Capital expansion projects, on the other hand, are projects that add new service to the system. The actual allocation of funds between capital main-

TABLE 12-8

Projected Funds Available for the MBTA Capital Program

FUNDING SOURCE	2007–2010	2011–2020	2021–2030	TOTAL
FEDERAL AID: NON-DISCRETIONARY	$1,105,000,000	$2,358,000,000	$2,938,000,000	$6,401,000,000
NEW STARTS – SILVER LINE PHASE III	$97,000,000	$537,000,000	$0	$634,000,000
NEW STARTS – COMMONWEALTH EXPANSION PROJECTS*	$22,000,000	$1,303,000,000	$0	$1,325,000,000
MBTA REVENUE BONDS	$1,390,000,000	$4,360,000,000	$6,459,000,000	$12,209,000,000
EXISTING STATE FUNDING	$36,000,000	$0	$0	$36,000,000
COMMONWEALTH EXPANSION FUNDING**	$183,000,000	$1,887,000,000	$0	$2,070,000,000
OTHER SOURCES	$59,000,000	$0	$0	$59,000,000
TOTAL CAPITAL FUNDS	**$2,892,000,000**	**$10,445,000,000**	**$9,397,000,000**	**$22,734,000,000**

* 50 percent of the cost of Blue Line to Lynn and Urban Ring Phase 2

** 100 percent of the cost of the SIP Projects and 50 percent of the cost of Blue Line to Lynn and Urban Ring Phase 2

TABLE 12-9

Projections of the Use of Transit Capital Funds

PROJECT TYPE	2007–2010	2011–2020	2021–2030	TOTAL
STATE-OF-GOOD-REPAIR PROJECTS	$2,212,000,000	$6,329,000,000	$9,397,000,000	$17,938,000,000
MBTA EXPANSION PROJECTS	$475,000,000	$926,000,000	$0	$1,401,000,000
COMMONWEALTH EXPANSION PROJECTS	$205,000,000	$3,190,000,000	$0	$3,395,000,000
TOTAL CAPITAL USES	**$2,892,000,000**	**$10,445,000,000**	**$9,397,000,000**	**$22,734,000,000**

tenance and expansion projects, while limited to the 90/10 split over the long term, may vary somewhat from year to year. Table 12-9 shows the level of funding available for these two types of projects over the life of the Plan. At this time, there are no expansion projects included in the years 2021 to 2030. The MBTA is not proposing any new expansion projects at this time. They expect that all revenues during that time period will be used to maintain the system in a state of good repair.

13

THE RECOMMENDED TRANSPORTATION PLAN

Background

This chapter outlines the list of recommended projects that represents the Boston Region MPO's priorities through the year 2030, as well as the process used in the selection of these projects. It also includes the transportation model results that forecast various overall effects of the recommended set of projects.

Reinvestment in the existing system is the top priority of the Boston Region MPO. In this plan, the MPO has allocated 90 percent of the MBTA's future transit capital funding to system infrastructure maintenance, accessibility improvements, and system enhancements. The remaining 10 percent is allocated to system expansion. In addition, the Commonwealth has made a commitment to fund 100 percent of the SIP commitment projects and the nonfederal share (50 percent) of the Urban Ring, Phase 2, project and the North Shore Transit Improvements project (Revere to Lynn). For roadways, this plan allocates 70 percent of future capital (non–Central Artery) highway funding to maintenance of the existing infrastructure, while the remaining 30 percent is allocated to major infrastructure and capacity expansion projects. A major infrastructure project is any project that costs over $25 million. An expansion project is any project that adds capacity to the existing system through the addition of a travel lane, the construction of an interchange, the construction of a commuter rail extension or rapid transit line, or the procurement of additional (not replacement) public transportation vehicles.

Because of the significant amount of funding needed to maintain and enhance transportation in eastern Massachusetts and throughout the Commonwealth, an objective set of criteria was used for determining the best projects. This approach helped to steer funding, from the limited resources available, to those projects that most effectively advance the sustainable-development goals of the state. Just as the

Commonwealth has its statewide criteria, the Boston Region MPO uses its own objective system for the project selection process of the Plan.

Project Selection

Through JOURNEY to 2030, the MPO recognizes the diversity of transportation needs and issues throughout the Boston region and attempts to respond to them in a balanced manner. For this Plan, the MPO set the policies, selected the regionally significant projects, and identified the actions necessary to serve all modes of transportation for persons and freight in this metropolitan region, and, in so doing, attempted to address the issues of congestion and sprawl while supporting economic vitality and environmental justice.

While advocating a transportation system that adequately supports all modes of travel, the MPO recognizes that many people of the region are, and will continue to be, reliant on the automobile. Indeed, the members of the MPO expect both roadway congestion and the demand for transit to increase in the future, and recognize that many possibilities exist to reduce our dependence on the single-occupant vehicle, for example, by changing our land use practices. There is also a need to support a transportation system that expands choices for travel within the region.

Sprawling development is wasteful of limited infrastructure dollars and detrimental to the quality of life, which is an essential component of our economic competitiveness. Consequently, this Plan is generally consistent with MetroPlan, the adopted land use plan for the Boston region, and with the sustainable-development principles of the Commonwealth. It is also consistent with MetroFuture, an initiative that MAPC is developing that will provide a vision for the future of the Boston region, and a strategy for getting there. It looks at a number of factors, including community character, residential and housing growth, economic development, and natural resources, as well as transportation issues.

The MPO seeks to provide access to transportation services on an equitable basis across the region. This includes, but is not limited to, ensuring that low-income and minority communities have transportation options for traveling to jobs, and that transit-dependent residents can reach needed services.

Finally, the MPO recognizes that the transportation system plays a critical role in the continued economic health of the region. Many sectors of the regional economy depend heavily on the safe and efficient movement of goods and services by truck, rail, air, and water.

The MPO considered its visions and policies in selecting the recommended projects in the Plan. Each highway project, with a defined description, was included in the Universe of Projects and was rated according to its consistency with the following policies:

- System Preservation, Modernization, and Efficiency
- Mobility
- Environment

- Safety and Security
- Regional Equity (also called Environmental Justice)
- Land Use and Economic Development

The two policies that were not used (public participation and finance) are not applicable to the assessment of individual projects; these policies are entirely process oriented. MPO staff rated each project on how well the project complied with each policy.

The Program for Mass Transportation (PMT) projects were evaluated based on 35 individual performance measures that were divided into seven categories:

- Utilization
- Mobility
- Cost-effectiveness
- Air quality
- Service quality
- Economic and land use impacts
- Environmental justice

Within the cost-effectiveness category, performance measures were used that considered the impact of projects on both existing and new riders.

The selection of highway and transit projects for inclusion in the Plan was based on the professional judgment of the MPO members after they reviewed myriad sources of information, including:

- Results from the regional travel-demand model
- Information available on projects through feasibility studies, project-specific modeling work, and environmental impact reports
- A matrix examining each individual highway project for conformity with the MPO's transportation policies
- Recommendations and prioritizations of each transit project as set forth in the MBTA's Program for Mass Transportation
- Recommendations from the MPO's citizen advisory council
- MPO members' knowledge of proposed projects
- Feedback from the public through the MPO's outreach process

Recommended Land Use Scenario

Federal regulations stipulate that the MPO planning process consider the consistency of transportation plans with long-term land use and development plans and projections. The MPO selected the Smart Growth Plus land use scenario as the basis for developing a consistent set of recommended future projects for modeling for the air quality conformity determination.

Under Smart Growth Plus, growth in the region is anticipated to be relatively slow, totaling only 10 to 12 percent over the 23-year planning period. In communities, development allowed by current zoning is assumed to continue at current rates until the demand for water and sewer capacity exceeds a community's ability to provide it. Additional development is then allocated to communities with remaining water and sewer capacity, and commuter rail and other transit services that are available. Within communities, development is assumed to occur mostly in town and neighborhood centers and other centers of concentrated activity. Preservation of more open space, agricultural land, and water resources over current trends are all part of the Smart Growth Plus scenario.

The scenario, which is explained in Chapter 11, is consistent with the region's current land use plan, MetroPlan. It is also consistent with the new regional land use plan, MetroFuture, which is currently being developed by MAPC.

Recommended List of Planned Major Infrastructure and Expansion Projects

The major infrastructure and capacity expansion program is available to fund the projects currently underway and also those that constitute the planned major infrastructure and expansion projects for the transportation system. The following ongoing regionally significant projects are funded in this Plan:

- The Central Artery Project: The total budget for this project is approximately $14.625 billion, and the costs funded under this Plan are $1.19 billion for the repayment of Grant Anticipation Notes.
- Route 128 Additional Lanes (Randolph to Wellesley): The total budget for this project is approximately $353.7 million, and the remaining costs funded under this Plan are $301.35 million. The completion date of this project is projected to be 2015.
- Silver Line, Phase II (South Boston Piers Transitway): The total budget for the project is approximately $600.9 million, and the remaining costs funded under this transportation plan are $31 million.
- Greenbush Commuter Rail Line: The total budget for the project is approximately $512 million, and the remaining costs funded under this transportation plan are $151 million. The projected time frame for the start of service is the summer of 2007.

After accounting for the costs of these ongoing projects, the remaining funds available in the major infrastructure and capacity expansion program are dedicated to planned major infrastructure and capacity expansion projects. An expansion project is any project that adds capacity to the existing system through the addition of a travel lane, the construction of an interchange, the construction of a commuter rail extension or rapid transit line, or the procurement of additional (not replacement) public transportation vehicles. A major infrastructure project is any project that costs over $25 million. Table 13-1 lists the projects funded under the major infrastructure and capacity expansion program and the type of project—major infrastructure project, or expansion project, or both. Figure 13-1 shows the locations of these projects.

During the development of this Plan, there was no "flexing" of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Thus, highway funds are used to fund highway projects, and public transportation funds are used to fund improvements to the regional public transportation system. Based upon this distinction, the major infrastructure and expansion program yields approximately $2.638 billion for non–Artery highway projects, including $301.35 million in funds allocated to the ongoing Route 128 project (referenced above), and $4.738 billion for transit projects, including $31 million in funds allocated to the ongoing Silver Line, Phase II, project (referenced above), and $151 million for the Greenbush project (referenced above). Table 13-2 shows the total amount of funding dedicated to major infrastructure and capacity expansion projects in the Plan

TABLE 13-1

Major Infrastructure and Expansion Projects in the Recommended Plan

PROJECT	TYPE OF PROJECT*	COST
MIDDLESEX TURNPIKE (BEDFORD, BURLINGTON, AND BILLERICA)	EXP	$14,400,000
ROUTE 128 CAPACITY IMPROVEMENTS (BEVERLY TO PEABODY)	MI/EXP	$293,743,000
EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE (BOSTON)	EXP	$17,169,100
ARBORWAY RESTORATION OR SUBSTITUTE PROJECTS (BOSTON)	MI/EXP	**
RED LINE/BLUE LINE CONNECTOR (BOSTON)	MI/EXP	**
ROUTE 1A/BOARDMAN STREET GRADE SEPARATION (BOSTON)	EXP	$13,686,000
RUSSIA WHARF FERRY TERMINAL (BOSTON)	EXP	$2,200,000
RUTHERFORD AVENUE/SULLIVAN SQUARE (BOSTON)	MI	$100,695,500
CONSOLIDATED RENTAL CAR FACILITY (LOGAN AIRPORT, BOSTON)	MI/EXP	$453,000,000
SILVER LINE, PHASE III (BOSTON)	MI/EXP	$1,067,484,000
GREEN LINE TO BALL SQUARE (BOSTON, MEDFORD, AND SOMERVILLE)	MI/EXP	**
I-93/ROUTE 3 INTERCHANGE – BRAINTREE SPLIT (BRAINTREE)	MI/EXP	$45,573,000
URBAN RING, PHASE 2 (COMPACT COMMUNITIES)	MI/EXP	$1,954,000,000
I-93/I-95 INTERCHANGE (CANTON)	MI/EXP	$164,228,000
I-95 (NB)/DEDHAM STREET RAMP (CANTON)	EXP	$3,500,000
CONCORD ROTARY (CONCORD)	MI	$81,033,000
ROUTE 2/CROSBY'S CORNER (CONCORD AND LINCOLN)	MI/EXP	$31,500,000
ROUTE 1/114 CORRIDOR IMPROVEMENTS (DANVERS AND PEABODY)	MI/EXP	$94,808,000
RIVER'S EDGE BOULEVARD [TELECOM CITY BOULEVARD] (EVERETT, MALDEN, AND MEDFORD)	EXP	$20,802,000
REVERE BEACH PARKWAY (EVERETT, MEDFORD AND REVERE)	MI/EXP	$189,616,000
ROUTE 126/135 GRADE SEPARATION (FRAMINGHAM)	MI	$101,291,000
ROUTE 85 IMPROVEMENTS (HUDSON)	EXP	$8,075,000
ROUTE 1 IMPROVEMENTS (MALDEN AND REVERE)	MI/EXP	$131,678,000
I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE (MARLBOROUGH AND HUDSON)	MI/EXP	$37,773,000
NEEDHAM STREET/HIGHLAND AVENUE/WINCHESTER STREET (NEWTON AND NEEDHAM)	EXP	$10,538,000
QUINCY CENTER CONCOURSE, PHASE 2 (QUINCY)	EXP	$9,580,000
I-93/I-95 INTERCHANGE (READING AND WOBURN)	MI	$234,025,000
100 ADDITIONAL BUSES TO IMPROVE SERVICE ON EXISTING ROUTES (REGIONWIDE)	MI/EXP	$68,428,000
MAHONEY CIRCLE GRADE SEPARATION (REVERE)	EXP	$30,387,000
ROUTE 1/ROUTE 16 INTERCHANGE (REVERE)	EXP	$6,295,000
ROUTE 1A/ROUTE 16 CONNECTION (REVERE)	MI	$93,795,000
NORTH SHORE TRANSIT IMPROVEMENTS (REVERE TO LYNN)	MI/EXP	$695,600,000
BOSTON STREET (SALEM)	EXP	$3,148,000
BRIDGE STREET (SALEM)	EXP	$4,790,000
ASSEMBLY SQUARE ORANGE LINE STATION (SOMERVILLE)	MI/EXP	$25,000,000
I-93/MYSTIC AVENUE INTERCHANGE (SOMERVILLE)	MI/EXP	$118,510,000
NAVAL AIR STATION ACCESS IMPROVEMENTS (WEYMOUTH)	MI/EXP	$42,000,000
ROUTE 18 CAPACITY IMPROVEMENTS (WEYMOUTH)	EXP	$24,000,000
ROUTE 3 SOUTH ADDITIONAL LANES (WEYMOUTH TO DUXBURY)	MI/EXP	$426,637,000
I-93/ROUTE 129 INTERCHANGE (WILMINGTON AND READING)	EXP	$23,950,000
NEW BOSTON STREET BRIDGE (WOBURN)	EXP	$4,862,000

* Exp = Expansion – Project adding capacity to the roadway or transit system
MI = Major Infrastructure – Project costing $25 million or more

** SIP Commitment project currently being reevaluated by EOT and DEP. The cost for this project is included in the total cost of $743,130,000, which has been included in the Plan for the SIP projects to be constructed in the future.

TABLE 13-2

Funding Dedicated to Major Infrastructure and Expansion Projects

PROJECT	DEDICATED FUNDING
CENTRAL ARTERY PROJECT	$1,190,000,000
NON–ARTERY HIGHWAY PROJECTS (30% OF THE MAJOR INFRASTRUCTURE/CAPACITY EXPANSION PROGRAM)	$2,637,937,700
HIGHWAY SUBTOTAL	**$3,827,937,700**
TRANSIT EXPANSION PROJECTS	$4,737,842,000

In addition to the major infrastructure and expansion projects listed in Table 13-1, the MPO is committed to continued funding of projects under the maintenance program to improve mobility in the region, particularly in the following areas (see Chapters 5 and 6 for more details on these programs):

- Suburban mobility/transportation demand management
- Bicycle facilities
- Pedestrian facilities
- Freight movement

Highway Projects in the Recommended Plan

Table13-3 lists the highway projects funded under the major infrastructure and expansion program, their costs, and the timeframe in which they are projected to be constructed. Pursuant to federal guidance on allowing for inflation, the costs associated with each highway project are based on the current estimated cost plus 4 percent per year through to the year of construction.

The location of each of these projects is shown in Figure 13-1.

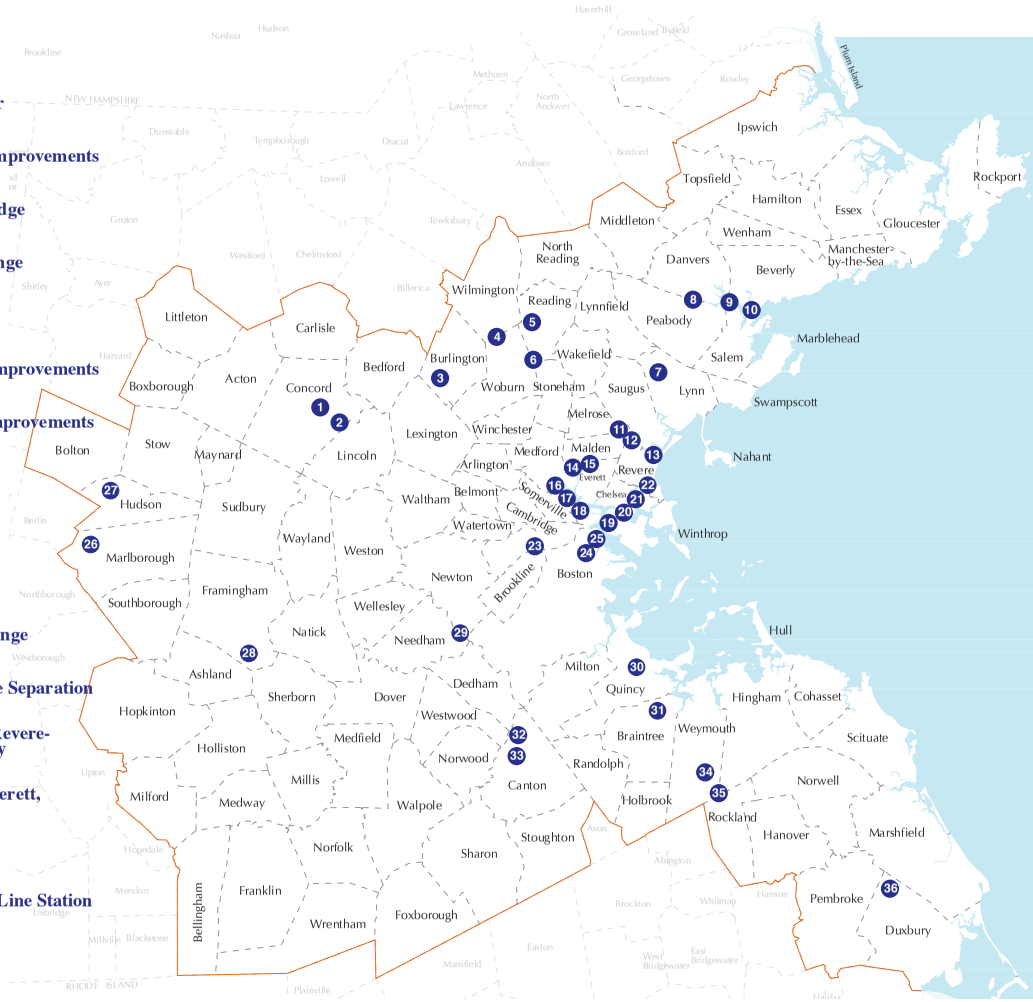
The next section of Chapter 13 provides a detailed description and map for each highway project included in the recommended Plan.

Note on Project Descriptions:

1. The costs included on these pages are in current dollars.
2. Information on specific project ratings relating to their compliance with MPO policies can be found in Appendix C.

FIGURE 13-1

Major Infrastructure and Expansion Projects in the Recommended Plan



1. Concord Rotary
2. Rte. 2/Crosby's Corner
3. Middlesex Turnpike Improvements
4. New Boston Street Bridge
5. I-93/Rte. 129 Interchange
6. I-93/I-95 Interchange
7. North Shore Transit Improvements
8. Rte. 1/114 Corridor Improvements
9. Boston St.
10. Bridge St.
11. Rte. 1 Improvements
12. Rte. 1/Rte. 16 Interchange
13. Mahoney Circle Grade Separation
14. Everett, Medford & Revere-Revere Beach Parkway
15. Telecom City Blvd. Everett, Malden & Medford
16. I-93/Mystic Ave.
17. Assembly Sq. Orange Line Station
18. Rutherford Avenue
19. Consolidated Rental Car Facility/Logan Airport
20. East Boston Haul Rd./Chelsea Truck Route
21. Rte. 1A/Boardman St. Grade Separation
22. Rte. 1A/Rte. 16 Connection
23. Urban Ring, Phase 2
24. Silver Line Connector
25. Russia Wharf Ferry Terminal
26. I-495/I-290/Rte. 85 Interchange
27. Hudson Rte. 85 Improvements
28. Rte. 135/Rte. 126 Grade Separation
29. Needham St. (Highland Ave./Winter St.)
30. Quincy Center Concourse, Phase 2
31. I-93/Rte. 3 Interchange (Braintree Split)
32. I-93/I-95 Interchange
33. I-95 (NB) & (SB)Dedham St. Ramp
34. Rte. 18
35. Naval Air Station Access Improvements
36. Rte. 3 South Additional Lanes

TABLE 13-3

Major Infrastructure and Expansion Highway Projects in the Recommended Plan, with Costs

	CURRENT COST	2007–2010	2011–2020	2021–2030	TOTAL
ONGOING NO-BUILD PROJECT					
ROUTE 128 ADDITIONAL LANES (RANDOLPH TO WELLESLEY)	$301,350,000	$153,350,000	$148,000,000		$301,350,100
RECOMMENDED PROJECTS					
MIDDLESEX TURNPIKE IMPROVEMENTS (BEDFORD, BURLINGTON, AND BILLERICA)	$14,400,000	$14,400,000			$14,400,000
ROUTE 128 CAPACITY IMPROVEMENTS (BEVERLY TO PEABODY)	$145,000,000			$293,743,000	$293,743,000
EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE (BOSTON)	$14,000,000	$5,401,600	$11,767,500		$17,169,100
ROUTE 1A/BOARDMAN STREET GRADE SEPARATION (BOSTON)	$10,000,000		$13,686,000		$13,686,000
RUTHERFORD AVENUE/SULLIVAN SQUARE (BOSTON)	$79,300,000	$21,252,500	$79,443,000		$100,695,500
CONSOLIDATED RENTAL CAR FACILITY (LOGAN AIRPORT, BOSTON)[1]	$453,000,000	$49,000,000	$404,000,000		$453,000,000
I-93/ROUTE 3 INTERCHANGE – BRAINTREE SPLIT (BRAINTREE)	$33,300,000		$45,573,000		$45,573,000
I-93/I-95 INTERCHANGE (CANTON)	$120,000,000		$164,228,000		$164,228,000
I-95 NORTHBOUND/DEDHAM STREET RAMP AND BRIDGE (CANTON)[2]	$3,500,000	$3,500,000			$3,500,000
CONCORD ROTARY/ROUTE 2 (CONCORD)	$40,000,000			$81,033,000	$81,033,000
ROUTE 2/CROSBY'S CORNER GRADE SEPARATION (CONCORD AND LINCOLN)	$31,500,000	$12,450,000	$19,050,000		$31,500,000
ROUTE 1/ROUTE 114 CORRIDOR IMPROVEMENTS (DANVERS AND PEABODY)	$46,800,000			$94,808,000	$94,808,000
RIVER'S EDGE BOULEVARD [FORMERLY TELECOM CITY BOULEVARD] (EVERETT, MALDEN, AND MEDFORD)	$15,200,000		$20,802,000		$20,802,000
REVERE BEACH PARKWAY (EVERETT, MEDFORD, AND REVERE)	$93,600,000			$189,616,000	$189,616,000
ROUTE 126/ROUTE 135 GRADE SEPARATION (FRAMINGHAM)	$50,000,000			$101,291,000	$101,291,000
ROUTE 85 IMPROVEMENTS (HUDSON)	$5,900,000		$8,075,000		$8,075,000
ROUTE 1 IMPROVEMENTS (MALDEN AND REVERE)	$65,000,000			$131,678,000	$131,678,000
I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE (MARLBOROUGH AND HUDSON)	$27,600,000		$37,773,000		$37,773,000

TABLE 13-3 (CONT.)

MAJOR INFRASTRUCTURE AND EXPANSION HIGHWAY PROJECTS IN THE RECOMMENDED PLAN, WITH COSTS

	CURRENT COST	2007–2010	2011–2020	2021–2030	TOTAL
NEEDHAM STREET/HIGHLAND AVENUE/ WINCHESTER STREET (NEWTON AND NEEDHAM)	$7,700,000		$10,538,000		$10,538,000
QUINCY CENTER CONCOURSE, PHASE 2 (QUINCY)	$7,000,000		$9,580,000		$9,580,000
I-93/I-95 INTERCHANGE (READING AND WOBURN)	$171,000,000		$234,025,000		$234,025,000
MAHONEY CIRCLE GRADE SEPARATION (REVERE)	$15,000,000			$30,387,000	$30,387,000
ROUTE 1/ROUTE 16 INTERCHANGE (REVERE)	$4,600,000		$6,295,000		$6,295,000
ROUTE 1A/ROUTE 16 CONNECTION (REVERE)	$46,300,000			$93,795,000	$93,795,000
BOSTON STREET (SALEM)	$2,300,000		$3,148,000		$3,148,000
BRIDGE STREET (SALEM)	$3,500,000		$4,790,000		$4,790,000
I-93/MYSTIC AVENUE INTERCHANGE (SOMERVILLE)	$58,500,000			$118,510,000	$118,510,000
S. WEYMOUTH NAVAL AIR STATION ACCESS IMPROVEMENTS (WEYMOUTH, HINGHAM, AND ROCKLAND)[3]	$42,000,000		$42,000,000		$42,000,000
ROUTE 18 CAPACITY IMPROVEMENTS (WEYMOUTH)	$24,000,000	$24,000,000			$24,000,000
ROUTE 3 SOUTH ADDITIONAL LANES (WEYMOUTH TO DUXBURY)	$210,600,000			$426,637,000	$426,637,000
I-93/ROUTE 129 INTERCHANGE IMPROVEMENT PROJECT (WILMINGTON AND READING)	$17,500,000		$23,950,000		$23,950,000
NEW BOSTON STREET BRIDGE (WOBURN)	$2,400,000			$4,862,000	$4,862,000
TOTAL	**$1,663,350,000**	**$230,854,100**	**$840,723,500**	**$1,566,360,000**	**$2,637,937,700**

[1] This project will be paid for by the Massachusetts Port Authority. Funding for this project will come from General Airport Revenue Bonds, taxable revenue bonds supported by revenue from the daily Customer Facility Charge and rent from car companies, and Transportation Infrastructure Finance and Innovation Act (TIFIA) funds.

[2] This project will be paid for by the developer and is not included in the total.

[3] All of the funds for this project will be paid for with a combination of state, local, and private resources. The parties are currently in negotiation to determine each parties contribution.

Bedford, Billerica, and Burlington: Middlesex Turnpike Improvements ($14,400,000)

Description

The proposed improvements will widen Middlesex Turnpike from the Burlington town line to just north of Manning Road in Billerica. The widening will provide two lanes in each direction, making it a four-lane highway with a median. There will be left-turn lanes at key intersections. The improvements span a segment of approximately 7.5 miles. The roadway cross-section width will increase to 70 feet, and the total right-of-way will be 85 feet wide. Each direction will consist of a 14-foot outside travel lane, a 13-foot inside travel lane, and a 16-foot median. The median will be reconfigured at key intersections and driveways as a 4-foot median with a 12-foot protected left-turn lane. On the east side of the 70-foot travel way is a 7-foot grass strip, and on the west side are a 3-foot grass strip and a 1-foot concrete sidewalk.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project consists of a corridor that spans two communities, Bedford and Billerica. The area in Bedford is zoned for industrial park, industrial, general business, and residential uses. The area in Billerica is zoned for industrial uses.

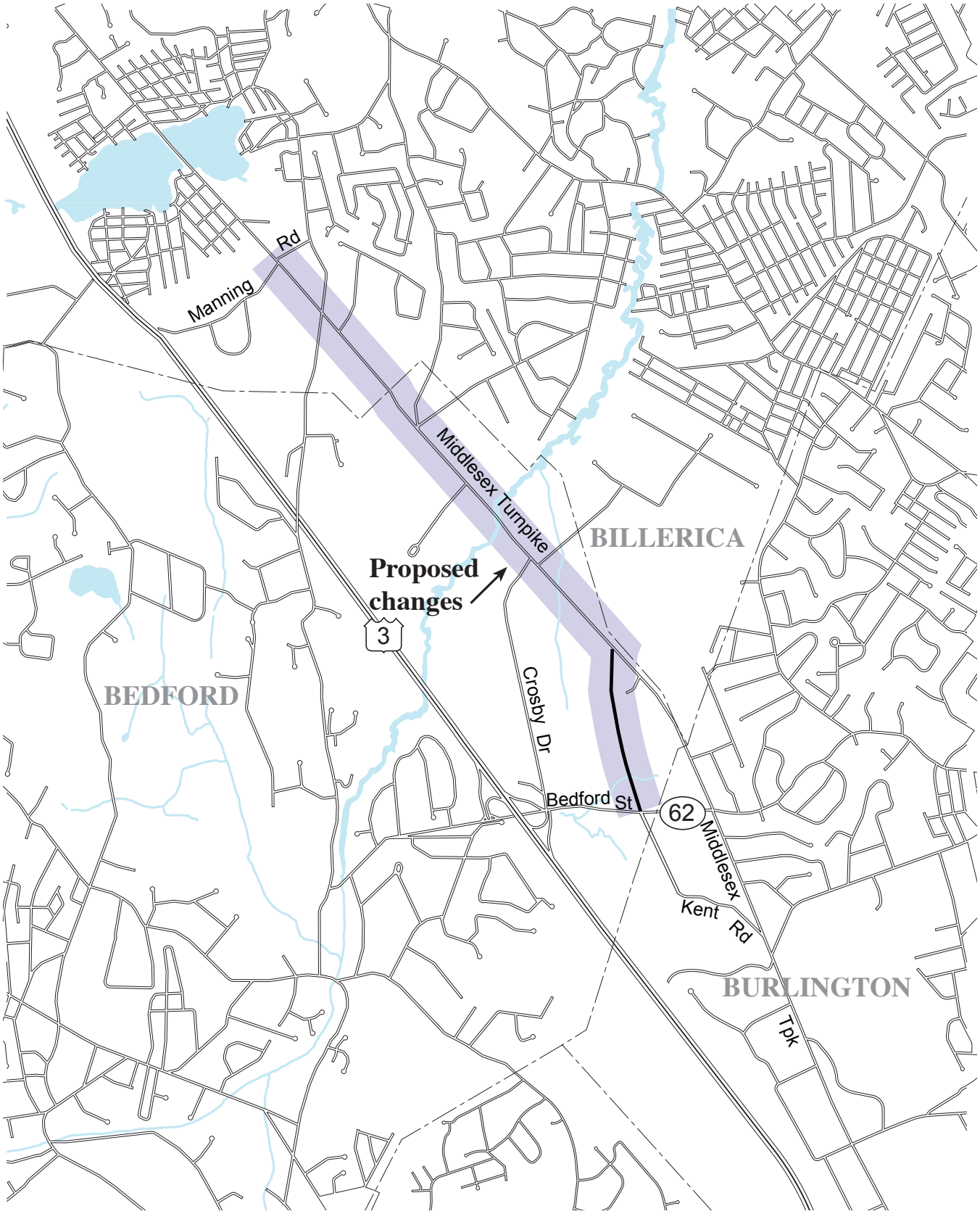
Mobility

According to MassHighway traffic counts conducted in 2003, the average daily traffic on the Middlesex Turnpike at the Bedford town line was 15,000 vehicles. According to the draft environmental impact report (DEIR) done in 1995, a Roadway Segment Capacity Analysis showed that Middlesex Turnpike operated at a level of service (LOS) E in the AM and PM peak hours and that at six out of seven intersections along the turnpike, the critical movement in the AM and PM peak hours operated at LOS F. In terms of delay, the Congestion Management System monitoring conducted in 2002 found that the average travel speed is below 70 percent of the posted speed along four segments in both the northbound and southbound directions, in both the AM and PM peak periods.

Economic Opportunities

According to the DEIR, improving the capacity, efficiency, and safety of this roadway will help improve the redevelopment opportunities of this area.

MAP 13-1 Bedford, Billerica, and Burlington: Middlesex Turnpike Improvements



Beverly to Peabody: Route 128 Capacity Improvements ($145,000,000)

Description

This project will address safety problems, congestion, and traffic flow on Route 128 from Interstate 95 in Peabody to Brimbal Avenue in Beverly. The initial stage of the project will be a detailed evaluation of all alternatives for moving additional persons in the corridor. Because of existing safety problems, implementation of improvements may be phased to address more immediate concerns first. The addition of a travel lane in each direction is included as well.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Zoning along this stretch of Route 128 includes residential, industrial, and business uses in the three communities of Peabody, Danvers, and Beverly.

Safety

This project area includes eight high-crash locations, as documented between 1999 and 2001—Route 128/Lowell Street, Route 128/Route 114, and Route 128/I-95 in Peabody; Route 128/Endicott Street, Route 128/Route 35, and Route 128/Route 62 in Danvers; and Route 128/Route 1A and Route 128/Brimball Avenue in Beverly.

Peabody:

- The Route 128/Lowell Street intersection was the site of 167 crashes, of which 103 involved only property damage and 64 involved bodily injury. It ranked #72 on the list of the state's high-crash intersections.
- The Route 128/Route 114 intersection was the site of 222 crashes, of which 147 involved only property damage and 75 involved bodily injury. It ranked #52 on the list of the state's high-crash intersections.
- The Route 128/I-95 intersection was the site of 57 crashes, of which 42 involved only property damage, 15 involved bodily injury. It ranked #747 on the list of the state's high-crash intersections.

Danvers:

- The Route 128/Endicott Street intersection was the site of 156 crashes, of which 99 involved only property damage and 57 involved bodily injury. It ranked #83 on the list of the state's high-crash intersections.
- The Route 128/Route 35 intersection was the site of 107 crashes, of which 73 involved only property damage, 34 involved bodily injury. It ranked #216 on the list of the state's high-crash intersections.
- The Route 128/Route 62 intersection was the site of 176 crashes, of which 121 involved only property damage and 55 involved bodily injury. It ranked #77 on the list of the state's high-crash intersections.

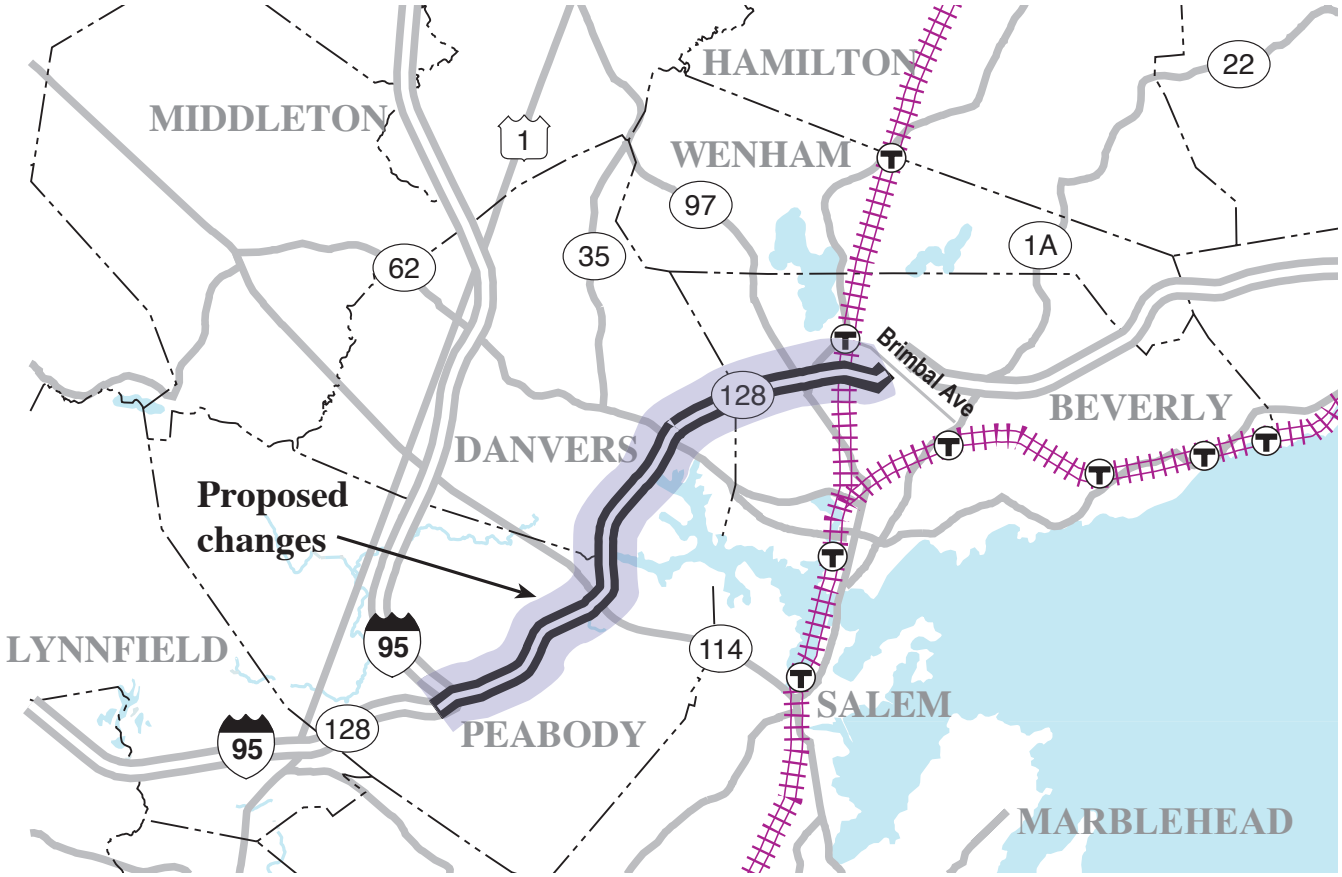
Beverly:

- The Route 128/Route 1A intersection was the site of 84 crashes, of which 66 involved only property damage and 18 involved bodily injury. It ranked #464 on the list of the state's high-crash intersections.
- The Route 128/Brimbal Avenue intersection was the site of 77 crashes, of which 52 involved only property damage and 25 involved bodily injury. It ranked #370 on the list of the state's high-crash intersections.

Mobility

According to MassHighway traffic counts, the average daily traffic on Route 128 along this stretch of roadway is as follows:

MAP 13-2 Beverly to Peabody: Route 128 Capacity Improvements



Peabody:

- North of I-95 (2004 counts) – 97,500 vehicles

Danvers:

- North of Endicott Street (2001 counts) – 79,500 vehicles

Beverly:

- At Danvers Town Line (2001 counts) – 80,600 vehicles
- North of Brimball Avenue (2004 counts) – 49,200 vehicles

According to the CTPS memorandum, "Potential Long-Range Plans for Improving Express Highways in the Boston Metropolitan Region," dated December 27, 2000, this section of Route 128 is the oldest remaining original construction on Route 128. The combination of poor design standards and high volumes makes this a dangerous stretch of roadway.

Boston: East Boston Haul Road/Chelsea Truck Route ($14,000,000)

Description

This project creates a new grade-separated roadway connecting the City of Chelsea and the harbor tunnels/Logan Airport using an abandoned below-grade railroad right-of-way. It would provide a roadway passing beneath Neptune Road, Bennington Street, and Saratoga Street, and would connect to Chelsea Street south of the Chelsea Street Bridge. A proposed design variation would provide a new direct ramp connection between the Chelsea Street Bridge and Route 1A southbound and eliminate the current unsafe connection between Chelsea Street and Route 1A at Curtis Street. It would allow the continued use of the existing Route 1A viaduct over Saratoga Street, Bennington Street, and Neptune Road. The roadway has been proposed as a facility for trucks, buses, and passenger shuttles only, but the planning and environmental review process for the project should analyze whether automobile use of the facility could reduce congestion in the area without significantly degrading operations on the new roadway.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area includes five zoning districts—residential, neighborhood business, waterfront (includes maritime economy reserve and manufacturing), corridor enhancement (promotes activities such as commercial uses to serve as a buffer between residential and industrial uses), and Logan Airport. The land use surrounding the northern end of the proposed road is primarily industrial, while around the southern end it is predominantly commercial (with a few residential areas). The project will incorporate a connection to the proposed East Boston Greenway, a 3.1-mile greenbelt connecting East Boston Piers Park at Jeffries Point with the Belle Isle Marsh Conservation facility at Orient Heights.

Mobility

MassHighway traffic counts performed in 1997 showed average daily traffic of 21,800 vehicles on the Chelsea Street Bridge and 37,100 vehicles on Route 1A at the Logan Airport ramps in 2003. According to the East Boston/Chelsea Truck Route Concept Study dated June 1998, this project will improve mobility through a dedicated route for freight vehicles, rental cars, and buses that will bypass neighborhood traffic in East Boston and provide a direct link between Chelsea and Logan Airport.

Connectivity

The bypass road will provide freight vehicles, rental cars, Park n' Fly buses, and MBTA buses with a direct connection to Logan Airport's passenger and freight terminals, resulting in enhanced connections between the airport and communities north of Boston. In addition, the proposed Urban Ring project (also included as a recommended project in this Plan) could potentially utilize this bypass road.

Sharing of Benefits/Burdens

According to the East Boston/Chelsea Truck Route Concept Study, the project's positive implications for the cargo industry are matched by its benefits for the local and regional community. Benefits include reducing traffic on local and neighborhood streets through the dedicated freight-haul road and providing a pedestrian connection to the proposed East Boston Greenway. Burdens include a 24-hour-operating freight-haul route that will operate within 500 feet of some residential areas in East Boston.

Economic Opportunities

East Boston is situated between Logan Airport, a key player in New England's freight truck transportation network, and the city of Chelsea's Airport Overlay District. According to the East Boston/Chelsea Truck Route Concept Study, this

MAP 13-3 BOSTON: EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE

new connection will enhance the efficiency and accessibility of commercial vehicle travel between Logan and Chelsea by eliminating a major truck traffic bottleneck.

Boston: Logan Airport Consolidated Rental Car Facility ($453,000,000)

Description

The construction of the proposed project at Logan Airport consists of a Consolidated Rental Car Facility (ConRAC), a commercial parking facility and an environmentally-innovative passenger bus system connecting airline passengers with both parking and rental car modes, is intended to create an efficient and environmentally superior facility that will help the Authority meet current and future ground access needs. The ConRAC and the new parking capacity for air passengers will be constructed on airport property known as the Southwest Service Area.

Project's Context/Possible Impacts

The new facility will provide enhanced customer service with convenient, frequent shuttle bus service from the airport terminals, along with swift access to and from the regional transportation system. Currently, each company owns and separately operates a diesel-powered shuttle bus fleet for its respective customers. These vehicles circulate throughout the airport roadway system on fixed headways, often carrying only a handful of passengers. The Authority believes there will be environmental benefits from consolidating the bus system and also from the transition to a fleet composed entirely of clean-fuel buses. In addition, the facility will be designed in accordance with sustainable design practices. The project would also include additional improvements to airport roadways in the Southwest Service Area, improving the level of service at several intersections.

Key benefits of the planned facility include:

- Improved air quality as a result of a consolidated shuttle bus system, powered by compressed natural gas (CNG) (or comparable alternative fuel)
- Incorporation of sustainable design elements
- Significantly improved efficiencies in operations and customer service
- Capacity to respond to the growth in demand for rental cars and for passenger parking within Logan's constrained footprint
- Reduced impact of rental car operations on the East Boston community and adjacent neighborhoods

The project currently calls for a multilevel ConRAC garage with approximately 3,000 Ready/Return spaces, a Customer Service Center, and Quick Turnaround Areas, which will contain maintenance/car wash buildings and fueling facilities, as well as adequate space for surface rental car storage/parking. The ConRAC is one component of an overall redevelopment plan that will also include: capacity for 3,000 commercial parking spaces for air passengers, as well as environmental remediation, new infrastructure (roadways, utilities, etc.), intelligent transportation systems technologies, and extensive visual and sound buffering along the boundary between the airport and the community.

The Authority is developing conceptual designs for this program, and once the preferred alternative is selected, further details can be provided.

MAP 13-4 Boston: Logan Airport Consolidated Rental Car Facility

Boston: Route 1A/Boardman Street Grade Separation ($10,000,000)

Description

Construct an overpass with ramps to replace the existing signalized intersection of Route 1A and Boardman Street. Boardman Street will be relocated approximately 400 feet south of its current location and Route 1A traffic will pass over Boardman Street, with connections provided via on- and off-ramps.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Boardman Street provides access to the Orient Heights residential neighborhood from Route 1A. Other surrounding land uses include the Suffolk Downs Racetrack (a possible future redevelopment site) to the north and Logan Airport and its associated uses, such as parking lots for passengers and rental cars, gas stations, and a hotel, to the south.

Safety

This project is located at a high-crash location: between 1999 and 2001, the Route 1A/Boardman Street intersection was the site of 56 crashes, of which 29 involved only property damage and 27 involved bodily injury. It ranked #428 in the list of the state's high-crash intersections.

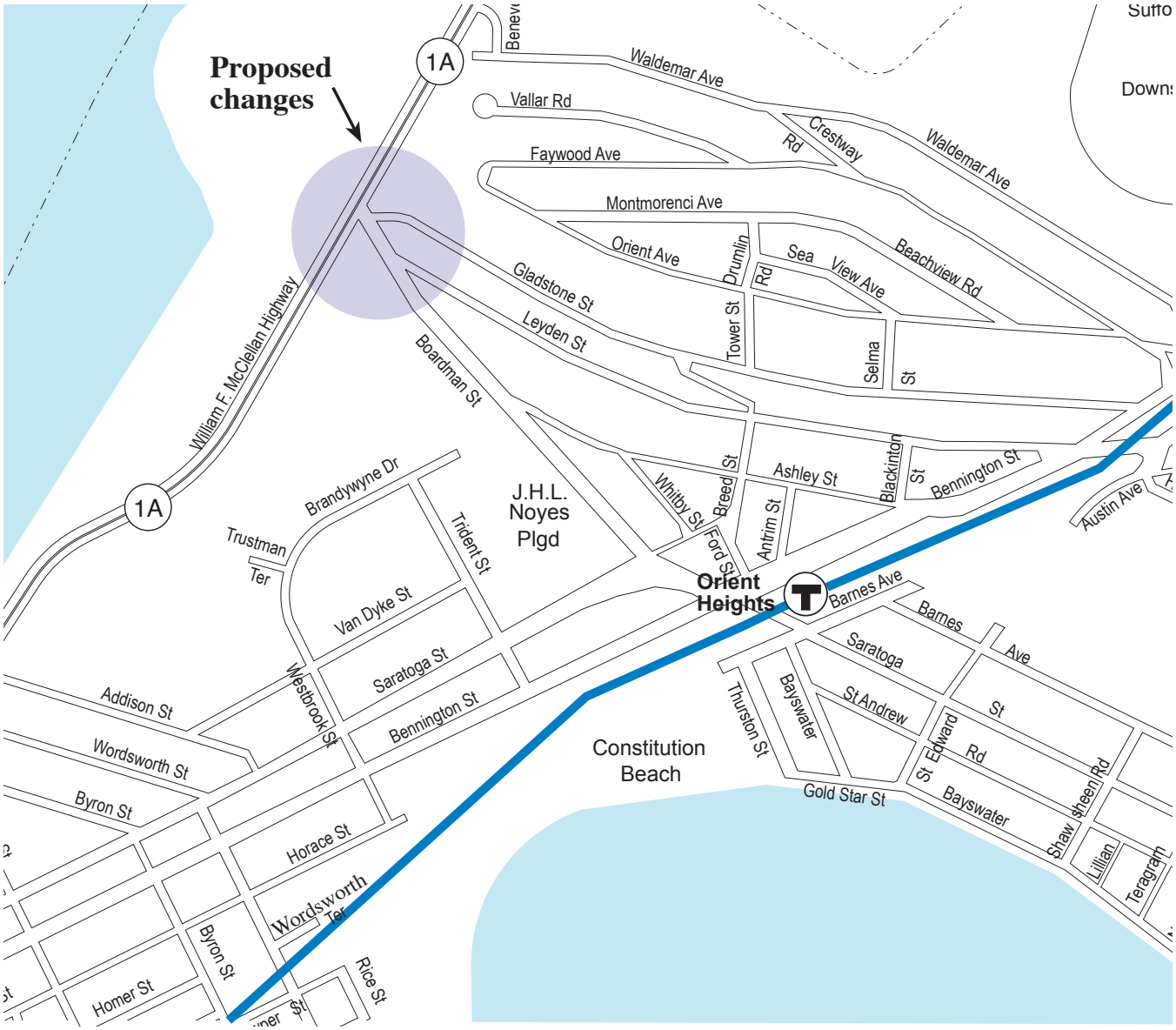
Mobility

MassHighway traffic counts conducted in 2004 show that the average daily traffic along Route 1A at the Boston/Revere city line was 60,900 vehicles. According to the Route 1A Corridor Planning Study prepared by CTPS in 1990, the signalized intersection of Boardman Street and Route 1A was operating at level of service (LOS) D in the AM peak hour and LOS F in the PM peak hour. The Route 1A/Boardman Street intersection was ranked the worst intersection along Route 1A (tied with Route 1A/Mahoney Circle intersection). The corridor study indicated that a grade-separated interchange of Boardman Street and Route 1A would produce acceptable operating conditions.

Pollution

The improved flow of traffic at the Boardman Street grade separation will provide air quality benefits by reducing "hot spot" emissions through a reduction in vehicle idling and associated emissions.

MAP 13-5 BOSTON: ROUTE 1A/BOARDMAN STREET GRADE SEPARATION



Boston: Rutherford Avenue/Sullivan Square ($79,300,000)

Description

The Rutherford Avenue Corridor Transportation Study (a cooperative effort between MassHighway and the City of Boston) contains a design to reconstruct Rutherford Avenue consisting of two components:

- A new four-lane bypass road adjacent to the Interstate 93 viaduct for traffic diverted from City Square, with underpasses at the Gilmore Bridge and at Cambridge Street at Sullivan Sq.
- A four-lane roadway for local Charlestown traffic

The project includes a redesigned Sullivan Square to accommodate the bypass road connection to Route 99.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Rutherford Avenue was built prior to the interstate system and was the historic connection to cities and towns north of Boston. Today it remains an important path into the city, and it has been used as a major alternative route during the construction of the Central Artery. Rutherford Avenue parallels the elevated Interstate 93 to its west; to its east is the neighborhood of Charlestown. It provides access to tourist areas, including the USS Constitution and the Freedom Trail. Thus, there is a large amount of pedestrian travel in the vicinity. In addition, a new park has been built on the west side of the roadway as part of the open-space mitigation measures for the Central Artery/Tunnel Project. The Rutherford Avenue project will divert regional traffic to a new bypass road and create a local access roadway to benefit pedestrians and create more open space.

Mobility

This project divides Rutherford Avenue into two roadways separating regional from local traffic. The new roadway will have eight lanes through the project area. MassHighway conducted traffic counts on Rutherford Avenue south of Sullivan Square in 2003. At that time the average daily traffic was 29,100 vehicles.

Connectivity

The Sullivan Square and Community College Orange Line Stations are located in the project area. Rutherford Avenue has been designated as an Urban Ring Phase 2 route in the MBTA's draft environmental impact report, based on the roadway's anticipated reconstruction.

Community Character

According to the Rutherford Avenue Study (see the note below), there are three main urban design goals associated with this project:

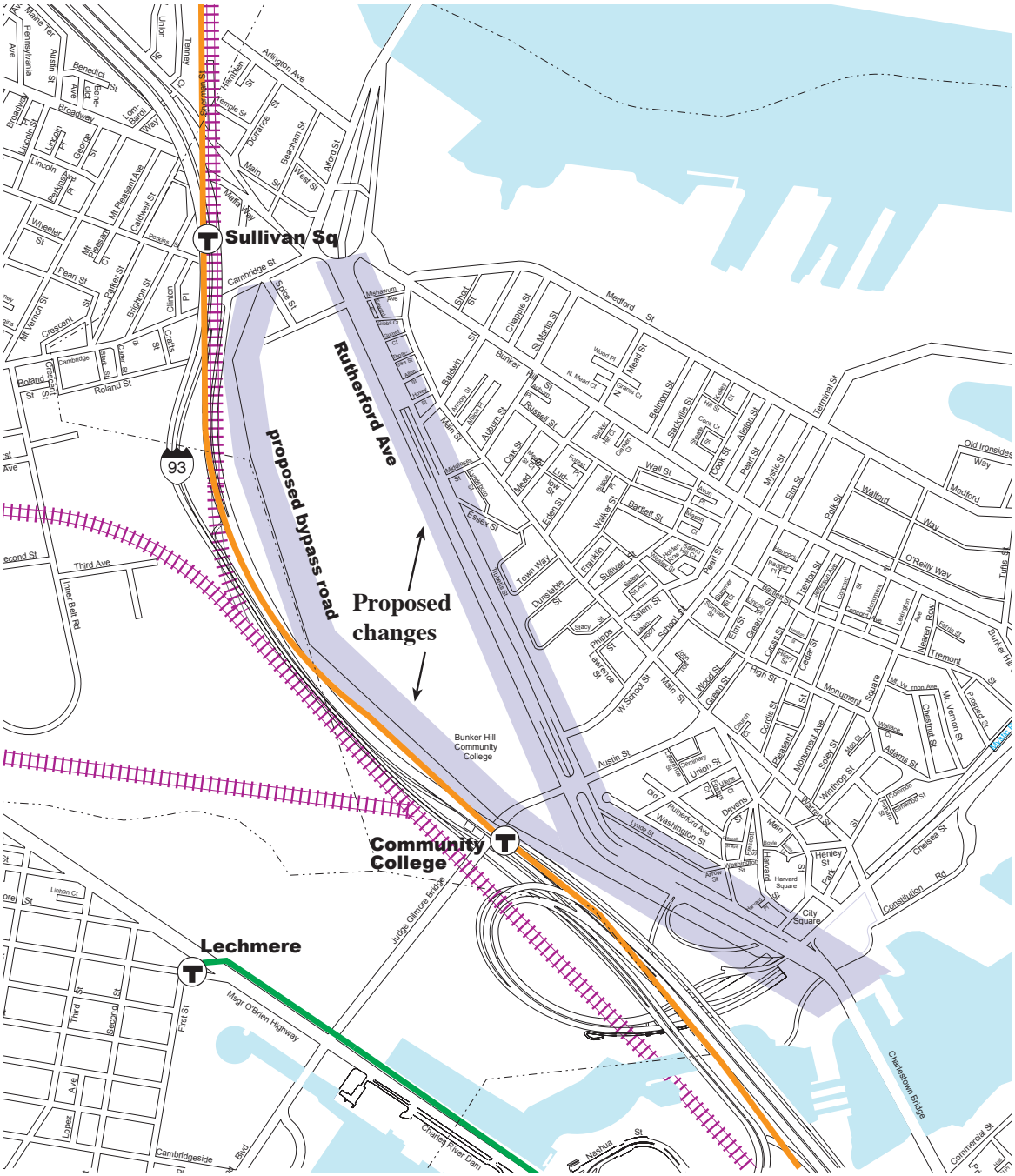
- Improve vehicular and pedestrian comfort and amenities
- Integrate the Rutherford Avenue corridor into the Charlestown neighborhood with new blocks and streets
- Increase the amount of green space and usable open space along the corridor

Note

A study of the Rutherford Avenue corridor was done as part of mitigation for the Central Artery/Tunnel Project. The study recommended near- and long-term improvements to Rutherford Avenue and Sullivan Square that would enhance the corridor as part of the regional roadway network and improve its integration into the abutting residential neighborhood. The plan recommended:

- Modifications to the Sullivan Square grade separation to connect the bypass road to Route 99 and improve access to transit and pedestrian travel
- Creating a four-lane bypass road with underpasses and a four-lane neighborhood access road.

MAP 13-6 BOSTON: RUTHERFORD AVENUE/SULLIVAN SQUARE


Sullivan Sq
Rutherford Ave
proposed bypass road
Proposed changes
Community College
Lechmere
Bunker Hill Community College
93
Cambridge St
Medford St
Austin St
Main St
Charlestown Bridge
Judge Gilmore Bridge
Mugr O'Brien Highway
Charles River Dam
Harvard Square
City Square
Monument Square
Constitution Rd
Chelsea St
Commercial St
Nashua St
Cambridgeside Blvd
Roland St
Third Ave
Inner Belt Rd
Broadway
Medford St
Tremont St
Washington St
Washington St
Washington

Braintree: I-93/Route 3 Interchange (Braintree Split) ($33,300,000)

Description

Through its Mobility Management System, the Boston Region MPO recommended a study of the Braintree Split. The Central Transportation Planning Staff produced a report for the MPO, *I-93/Southeast Expressway/Route 3 (Braintree Split) Operational Assessment and Potential Improvements,* in March 2006. The proposed project addresses mobility and safety issues of the Braintree Split, and includes the following three improvements:

I-93 North On-Ramp from Route 37 East in Braintree ($2.1 million)

- Restrict the existing on-ramp to traffic that is heading to Route 3 South, Burgin Parkway, or Washington Street ($0.5 million)
- Construct a double left-turn bay at the signalized ramp-arterial junction on the east side of I-93 for use by traffic proceeding to the Expressway to access the south-side on-ramp ($1.5 million)
- Install new signs or modify existing signs on Route 37 to guide motorists to the appropriate ramps ($0.1 million)

(The above modifications would increase safety and provide a longer weave distance to the Expressway.)

Route 3 South, between Burgin Parkway and Union Street ($16.0 million)

- Upgrade the northbound acceleration lane from Union Street into an auxiliary lane (a fourth lane northbound), possibly ending after the exit ramp at interchange 19 (Burgin Parkway/ MBTA Quincy Adams Station ($7.5 million)
- Add a fourth southbound travel lane beginning at the Burgin Parkway on-ramp and possibly ending after the exit ramp at the Union Street interchange ($7.5 million)
- Provide a right-turn bypass lane or slip lane at the southbound ramp-rotary junction for use by the high volume of right-turn traffic ($1.0 million)

I-93 South, between Route 37 and Route 24 ($15.2 million)

- Add a travel lane on I-93 South, beginning south of the Route 37 interchange and ending at the diverge point to Route 24 ($14.0 million)
- Reconfigure the lane assignment at the diverge point of I-93 and Route 24 to provide two travel lanes to the two-lane connector ramp connecting to Route 24 ($0.10 million)
- Widen the merge point at the entrance of Route 24 South to four lanes to receive the four travel lanes from the connecting ramps ($1.0 million)
- Install new signs or modify existing signs on I-93 South to guide motorists to Route 24 ($0.1 million)

Project's Context/Possible Impacts, by Relevant MPO Policy Area

Land Use

Land surrounding the split in Braintree is zoned Highway Business Residential. The split continues over the town border into Quincy, where adjacent land is zoned Heavy Industrial and Planned Unit Development.

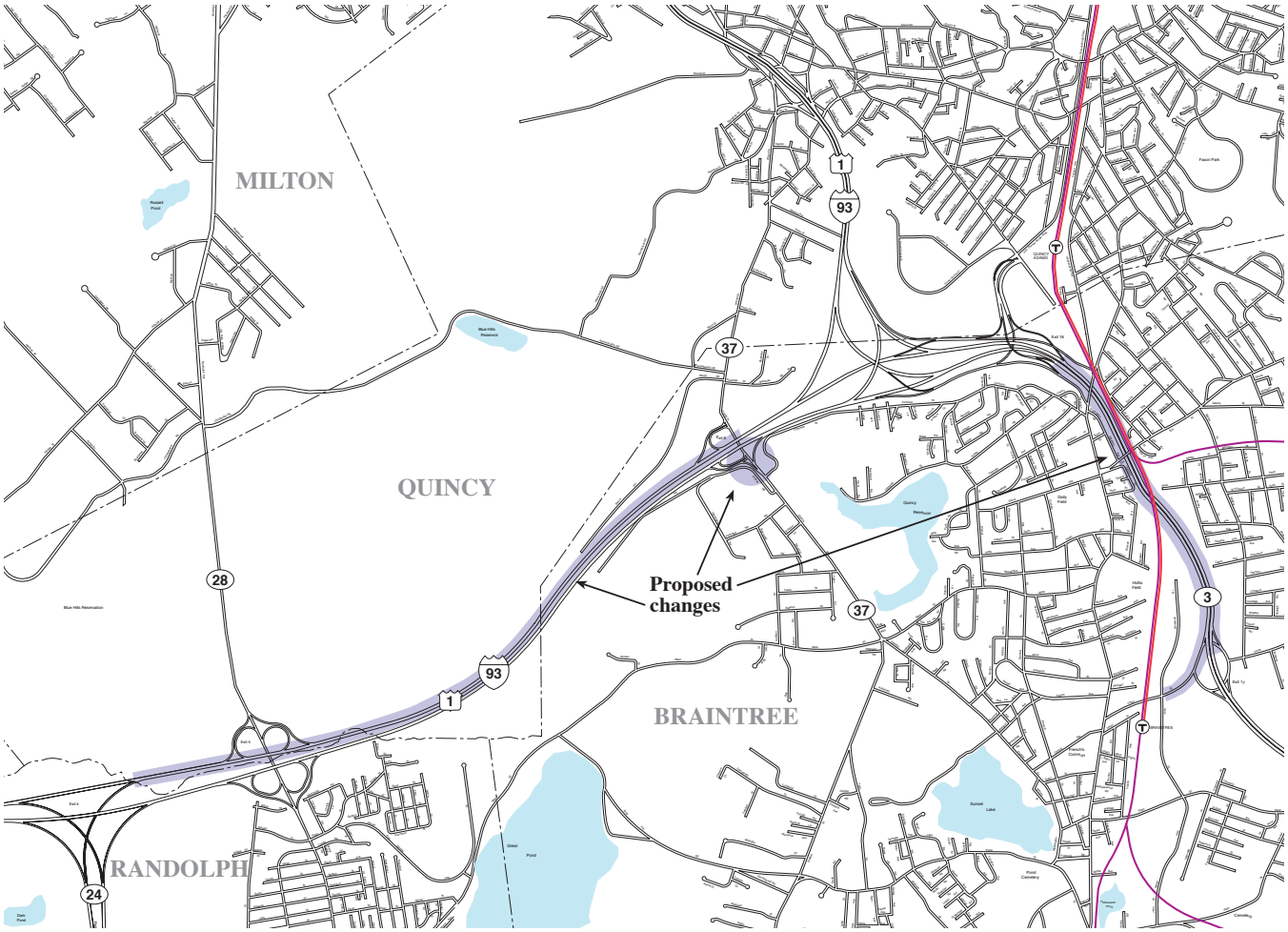
Safety

This location is on MassHighway's list of the top 1,000 high-crash locations for the years 1999 to 2001. The crash total was 314; of these, 209 were property damage only and 105 involved injuries. None of the crashes were fatal.

Mobility

According to MassHighway's 2005 Traffic Volumes, average daily two-way traffic on I-93 north of Route 37 was 219,600 in 2003. Average daily two-way traffic on Route 3 between exits 17 and 19 was 128,800 in 2003. Average daily two-way traffic on Route 3 between exits 19 and 20 was 115,900 in 2003.

MAP 13-7 Braintree: I-93/Route 3 Interchange (Braintree Split)



Average observed travel speeds on roadways are compiled in the MPO's Mobility Management System. Average observed speeds on Route 3 northbound approaching the Braintree Split are 30-44 mph during the AM peak period. Average observed speeds on I-93 northbound leaving the Braintree Split range between 50-54 mph and 55-59 mph during the AM peak period. Average observed speeds on Route 3 southbound leaving the Braintree Split range between 50-54 mph and 55-59 mph during the AM peak period. Average observed speeds on I-93 southbound approaching the Braintree Split are 55-59 mph during the AM peak period.

Average observed speeds on Route 3 northbound approaching the Braintree Split are 55-59 mph during the PM peak period. Average observed speeds on I-93 northbound leaving the Braintree Split are 55-59 mph during the PM peak period. Average observed speeds on Route 3 southbound leaving the Braintree Split are 1-29 mph during the PM peak period. Average observed speeds on I-93 southbound approaching the Braintree Split are 30-44 mph during the PM peak period. Based on MMS criteria, an expressway is considered congested when average speeds are less than 50 mph.

Connectivity

The Braintree Split is located near the Quincy Adams Station on the Red Line.

Canton: I-95/I-93 Interchange ($120,000,000)

Description

Specific components of the Interstate 95/Interstate 93 interchange project are:

- Replacement of the I-95 northbound entrance ramp with a direct connector ramp
- Construction of a new entrance ramp from University Avenue to I-93 northbound, including the discontinued use of the Green Lodge Street Bridge west of Elm Street
- Construction of a realigned, two-lane direct connection between Route I-93 southbound and I-95 southbound, including a new ramp to Blue Hill Drive
- Construction of a realigned, two-lane, direct connection from I-95 northbound to I-93 northbound

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The 37 acres encompassed by this project are located entirely within the Fowl Meadow/Ponkapoag Bog Area of Critical Environmental Concern. Much of the land surrounding the interchanges is permanently protected, although some of it is zoned for single residences and light industry. According to the Environmental Notification Form (ENF) that was submitted to the Department of Environmental Protection, the project, as proposed, will decrease roadways and other paved areas by 1.7 acres.

Safety

This project is located at a high-crash location: between 1999 and 2001, I-93 at I-95 was the site of 297 crashes, of which 188 involved only property damage and 109 involved bodily injury. It ranked #22 on the list of the state's high-crash intersections. There are recurring safety problems, including numerous truck rollovers, on the I-95 northbound ramp.

Mobility

The ENF identifies chronic congestion in the project area in both the morning and afternoon peak periods, with the roadways and the interchanges frequently functioning at level of service F. Severe congestion at the intersection of University Avenue and Blue Hill Drive causes long queues that occasionally extend beyond the I-95 southbound exit ramp to Blue Hill Drive. Data collected in 2004 show that there were 134,700 vehicle trips per day on the I-95 section of the project and 151,000 trips on the I-93 section.

Connectivity

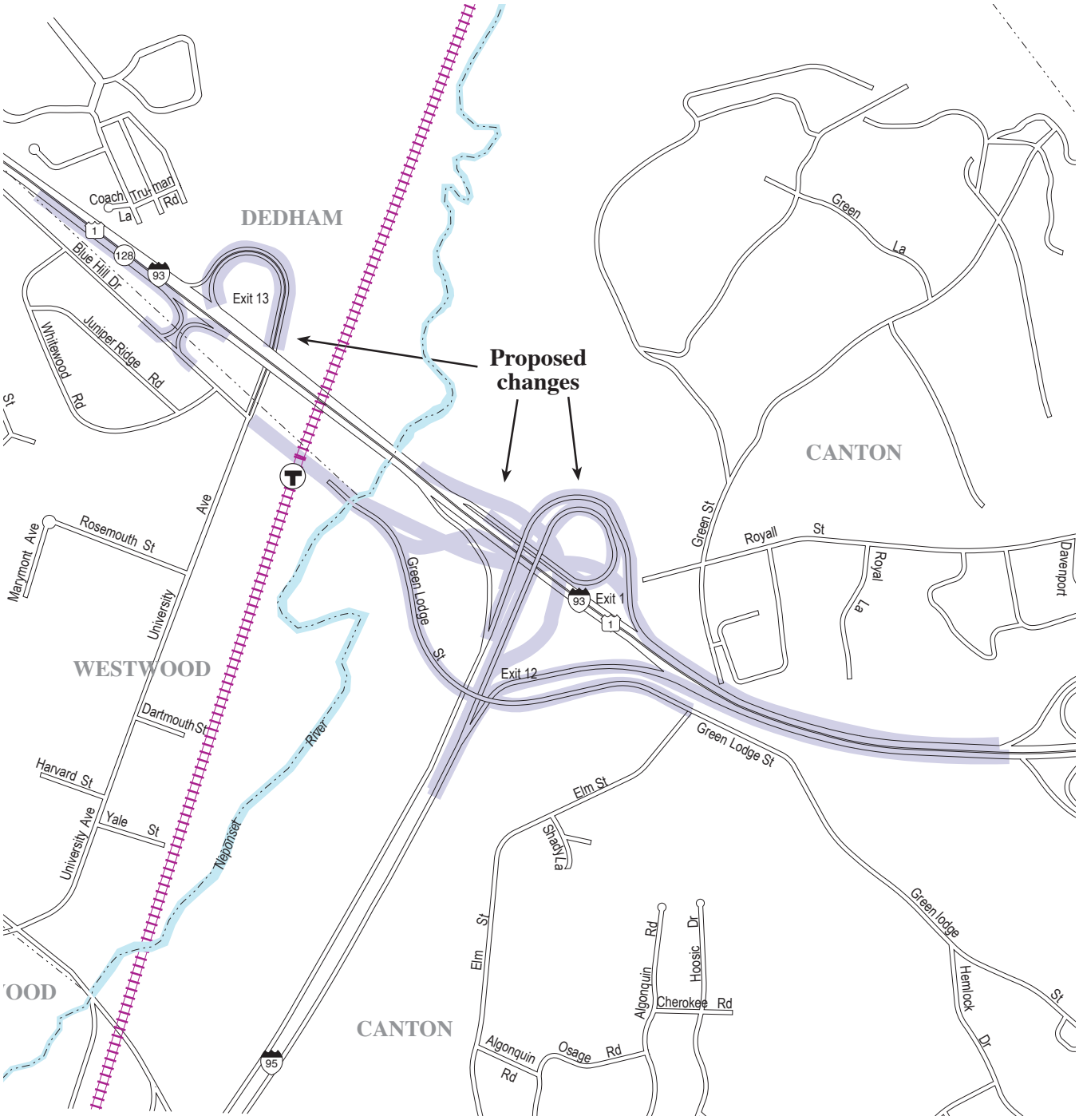
By reducing congestion and travel times, this project will enhance the attractiveness of Amtrak and MBTA commuter rail services at the Route 128 Station, as well as shuttle bus services connecting the station to residential and business centers in the area. The project will also facilitate greater recreational use of the Blue Hill Reservation trail system that runs through the area.

Note

This project implements the recommendations of the University Avenue/I-95/I-93 Regional Traffic Study that was prepared by the Central Transportation Planning Staff in July 1999. It is also consistent with the Canton, Dedham, Norwood, and Westwood Municipal Growth Planning Study.

The environmental impact report currently underway includes the Dedham Street/I-95 Northbound Ramp project (see separate project description). The projects are presented separately in order to show the areas in greater detail.

MAP 13-8 CANTON: I-95/I-93 INTERCHANGE DESCRIPTION



Canton: I-95 Northbound/Dedham Street Ramp and Bridge ($3,500,000)

Description

Construct a new ramp from Interstate 95 northbound to Dedham Street in Canton and widen Dedham Street over I-95. This will complement the benefits of the recently completed construction of the Dedham Street/I-95 southbound ramp by providing direct access to the town of Canton and the town of Westwood's University Avenue industrial area. Although this project is considered part of the Canton/Westwood I-95/I-93/University Avenue project, it is presented separately in order to show the area in greater detail (see Canton: Interstate 93/Interstate 95 Interchange project).

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

This project is located in the Fowl Meadow/Ponkapoag Bog Area of Critical Environmental Concern. Adjacent land is zoned for light industry and single-family residences.

Mobility

This project will benefit local streets in the area by enabling I-95 northbound traffic destined for the University Avenue area to avoid local residential streets without increasing through traffic on Dedham Street. Users of the upper University Avenue/Blue Hill Drive area will also benefit.

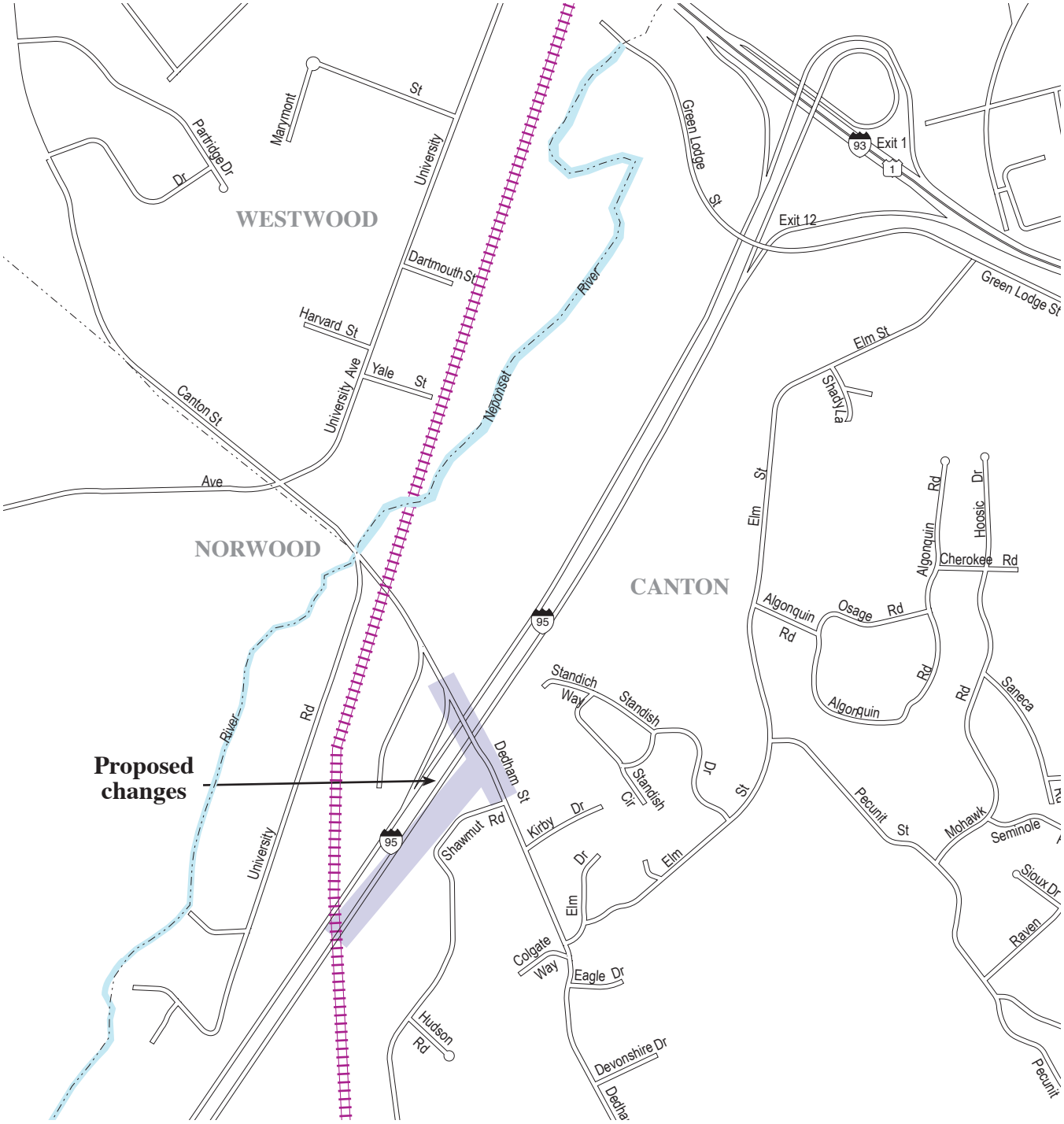
Connectivity

By reducing congestion and travel times, this project will enhance the attractiveness of Amtrak and MBTA commuter rail services at the Route 128 Station, as well as shuttle bus services connecting the station to residential and business centers in the area.

Note

This project implements the recommendations of the University Avenue / I-95/I-93 Regional Traffic Study that was prepared by the Central Transportation Planning Staff in July 1999. It is also consistent with the Canton, Dedham, Norwood, and Westwood Municipal Growth Planning Study.

MAP 13-9 CANTON: I-95 NORTHBOUND/DEDHAM STREET RAMP AND BRIDGE



Concord: Concord Rotary/Route 2 ($40,000,000)

Description

This proposed project will remove the rotary at the intersection of Route 2, Route 2A, Barrett's Mill Road, and Commonwealth Avenue in Concord. On the basis of a February 2003 feasibility study, three design alternatives are progressing: a full-diamond interchange, a half-diamond interchange on the north side of Route 2 with a quarter cloverleaf in the south quadrangle, and a quarter cloverleaf in the south quadrangle with ramps further north on Route 2. Each alternative includes grade separation of Route 2 from Route 2A and the local roads.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area in Concord is zoned mainly for residential, limited business, and some industrial uses.

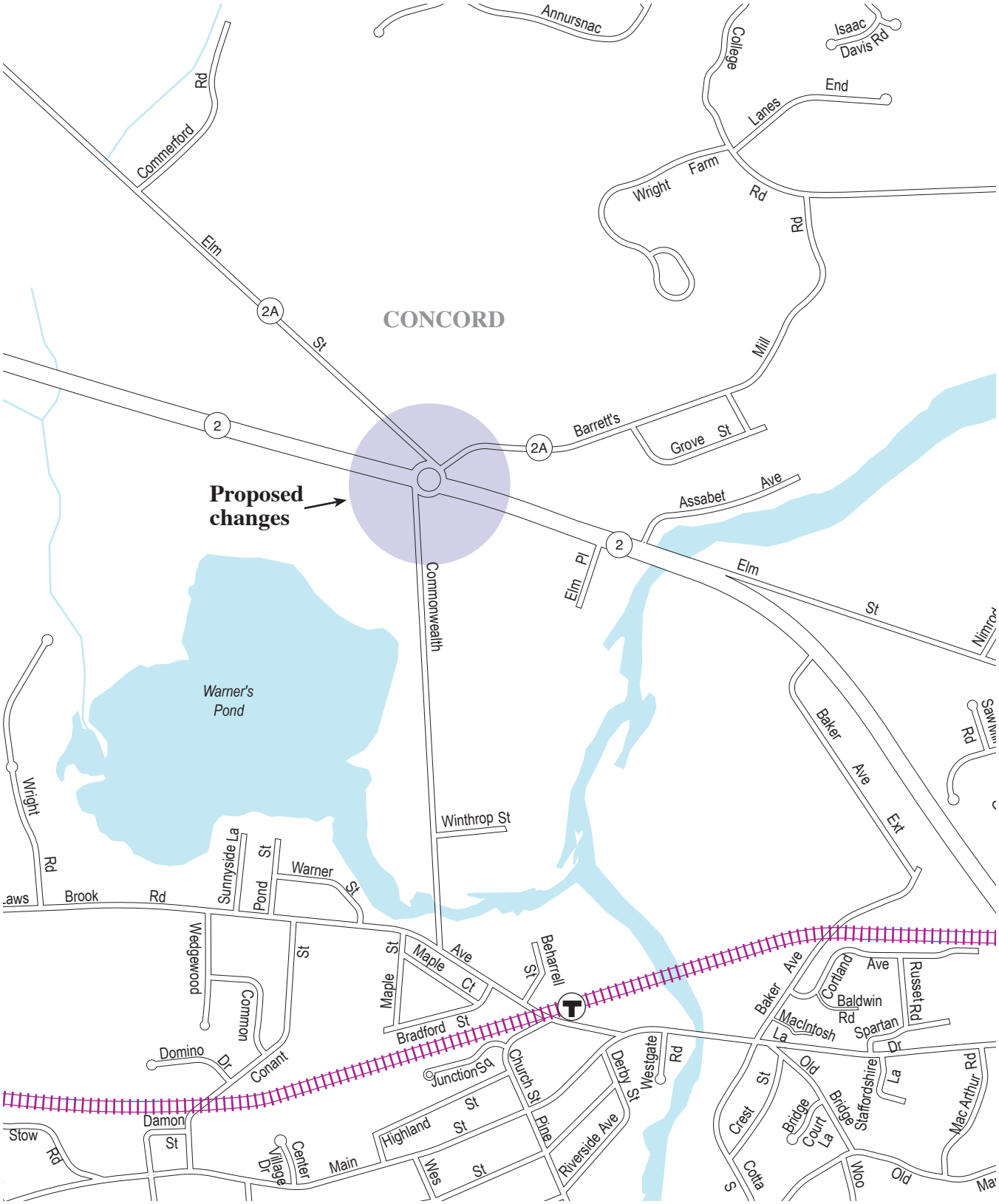
Safety

This project is located at a high-crash location: between 1999 and 2001, the Concord Rotary was the site of 202 crashes, of which 165 involved only property damage, 37 involved bodily injury. As such, it ranked #99 on the list of the state's high-crash intersections.

Mobility

According to the Route 2/Crosby's Corner draft environmental impact report and environmental assessment done in 1998, Route 2 is one of the five busiest radial routes extending towards Boston within eastern Massachusetts and is used as a radial commuter route during the week. The inbound peak hour traffic flow in the AM and the outbound flow in the PM represent approximately 60 percent of the two-way traffic. Based on 2003 MassHighway traffic counts, the average daily traffic on Route 2 east of the Concord Rotary was approximately 47,100 vehicles.

MAP 13-10 CONCORD: CONCORD ROTARY/ROUTE 2



Concord and Lincoln: Route 2/Crosby's Corner Grade Separation ($31,500,000)

Description

Realign the section of Route 2 between Bedford Road and Crosby's Corner to the north and convert it into a limited-access roadway. The existing Route 2 alignment will serve as a frontage road, providing access to the adjacent homes and businesses. The newly aligned Route 2 will include four 12-foot travel lanes, separated by a Jersey-barrier median strip, and a 10-foot paved shoulder, in each direction. A new bridge will be constructed to carry Route 2 traffic uninterrupted over the Crosby's Corner intersection.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area includes a mix of zoning, primarily residential and business.

Safety

According to the Route 2 Crosby's Corner draft environmental impact report (DEIR), there are two safety benefits associated with the proposed improvement. The first is that the highest volume movement (Route 2 eastbound /westbound) will no longer be required to stop at the Crosby's Corner intersection. This will reduce the potential for rear-end collisions, especially in the westbound direction, which represent 42 percent of the crashes at this location. An elevated grade-separated interchange will also reduce the 6 percent downgrade in the westbound direction that is a contributing cause of accidents at this location.

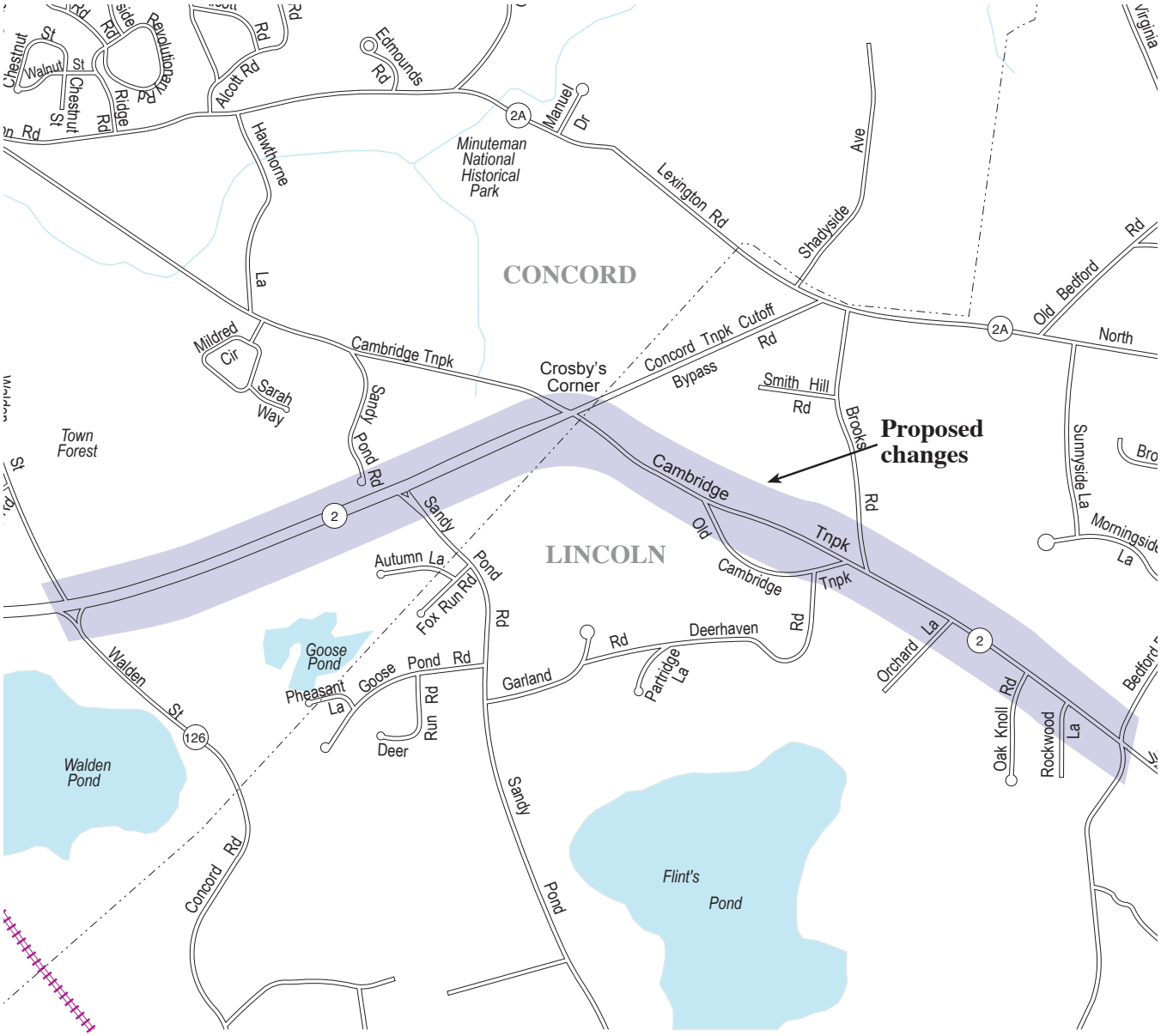
Mobility

On weekdays, Route 2 between Route 128 and I-495 is a radial commuter route. The inbound peak-hour traffic flow in the AM and the outbound flow in the PM represent approximately 60 percent of the two-way traffic. Although Route 2 provides access to some local business and residences, its primary use is for commuting through the area. According to MassHighway traffic counts, the average daily traffic on Route 2 west of Crosby's Corner was 48,000 vehicles in 1998. Average daily traffic on Route 2A east of Crosby's Corner was 11,000 vehicles in 1996. According to the intersection level of service (LOS) analysis that was done for the DEIR in 1995, the Route 2 intersection at Route 126, the Crosby's Corner intersection, and the Route 2 intersection with Bedford Road each had an LOS of F in the AM and PM peak hours.

Note

The proposed improvements will follow the existing right-of-way (ROW) but will require land takings at certain points. The required ROW takings will impact some houses and a conservation area. The improvements will also impact several wetland areas. According to the DEIR, the proposed alternative conforms to Concord's long-range plan for a limited-access expressway.

MAP 13-11 Concord and Lincoln: Route 2/Crosby's Corner Grade Separation



Danvers and Peabody: Route 1/Route 114 Corridor Improvements ($46,800,000)

Description

This project is a major highway-access improvement initiative for the Route 1/Route 114 interchange, as well as for the respective corridors. The project includes the addition of a third travel lane in each direction and eliminates the center turn lane on Route 114 between the intersection of Watson Parkway and just east of the Boston and Maine Railroad bridge that crosses over Route 114. Also included in the design concept is the total reconfiguration of the Route 1/Route 114 interchange by creating a modified diamond design. Additional southbound on- and off-ramps between Route 114 and Interstate 95 will be constructed to create a full interchange.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Zoning in Danvers west of the Route 1/Route 114 interchange is residential (with 30,000-square-foot lots) and highway commercial. East of the interchange, the property is Zone A – 30 percent four-story office and 70 percent one-story retail.

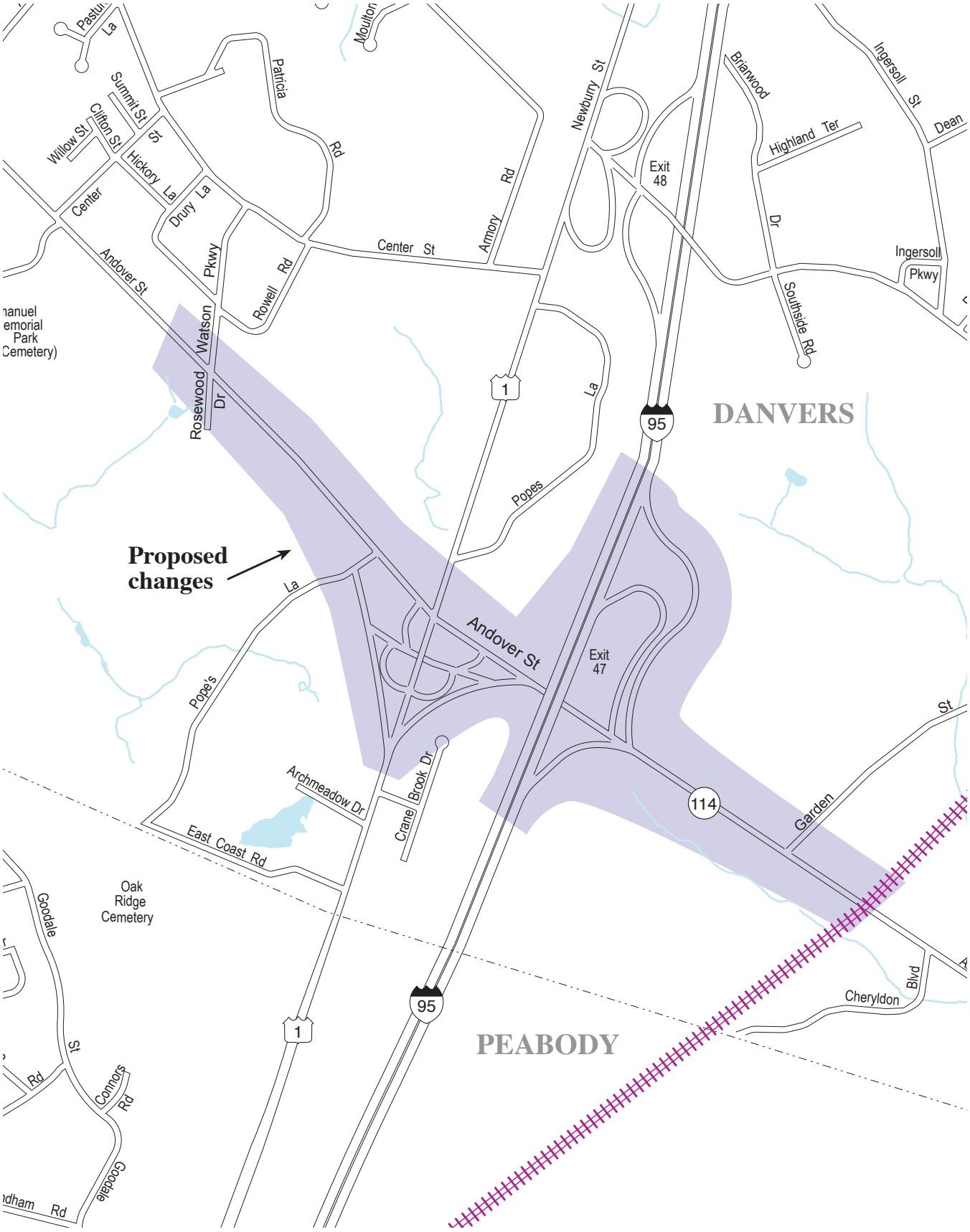
Safety

This project is located at a high-crash location—between 1999 and 2001, the Route 1/Route 114 interchange has been the site of 98 crashes, of which 64 involved only property damage and 34 involved bodily injury. It ranked #229 on the list of the state's high-crash intersections. The design of this project will maintain all current movements while providing additional travel lanes for through traffic on Route 114.

Mobility

According to traffic count data collected by MassHighway, the average daily traffic on this segment of roadway was approximately 34,700 vehicles in 1999. According to the Justification Study, the Route 1/Route 114 intersection has serious traffic congestion in both the AM and PM peak periods, in part because direct access from Route 114 to I-95 southbound is restricted. In terms of delay, average travel speed on Route 114 is below 70 percent of the posted speed in the eastbound direction in the PM peak period (source: 2001/2002 Congestion Management System monitoring).

MAP 13-12 Danvers and Peabody: Route 1/Route 114 Corridor Improvements



Everett, Malden, and Medford: River's Edge Boulevard [Formerly Telecom City Boulevard] ($15,200,000)

Description

Construct a two-lane, median-divided roadway between Santilli Highway in Everett and Corporation Way in Medford, with a bridge across the Malden River. This new road will link the entire River's Edge development project, located on both sides of the river, into one unified campus. The new road will accommodate public traffic and will improve access between the three communities

Project's Context/Possible Impacts, by MPO Policy Area

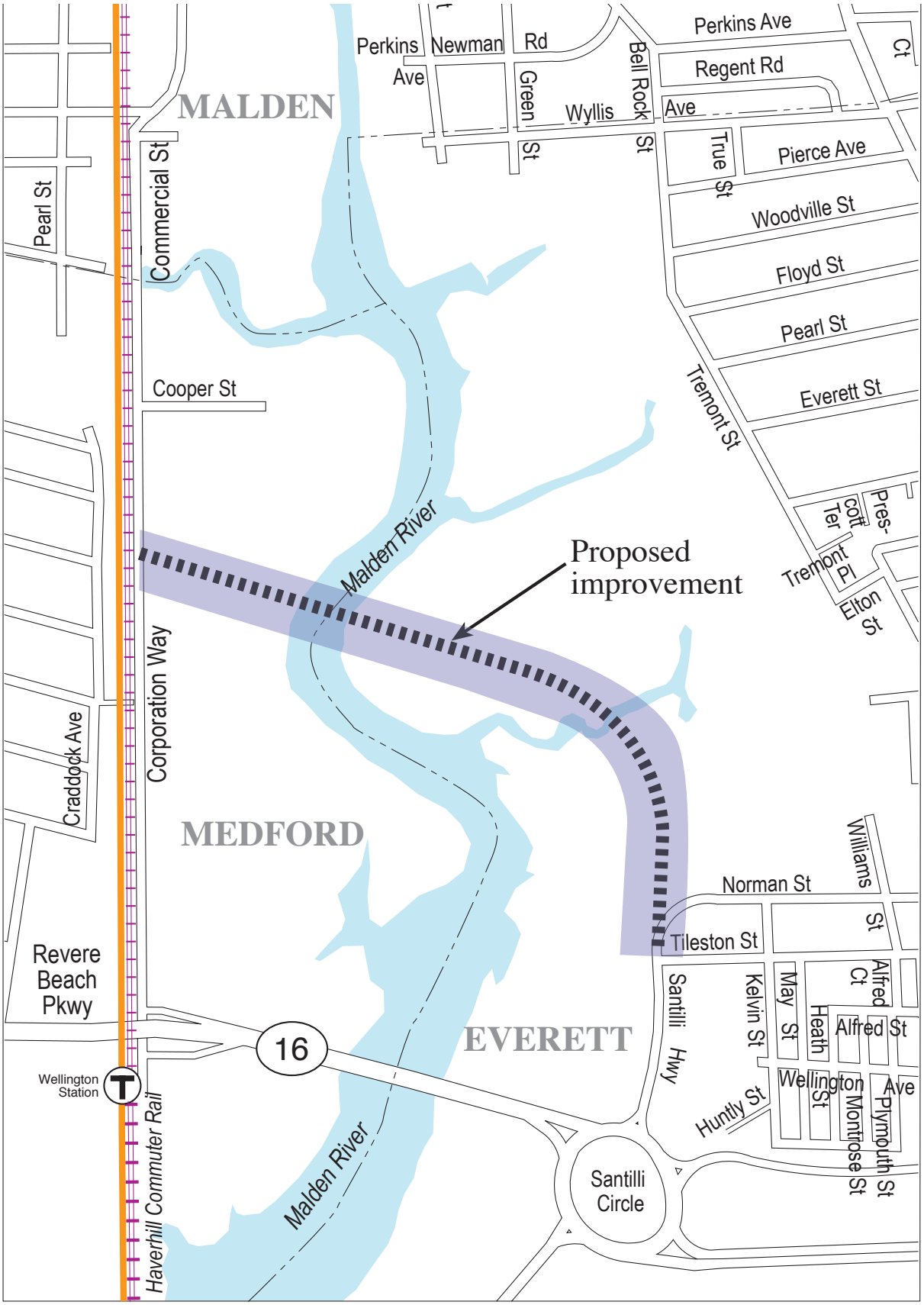
Land Use

The River's Edge project is located in west Everett, south Malden and east Medford and involves the redevelopment of a brownfield site (large site that is available for infill development) into a modern campus of office buildings, housing research, and development enterprises. The land is zoned for office use in Medford and industrial use in Everett and Malden.

Economic Opportunities

The construction of this roadway project will help facilitate redevelopment within and around River's Edge and will address traffic operations and safety concerns in all three communities.

MAP 13-13 Everett, Malden, and Medford: River's Edge Boulevard [Formerly Telecom City Boulevard]



Everett and Medford: Route 16 (Revere Beach Parkway) ($93,600,000)

Description

Widen Route 16 where necessary to provide a continuous six-lane mainline parkway cross-section between Route 38 in Medford and Sweetser Circle in Everett, except for a four-lane segment in the vicinity of Wellington Circle. Wellington Circle will be replaced with a tight single-point diamond interchange, under which the four-lane section of Route 16 would pass.

At the western limit of the project, the Interstate 93, Route 38, and Route 16 ramps will be realigned and relocated where necessary and additional ramps will be constructed. The connection between I-93 and Route 38 will be realigned and reconstructed by switching the I-93 southbound on-ramp and off-ramp, so that the current on-ramp becomes the off-ramp and vice versa. In addition, the on-ramp and off-ramp from Route 38 to I-93 northbound will be relocated to a new grade-separated interchange and combined with a new connection from Route 16 directly onto I-93.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The land use along Revere Beach Parkway varies from commercial/industrial and high-density residential to parklands. From Route 38 to Wellington Circle, the predominant land use is parklands, except for commercial/industrial, with high-density residential uses on the north part of Route 16. From Wellington Circle to Sweetser Circle in Everett, a variety of land uses are present: the State Police barracks, the Wellington Station of the MBTA's Orange Line (including a regional park-and-ride complex and an Orange Line maintenance facility), TeleCom City, Mellon Bank office building, Gateway Center regional shopping center, and the Hendersonville residential neighborhood of Everett.

Safety

Four intersections along the project corridor are in the top one thousand high-crash locations, for 1999 through 2001:

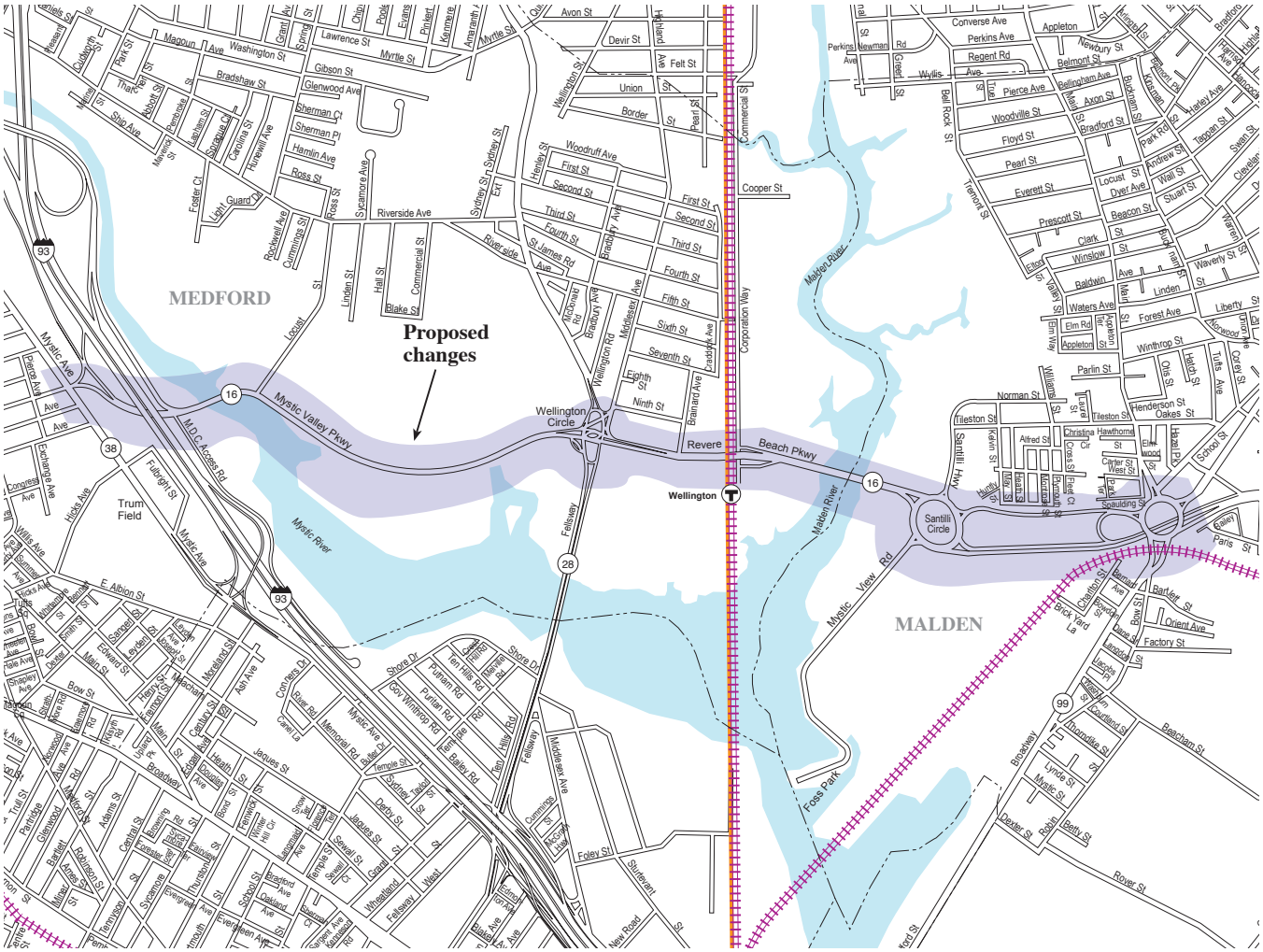
- Route 16/Route 28 (Fellsway) is ranked #10 with 372 crashes, of which 231 involved only property damage and 141 involved bodily injury.
- Route 16/I-93 is ranked #22 with 301 crashes, of which 193 involved only property damage and 108 involved bodily injury.
- Route 16/Locust Street is ranked #504* with 56 crashes, of which 33 involved only property damage and 23 involved bodily injury.
- Route 16/Corporation Way is ranked #942 with 35 crashes, of which 18 involved only property damage and 17 involved bodily injury.

Mobility

According to the Route 16 Parkway Corridor Improvement Study completed for the Mystic Valley Development Commission in 2000, the average daily traffic along Route 16 in the project area ranges from 61,150 vehicles west of Santilli Circle to 43,550 vehicles east of Santilli Circle (1997 counts).

According to 2002 Congestion Management System (CMS) travel monitoring performed by CTPS, the average delay on Route 16 in the project area is greater than one minute in the eastbound and westbound directions in the AM peak period. In addition, average travel speed on Route 16 is 15 mph or less (level of service E/F) along six segments in the eastbound and westbound directions in both the AM and PM peak periods.

MAP 13-14 Everett and Medford: Route 16 (Revere Beach Parkway)



Strengthen Economic Opportunities

Route 16 is an important east-west arterial that connects the communities of Cambridge, Arlington, Medford, Everett, Chelsea, and Revere. It also serves as a connection between East Boston, Logan Airport, and I-93. According to the Route 16 Corridor Improvement Study, one of the main purposes of this project is to provide adequate access to the future TeleCom City development in Medford, Everett, and Malden.

Framingham: Route 126/ Route 135 Grade Separation ($50,000,000)

Description

Construct a 700-foot, below-grade underpass (one travel lane in each direction) from Park Street to Irving Street, allowing through traffic on Route 126 (Concord Street) to pass underneath Route 135 (Waverly Street) and the railroad tracks. The majority of the underpass will consist of an ascending/descending ramp with an open roof; approximately 135 feet of it will be a tunnel under Route 135 and the railroad tracks.

Travel lanes will be maintained at grade on Route 126 to intersect with Route 135, with upgraded signalization. Each approach to this intersection will have at least two lanes, and all turning movements will be permitted. The open-box configuration of the underpass will prohibit traffic on Howard Street from crossing Concord Street and will preclude southbound traffic on Route 126 from turning left onto Irving Street.

The design concept for the project includes extensive streetscape amenities such as widened sidewalks, street trees, decorative lighting, and benches. The project also has the potential to encourage economic development in downtown Framingham, partially through the redevelopment of parcels taken for the roadway reconstruction.

Construction of this project will require land-takings, including sites currently in use by downtown businesses. It will also necessitate the elimination of approximately 30 on-street parking spaces.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

This project is located in Framingham's central business district, which, according to the Executive
Office of Environmental Affairs/Metropolitan Area Planning Council buildout analysis, is subject to absolute development constraints, but is also a designated redevelopment district. According to the Route 126 Corridor Study, the construction of this project would help facilitate downtown redevelopment by making the downtown area a more attractive location and by providing redevelopment sites through the partial taking of business sites as necessary for the roadway work.

Safety

This project is located at a high-crash location—between 1999 and 2001, Route 126 at Route 135 has been the site of 127 crashes, of which 98 involved only property damage and 29 involved bodily injury. As such, it ranked #215 on the list of the state's high-crash intersections. As described above, the design of this project maintains all current movements at the intersection, while providing additional travel lanes for through traffic.

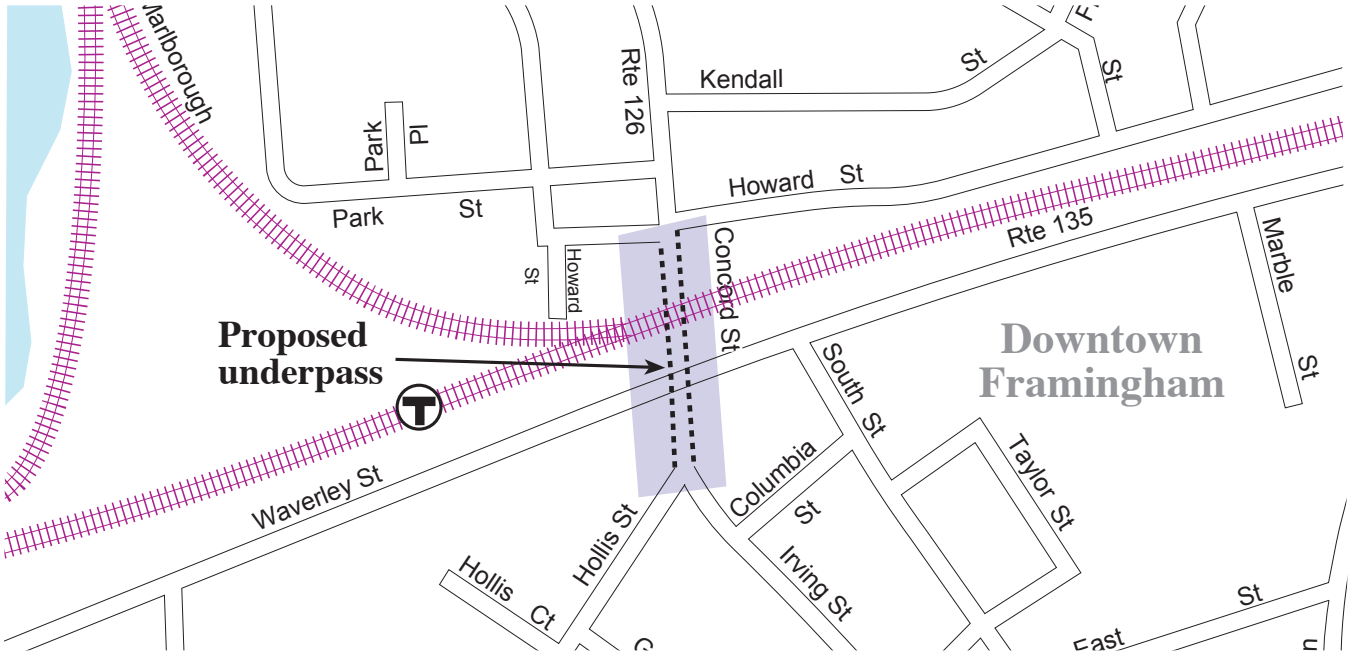
Mobility

This project provides additional travel lanes for through traffic on Route 126, bypassing at-grade intersections with Route 135 and the railroad tracks. According to the Route 126 Corridor Study, the average daily traffic on this segment of roadway is approximately 22,000 vehicles (1996 figure). The Route 126/Route 135 intersection functions at level of service F in the AM and PM peak periods. In terms of delay, the intersection is tentatively rated as the second worst in the MetroWest subregion and the eighth worst in the MPO region (source: 2001/2002 Congestion Management System monitoring).

Connectivity

The Framingham commuter rail station is located near the project site; however, the project does not significantly affect either vehicle or nonmotorized access to the station. All LIFT buses currently connect at a bus stop on the corner of Route 126 and Howard Street; the project as envisioned will eliminate pedestrian and vehicle access across Howard Street. The LIFT 3 bus makes connections southeast of the project

MAP 13-15 Framingham: Route 126/ Route 135 Grade Separation



site; the project as envisioned will not impact this route, as it accesses the area via the at-grade connection between Route 126 and Route 135.

Environmental Justice

An MPO-designated community of concern is located in Southeast Framingham adjacent to the project site. This project will facilitate some level of northbound traffic originating from this area or southbound traffic going to the area; however, the project has not been identified as a priority by the environmental justice community.

Economic Opportunities

According to the Route 126 Corridor Study, this project is closely related to the redevelopment of the downtown Framingham central business district.

Community Character

As currently envisioned, the project includes many streetscape amenities and will facilitate downtown redevelopment, including possible facade improvements in the area of the town common. The project also eliminates a significant congestion point in downtown Framingham.

Hudson: Washington Street (Route 85) Widening ($5,900,000)

Description

MassHighway completed a study in 2001 involving Route 85 in the Town of Hudson and the City of Marlborough. The project begins at the Hudson/Marlborough town line and continues northward 1.52 miles to Route 62. It includes the following improvements:

- Resurface Route 85 with minor widening from the Hudson/Marlborough town line to the Route 85 Connector
- Reconstruct and/or resurface Route 85 with widening and intersection improvements from the Route 85 Connector to Brigham Street
- Resurface Route 85 with minor widening from Brigham Street northward to Route 62 (Main Street)

These improvements were once part of a larger set of recommended improvements in Hudson and Marlborough involving Route 85, the Route 85/I-290 Connector, and the I-290/I-495 interchange, but are now a stand-alone project.

Project's Context/Possible Impacts, by Relevant MPO Policy Area

Land Use

Land use along Washington Street (Route 85) from Brigham Street in Hudson to the Marlborough line is zoned as Residential, Commercial, or Industrial.

Safety

There are no high-crash locations in Hudson, according to MassHighway's list of the top 1,000 high-crash locations for the years 1999 to 2001.

Mobility

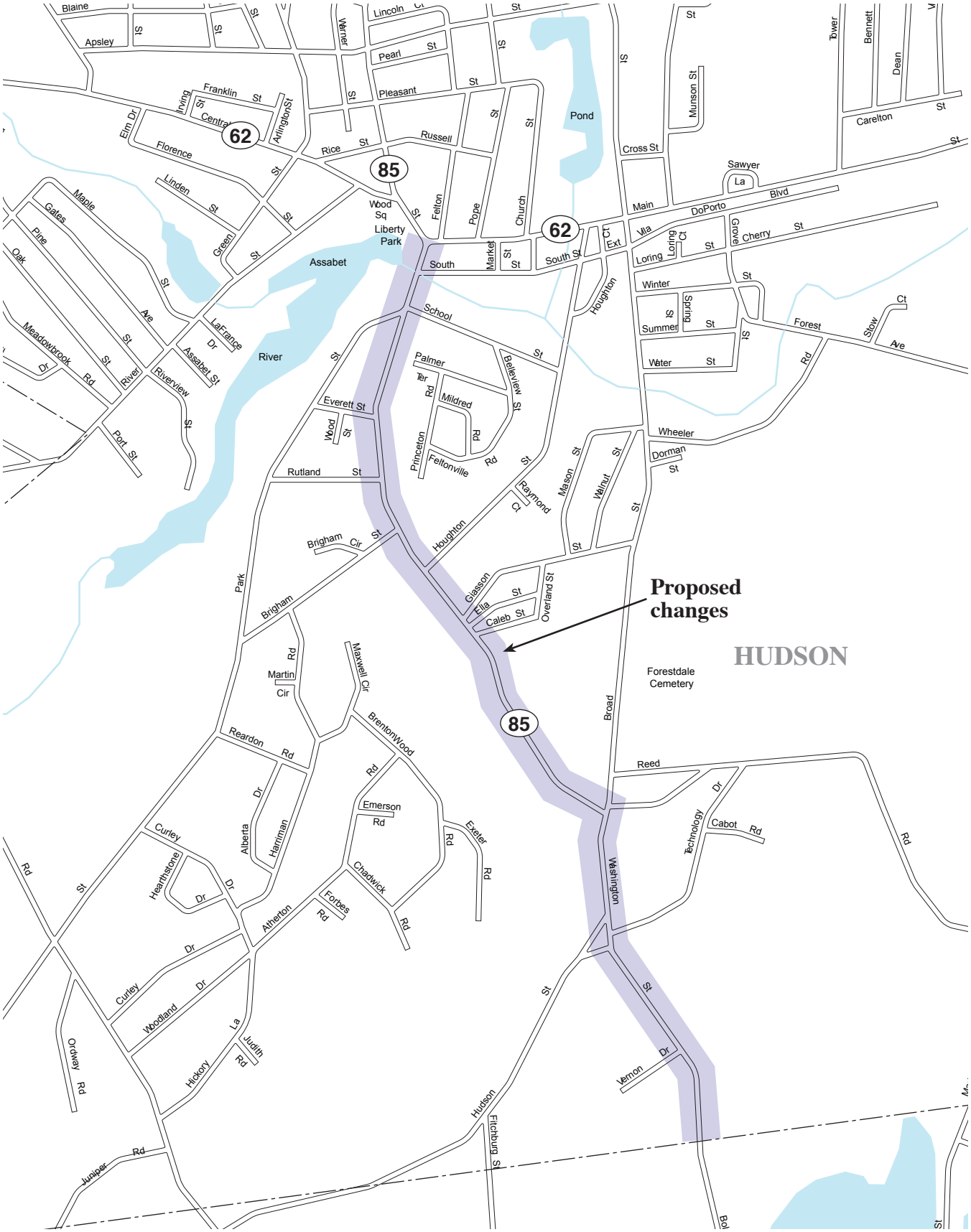
According to MassHighway's 2005 Traffic Volumes for the Commonwealth, daily two-way traffic on Washington Street south of Broad Street ranged from 24,200 to 28,700 in 1999.

From the MPO's Congestion Management System (CMS) data, it was seen that some segments of Washington Street between Brigham Street and the Marlborough town line experienced some peak period congestion. Average observed speeds on this section of Route 85 in the AM peak period were below 25 mph in both directions. During the PM peak period, this same section of Route 85 had observed speeds below 24 mph in both directions. Therefore, based on CMS criteria, this section of Route 85 is considered congested during the AM and PM peak periods.

Connectivity

The Town of Hudson is not located within a regional transit authority district. Gulbankian Bus Lines has commuter service from Hudson to four locations in Boston, as well as Saturday service (one round trip) to Shoppers World in Framingham. The Assabet River Rail Trail crosses Route 85 within the project area.

MAP 13-16 HUDSON: WASHINGTON STREET (ROUTE 85) WIDENING



Malden, Revere, and Saugus: Route 1 Improvements ($65,000,000)

Description

Widen Route 1 from four to six lanes between Copeland Circle (Route 60) and Route 99. As part of this project, the on- and off-ramps at Salem Street and Lynn Street will be reconstructed to provide acceleration/deceleration lanes, better turning radii, and full turning movements. Also, the connection between Route 99 and Route 1 will be improved by providing a normal right-lane merge from Route 99 northbound to Route 1 northbound.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Zoning along Route 1 in the project area is primarily residential, light industrial, and highway-oriented businesses.

Safety

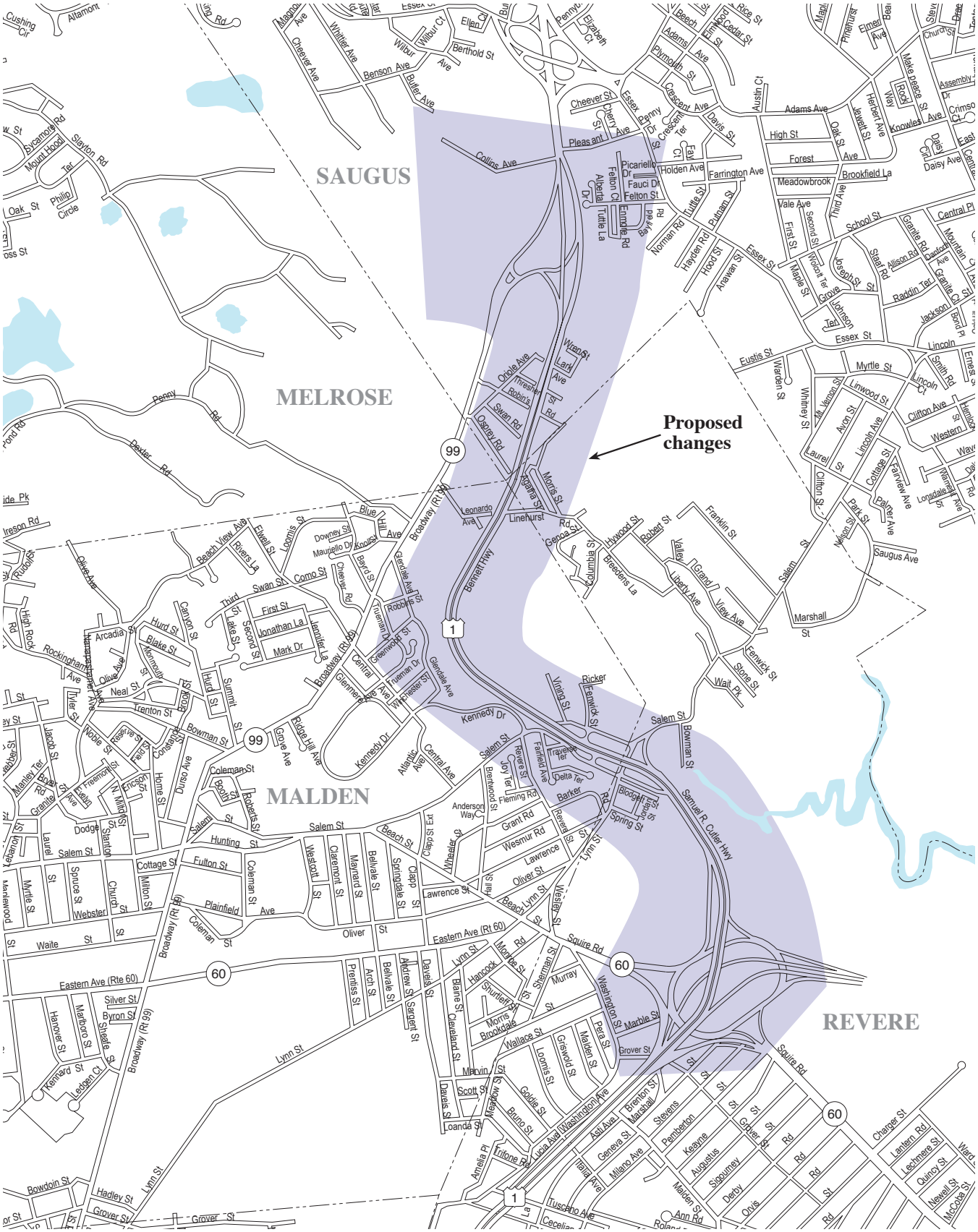
This project area includes a high-crash location—between 1999 and 2001, the intersection of Route 1 and Copeland Circle in Revere was the site of 463 crashes, of which 249 involved only property damage and 213 involved bodily injury, with one resulting in a fatality. It ranked #3 on the list of the state's high-crash intersections.

In addition, according to the Lower North Shore Transportation Improvement Study conducted by CTPS in 2000, unsafe traffic operations are present at the on- and off-ramps of the Salem Street/ Lynn Street interchange due to the ramps' geometric limitations, including the absence of deceleration and acceleration lanes, the tight turning radii, and the close proximity of adjacent ramps.

Mobility

Average daily traffic (ADT) along Route 1 at the Malden/Revere city line was 88,500 in 2004, according to traffic volume data compiled by MassHighway, while ADT along Route 1 one-half kilometer north of Sargent Street (south of Route 60) was 54,600 in 1998. Traffic volumes along Route 1 are significantly higher north of Copeland Circle (Route 60), since Route 60 serves as the major east-west connector between towns north of Malden and the coast, Logan Airport, and the Wonderland Blue Line Station. Despite this, Route 1 has six lanes south of Copeland Circle and narrows to four lanes north of the Circle. According to the Lower North Shore Study, recurring congestion occurs on Route 1 southbound at the Route 60 off-ramp during the AM peak period and on Route 1 northbound at the Route 60 on-ramp during the PM peak period.

MAP 13-17 Malden, Revere, and Saugus: Route 1 Improvements



Marlborough and Hudson: I-495/I-290/Route 85 Connector Interchange ($27,600,000)

Description

Construct a flyover ramp from I-495 northbound to I-290 westbound and a flyover ramp from I-290 eastbound to I-495 northbound. Specifically, the changes will include:

- The replacement of the current ramp from I-495 southbound to I-290 westbound with a two-lane ramp, realigned to provide a safer turning radius.
- The replacement of the existing clover-loop ramp from I-495 northbound to I-290 westbound with a two-lane flyover from I-495 to I-290 on the left side, well past the I-495 southbound/I-290 westbound merging area.
- The replacement of the existing clover-loop ramp from I-290 eastbound to I-495 northbound with a two-lane flyover, designed to provide a safer turning radius. Also, the existing loop ramp in the northwest corner of the interchange will be realigned to accommodate the new ramp configuration.

As part of this project, Celluci Highway (Route 85 Connector) will be widened from two lanes to four lanes from I-495 to Fitchburg Street.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The primary land use in the project area is residential, although commercial and industrial uses are also present. According to the Executive Office of Environmental Affairs/Metropolitan Area Planning Council buildout analysis, the area has a large amount of developable land around the project area. The Route 85 Connector Transportation Study by MassHighway (November 2001) identified seven proposed developments and eighty proposed single-family houses in the study area.

Safety

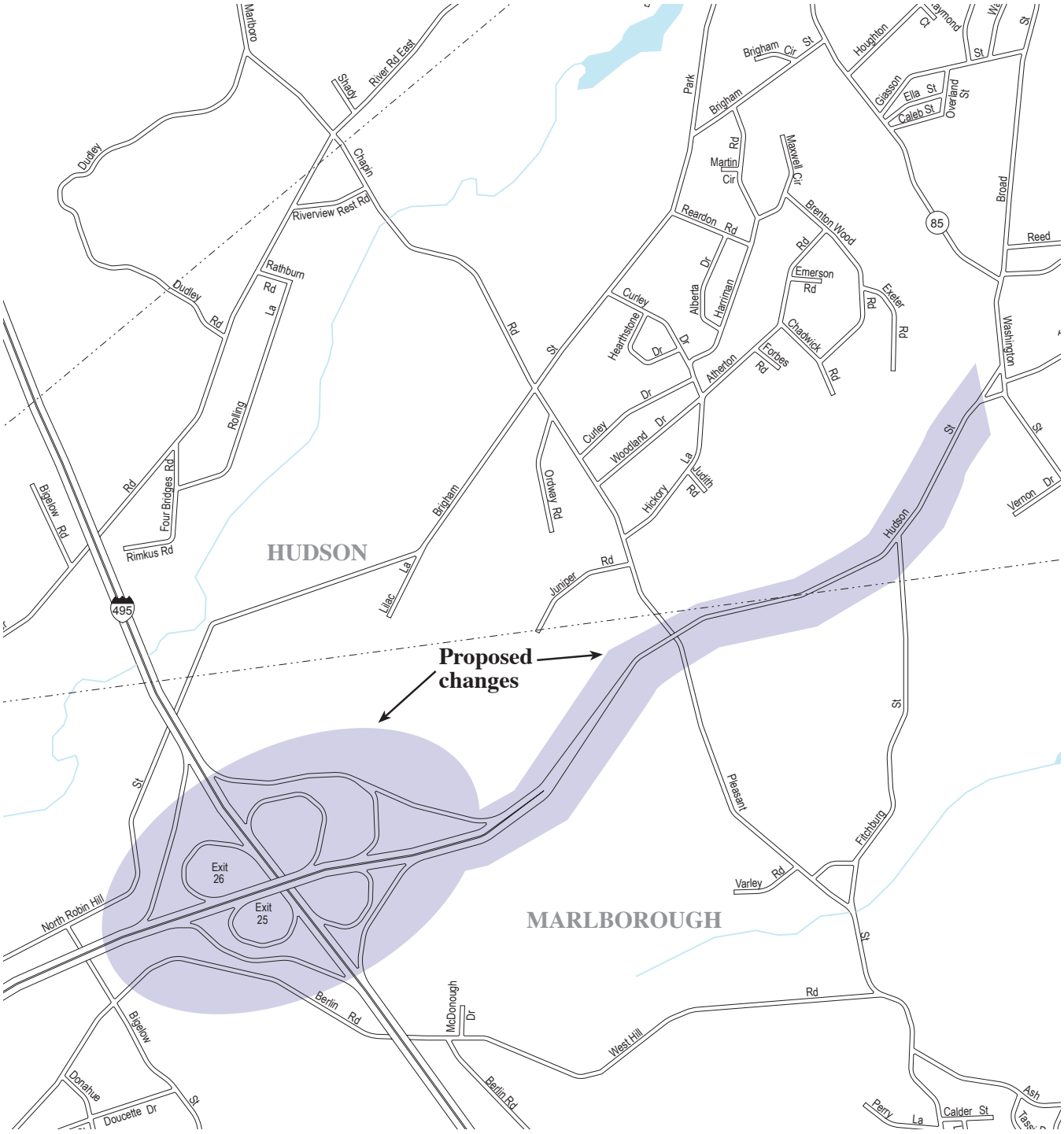
This project is located at a high-crash location—between 1999 and 2001, the I-495/I-290 interchange has been the site of 246 crashes, of which 162 involved only property damage and 84 involved bodily injury. It ranked #42 on the list of the state's high-crash intersections.

According to the Route 85 Connector Transportation Study by MassHighway (November 2001), historically there has been a high incidence of truck rollovers at the interchange. These rollovers predominately occur on the ramp from I-290 eastbound to I-495 northbound. This is due in large part to the combination of the tight turning radius of the ramp and the excessive speeds of vehicles entering the interchange.

Mobility

According to traffic counts performed by MassHighway, the average daily traffic for I-290 west of I-495 was 72,000 vehicles in 2003, for I-495 north of I-290 it was 82,200 vehicle in 2004, and for I-495 south of I-290 it was 88,150 vehicles in 2004. According to the Route 85 Connector Transportation Study, the ramps connecting I-290 to I-495 northbound and southbound have failing or almost failing levels of service.

MAP 13-18 Marlborough and Hudson: I-495/I-290/Route 85 Connector Interchange



Needham and Newton: Needham Street/Highland Avenue ($7,700,000)

Description

Widen Needham Street to a four-lane cross section (two lanes in each direction) from the Needham Street/Winchester Street/Dedham Street intersection in Newton to the bridge over the Charles River at the Needham town line. The Highland Avenue portion of the project will improve the geometry of the roadway from the Highland Avenue/Webster Street intersection in Needham to the Newton town line. Work will include upgrades and the installation of traffic signals at five intersections. The project will also include the reconstruction of the bridge over the Charles River to accommodate the upgrade in travel lanes.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area in Newton along Needham Street is zoned as residential from Route 9 north and as mixed-use and multi-residential from Route 9 south to the Needham town line. The project area in Needham is zoned as industrial east of Interstate 95 to the Newton town line and residential west of I-95.

Safety

This project area includes one high-crash locations—Highland Avenue at I-95 in Needham. Between 1999 and 2001, the Highland Avenue/I-95 intersection was the site of 139 crashes, of which 88 involved only property damage and 51 involved bodily injury. It ranked #106 on the list of the state's high-crash intersections.

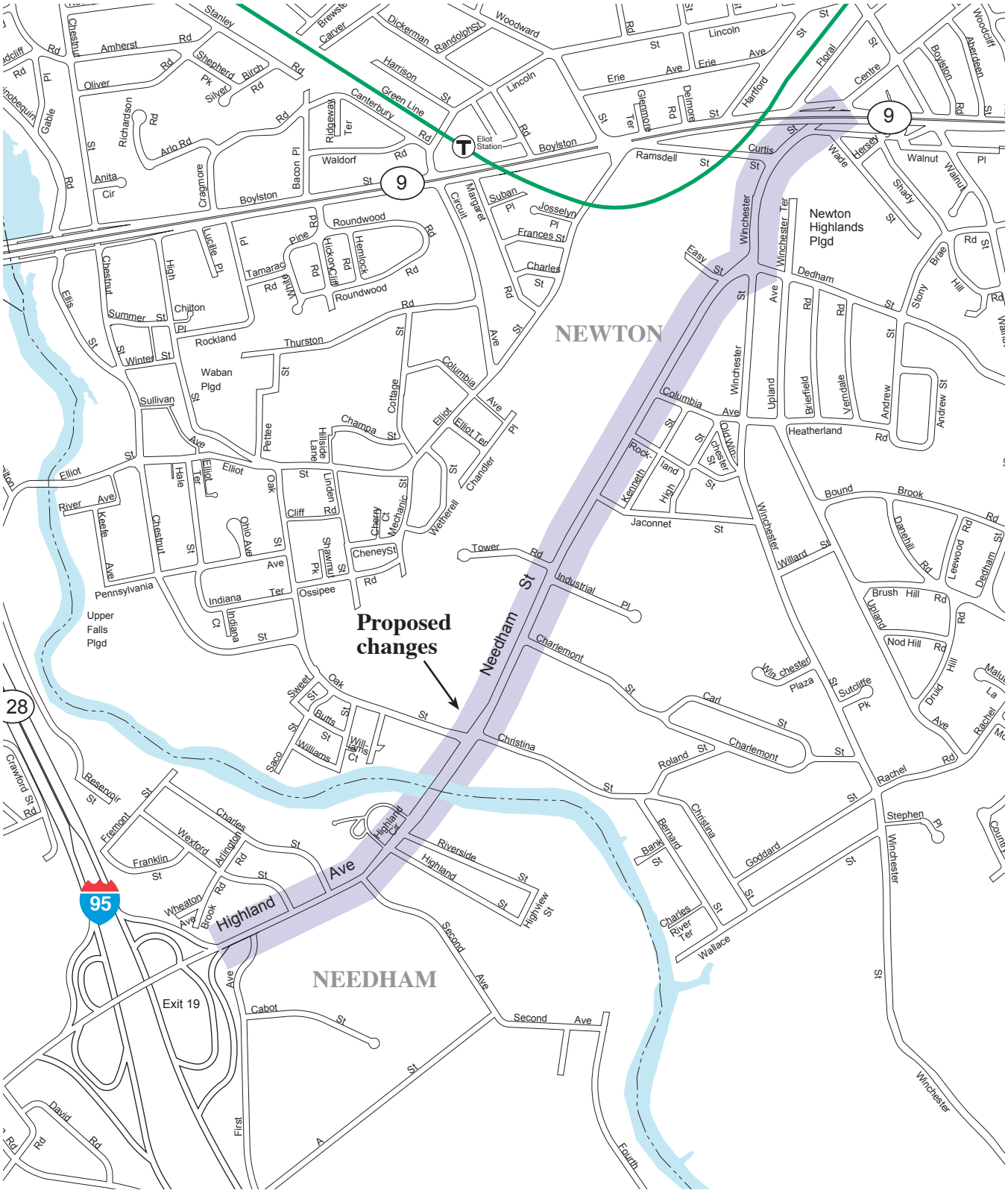
Mobility

According to MassHighway traffic counts performed in 2002 on Highland Avenue west of Gould Street in Needham, the average daily traffic (ADT) was 23,300 vehicles. The ADT on Needham Street south of Tower Road in Newton in 2001 was 25,200 vehicles. According to counts performed as part of the Highland Avenue Corridor Improvements Functional Design Report (FDR) in 2002, the ADT on Highland Avenue east of First Street (just east of I-95 and between the two other count locations) was 36,700 vehicles. Results from the 2001–2002 Congestion Management System monitoring indicate that the average travel speed on both Needham Street and Highland Avenue is 15 mph or less (level of service E/F) along multiple segments of this corridor in the northbound and southbound directions during the AM and PM peak periods.

Economic Opportunities

According to both the Highland Avenue Corridor Improvements FDR and the proposed Stop and Shop Supermarket draft environmental impact report, this project would help facilitate redevelopment along this corridor.

MAP 13-19 NEEDHAM AND NEWTON: NEEDHAM STREET/HIGHLAND AVENUE



Quincy: Quincy Center Concourse Phase 2 ($7,000,000)

Description

This project continues work from Phase One, which was the construction of a bridge over the MBTA tracks between Burgin Parkway and Parking Way and a new roadway between Parking Way and Hancock Street. Phase 2 of this project consists of the realignment of Revere Road between Hancock Street and Mechanic Street. The new two-lane roadway is proposed as a one-way route in the westbound direction to the intersection of Hancock Street.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area is located in the central business district of Quincy and is zoned for business.

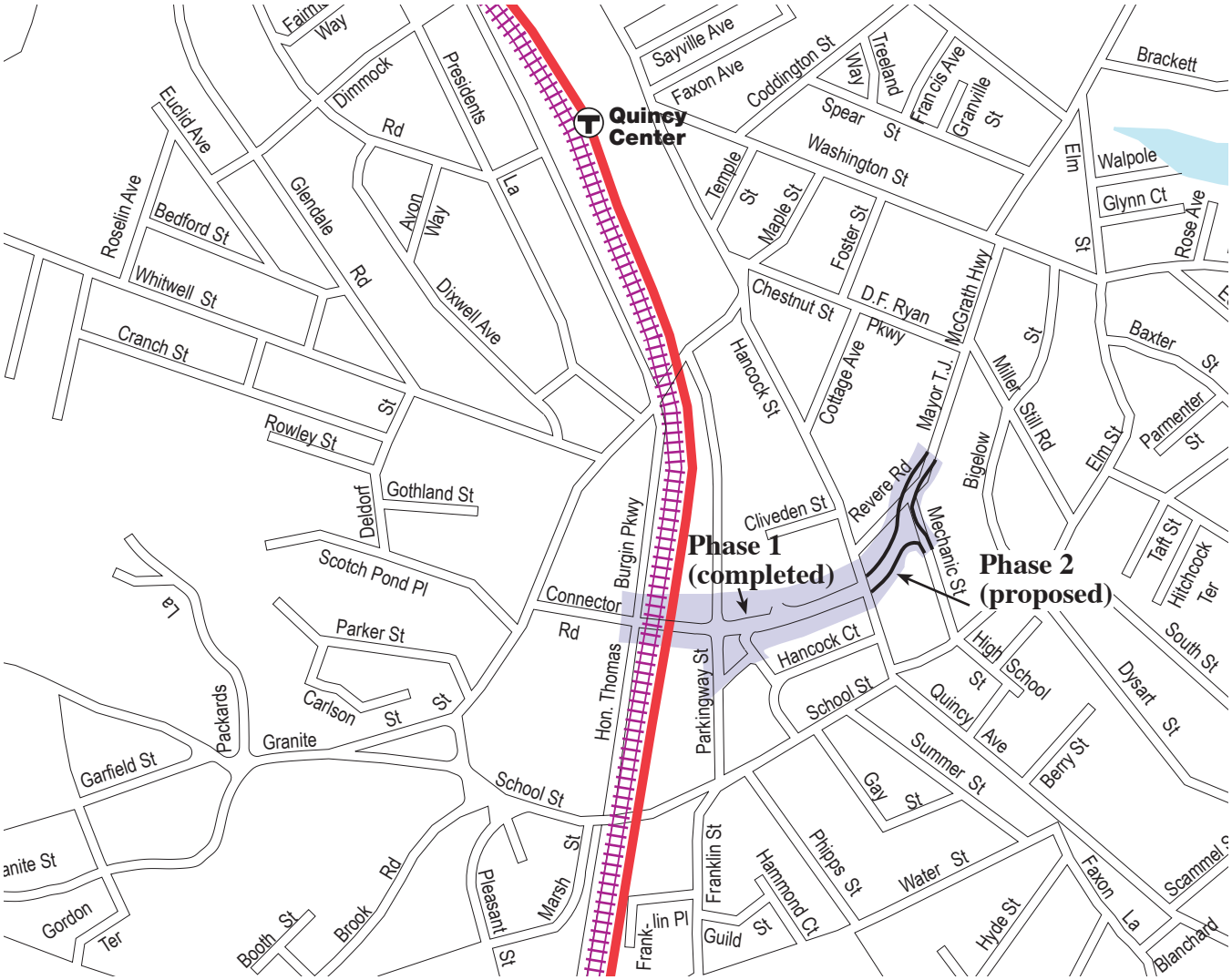
Mobility

According to the Quincy Center Concourse Traffic Study Report (September 1995), the completion of this entire project will provide a new connection between Burgin Parkway and the Southern Artery (Route 3A) via McGrath Highway. One-way travel lanes for through traffic along Revere Road will allow for greater traffic flow and will allow projected demand to be handled at the intersection of Hancock Street. This project will also align Revere Road with Phase 1 of the Quincy Center Concourse project.

Note

The design concept for the project is balancing current traffic and pedestrian demands with the existing urban environment of Quincy. The project is expected to improve access and economic activity within downtown Quincy and not function as a through route. Development of new parcels claimed from the roadway realignment, along with redevelopment of existing parcels, is also expected to occur.

MAP 13-20 Quincy: Quincy Center Concourse Phase 2



Reading and Woburn: I-93/I-95 Interchange ($171,000,000)

Description

Improve safety at the junction of Interstate 93 and Interstate 95. The project includes a combination of highway, transit, and transportation demand management improvements as follows:

Highway Improvements:

- Add a fourth travel lane to I-95 between I-93 and Route 28 and in the northbound direction only extend the fourth lane to Route 129
- Two new direct connection interchange ramps to remove weaves
- Reconfigured ramps at Route 128 Northbound/Washington Street
- Anticipated noise barriers

Transit Improvements:

- Anderson Regional Transportation Center shuttle services
- Increased MBTA reverse peak and local bus service
- New Peabody park-and-ride-lot and shuttle service
- Increased commuter rail – Lowell/Haverhill to Boston

Transportation Demand Management:

- Increased marketing, incentives, and signage for transit and carpooling

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Zoning in the project area is residential, industrial, and business.

Safety

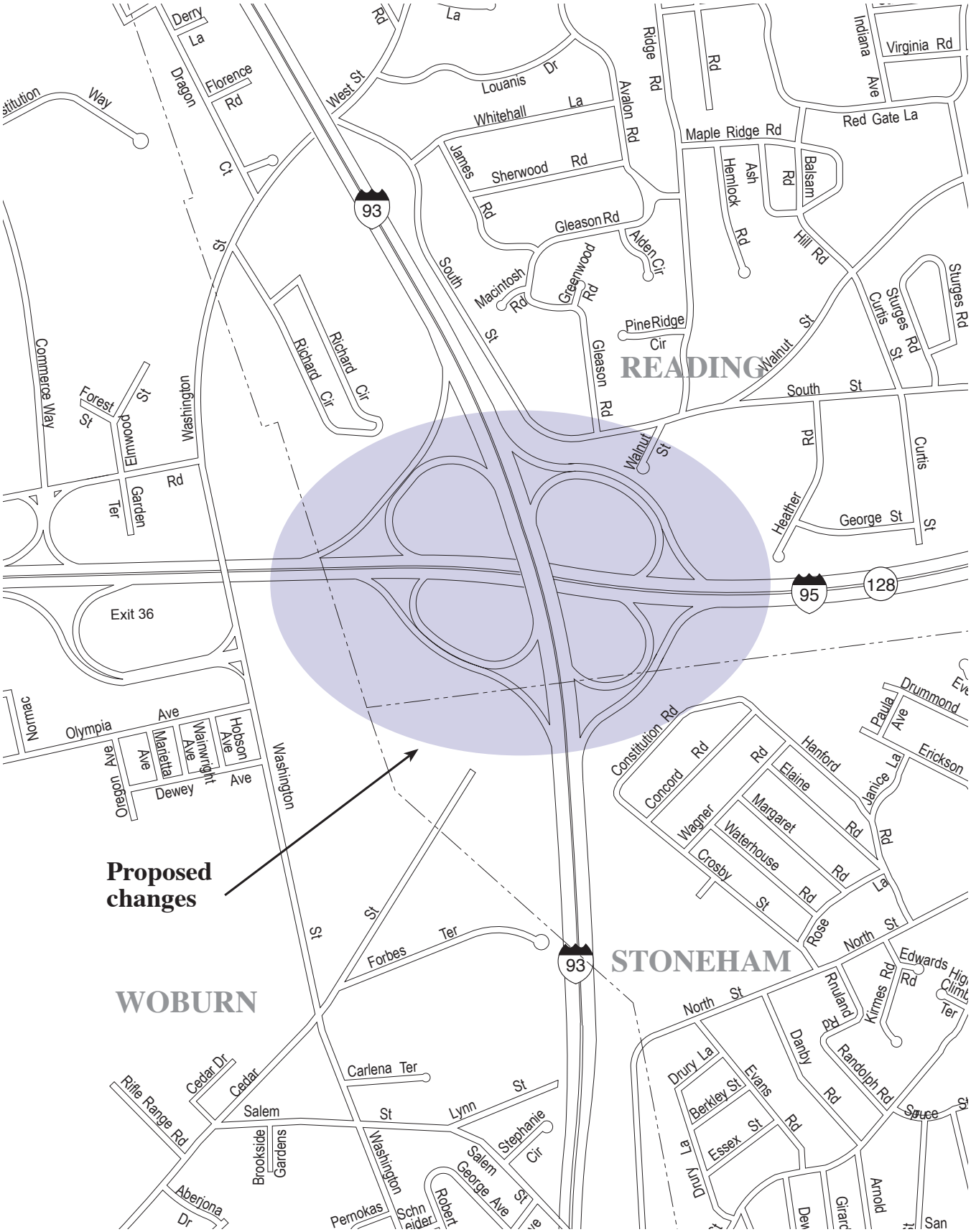
This interchange is a high-crash location—between 1999 and 2001, the I-93/I-95 interchange was the site of 560 crashes, of which 398 involved only property damage and 162 involved bodily injury. It was ranked the #5 high-crash site on the list of the state's high-crash intersections.

Mobility

According to MassHighway traffic counts, the average daily traffic on the interstate highways leading into this interchange is as follows:

- I-93 north of I-95 (2004 counts) – 165,100 vehicles
- I-93 south of I-95 (2001 counts) – 161,900 vehicles
- I-95 east of I-93 (2000 counts) – 153,000 vehicles
- I-95 west of I-93 (1997 counts) – 168,300 vehicles

MAP 13-21 READING AND WOBURN: I-93/I-95 INTERCHANGE



Revere: Mahoney Circle Grade Separation ($15,000,000)

Description

Mahoney Circle (also known as Bell Circle) is a major intersection for local and regional traffic in Revere, accommodating the approaches of Route 1A, Route 60, Route 16, and Beach Street. The preferred alternative for this project will remove the rotary by relocating a portion of Route 1A and depressing Route 60 under Beach Street. Access to local streets will be maintained via direct connections from a newly constructed Beach Street Connector.

The connection of Route 1A and Route 60 will be relocated north of the existing rotary by extending Route 1A west from the vicinity of Butler Circle to Route 60 on an alignment just south of the newly constructed Comfort Inn Suites hotel. The connection between Route 1A southbound and Route 60 northbound would be a standard right-lane merge under yield conditions, while the connection to Route 60 southbound will be a fully signalized left turn. Just south of this connection, the right lane will split off from Route 60 to provide a direct connection to Beach Street west of the current rotary. Going north on Route 60, two lanes of traffic will split off at the new traffic signal to provide direct access to Route 1A northbound, while two lanes will continue as Route 60 northbound.

Route 60 will be depressed under Beach Street from the vicinity of Everett Street to where Route 16 eastbound connects to Route 1A. The depressed section of Route 60 will provide two southbound lanes and two northbound lanes with a ramp added from Route 16 eastbound to Route 60 northbound. The depressed section will be wide enough to allow for an added lane in each direction in the future. Access to the existing businesses and potential business parcels will be provided from relocated Route 1A via ramps in the vicinity of existing Everett Street. Local traffic will access the business parcel south of relocated Route 1A via a curb cut on Beach Street.

The Beach Street Connector will connect the section of Beach Street west of the depressed section of Route 60 to relocated Route 1A. Beginning at the bridge over Route 60, the connector will follow the current alignment of Route 1A to an intersection with Beach Street and will proceed directly north to a signalized intersection with relocated Route 1A just east of the MBTA commuter railroad tracks. Kimball Street will be extended to intersect with the Beach Street Connector.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The zoning in the project area is general residential (8,000-square-foot lots) west of Mahoney Circle, general industrial and industrial park north of the circle, and general business and high-rise mixed-use zones east of the circle.

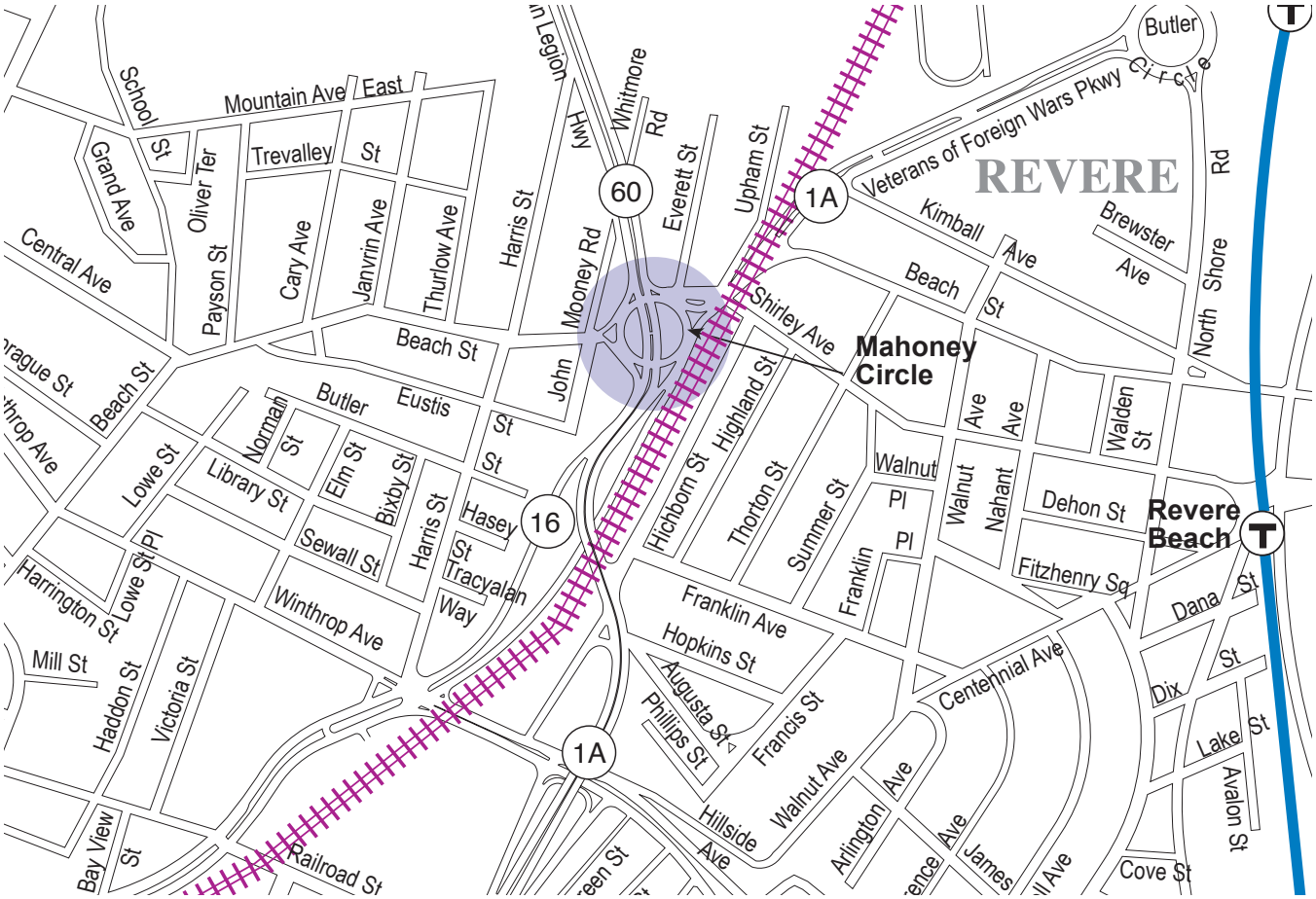
Safety

This project is located at a high-crash location—between 1999 and 2001, Mahoney Circle was the site of 329 accidents, of which 198 involved only property damage and 131 involved bodily injury. It ranked #14 on the list of the state's high-crash intersections.

Mobility

MassHighway traffic counts show that average daily traffic volumes on the two commuter routes north of Mahoney Circle are approximately 40,000 on Route 60 and 29,000 on Route 1A. To the south, the average daily traffic on Route 1A is 50,000 and on Revere Beach Parkway is 20,000. According to the Mahoney Circle Grade Separation Feasibility Study (June, 1997), the approaches to Mahoney Circle operate at a relatively uniform level of service (LOS) D during the AM peak hour. During the PM peak hour, some approaches remain at LOS D, but the Route 1A northbound and Route 16 northbound ap-

MAP 13-22 Revere: Mahoney Circle Grade Separation



proaches operate at LOS F. In terms of delay, this intersection is tentatively rated as the 12th most delayed intersection in the Inner Core subregion and the 18th most delayed intersection for the entire region (source 2001 Congestion Management System monitoring).

Environmental Justice

The MPO has identified this area of Revere as an environmental justice community of concern. This project will ease a burden on the community by moving regional trips from the local roadways.

Note

This project is in close proximity to the Route 1A/ Route 16 connection project. The two projects will allow a direct connection between Routes 1 and 1A via Route 16, eliminating the need for regional traffic to utilize local streets. Both of these projects are components of a Lower North Shore transportation improvement scheme that includes the widening of Route 1A from four lanes to six lanes between Curtis Street (north of Logan Airport) and Mahoney Circle in Revere; creating a direct express highway connection between Route 1A north of Logan Airport and the Chelsea Street Bridge to Chelsea; and grade separating the intersection of Route 1A with Route 60 at Mahoney Circle in Revere.

Revere: Route 1/Route 16 Interchange ($4,600,000)

Description

Provide a direct connection from Route 1 southbound to Route 16 eastbound and from Route 16 (Revere Beach Parkway) westbound to Route 1 northbound. The improvements include a signalized double left-turn lane from Route 1 southbound onto Route 16 eastbound and a standard on-ramp from Route 16 westbound to Route 1 northbound.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area is primarily zoned for residential use in both Revere and Chelsea. Chelsea's Parkway Plaza redevelopment district is located to the southeast of the proposed connection.

Safety

This project is located at a high-crash location—between 1999 and 2001, Route 1 at Route 16 has been the site of 168 crashes, of which 101 involved property damage and 66 involved bodily injury. As such, it ranked #65 on the list of the state's high-crash intersections.

Mobility

The Route 1 corridor is a major north-south transportation connection in the lower North Shore area. According to MassHighway's 1998 traffic counts, the average daily traffic along Route 1, half a kilometer north of Sargent Street, was 54,600 vehicles. According to the Lower North Shore Transportation Improvement Study conducted by CTPS in 2000, the Route 1/Route 16 connection will improve mobility for Route 1A, Route 107, and Route 1 traffic by providing an upgraded east-west connection along Route 16.

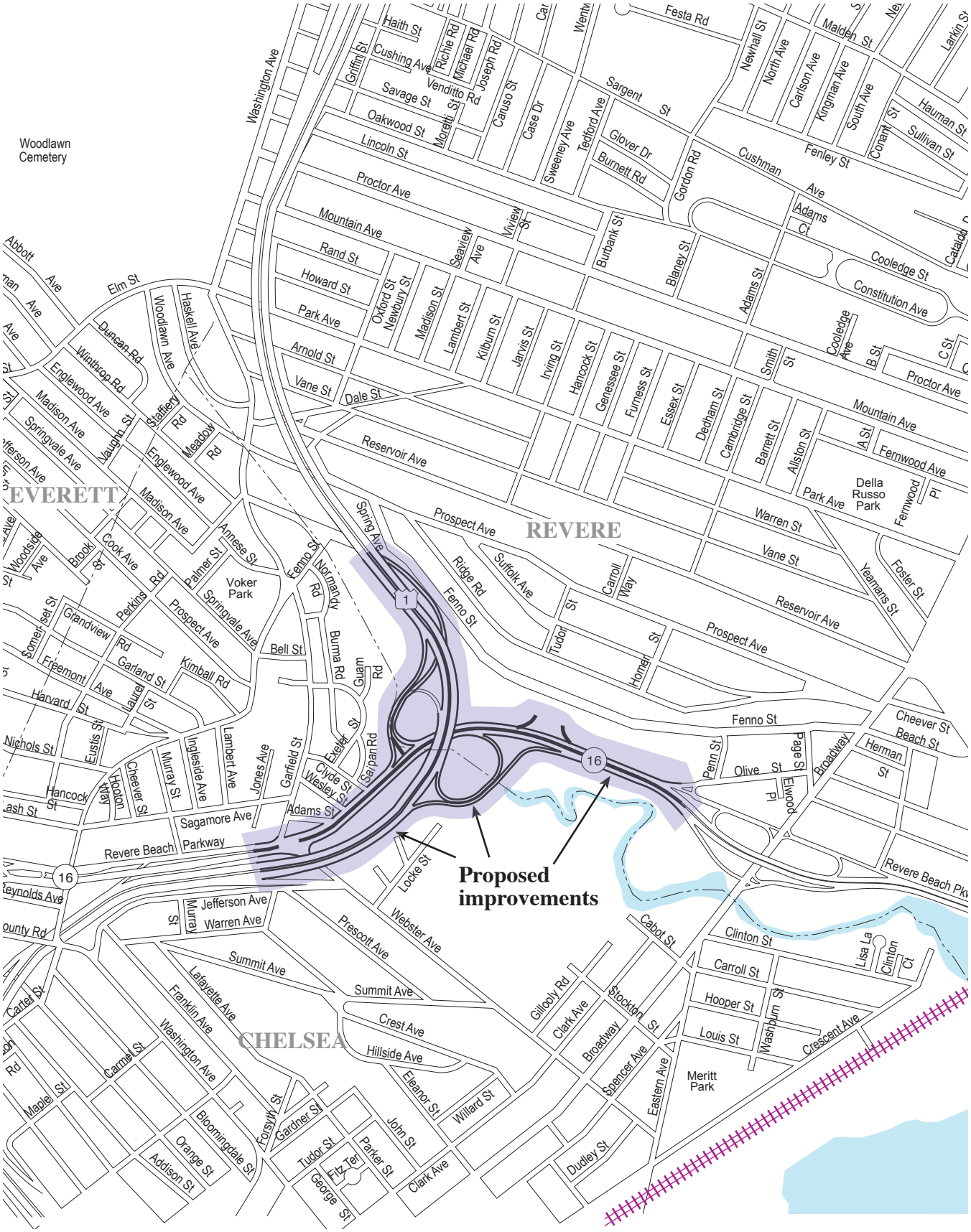
Environmental Justice

The MPO has identified this area of Revere as an environmental justice community of concern. This project will ease a burden on the community by moving regional trips from the local roadways.

Note

This project is in close proximity to the Route 1A/Route 16 connection project. The two projects will allow a direct connection between Routes 1 and 1A via Route 16, eliminating the need for regional traffic to utilize local streets. Both of these projects are components of a Lower North Shore transportation improvement scheme, which includes the widening of Route 1A from four lanes to six lanes between Curtis Street (north of Logan Airport) and Mahoney Circle in Revere; creating a direct express highway connection between Route 1A north of Logan Airport and the Chelsea Street Bridge to Chelsea; and grade-separating the intersection of Route 1A with Route 60 at Mahoney Circle in Revere.

MAP 13-23 REVERE: ROUTE 1/ROUTE 16 INTERCHANGE



Revere: Route 1A/Route 16 Connection ($46,300,000)

Description

Realign Route 16 (Revere Beach Parkway) and its junction with Route 1A to the south, placing a three-fourths-cloverleaf interchange at the northwest corner of Suffolk Downs. A new signal will be installed on Route 16 providing left turns from Route 1A southbound to Route 16 eastbound. A traffic signal will be installed at the intersection of Route 16 and Winthrop Avenue (Route 145) and the current alignment of Route 16 will be closed north of Route 145 and be converted into a linear park.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area is zoned for a variety of land uses—residential, general business, and industrial. The project is adjacent to the Suffolk Downs Redevelopment District.

Mobility

Route 1A is a high-usage corridor from the North Shore to Logan International Airport and Downtown Boston. According to MassHighway traffic counts, average daily traffic (ADT) along Route 1A at the Boston city line in the year 2004 was 60,900 vehicles. The ADT on Route 16 south of Mahoney Circle in 1997 was 17,500 vehicles. Results from the 2001 Congestion Management System monitoring indicate that the average travel speed on Route 16 at Route 1A is 15 miles per hour or less, which is level of service (LOS) E/F in the westbound and eastbound directions in the PM peak period. The travel speed at this location is below 70 percent of the posted speed in the westbound and eastbound directions in both the AM and PM peak periods. The average travel speed on Route 1A at Route 16 is also 15 miles per hour or less (LOS E/F) in the southbound direction in the AM and PM peak periods. The travel speed at this location is below 70 percent of the posted speed in the southbound direction in both the AM and PM peak periods.

Environmental Justice

The MPO has identified this area of Revere as an environmental justice community of concern. This project will ease a burden on the community by moving regional trips from the local roadways.

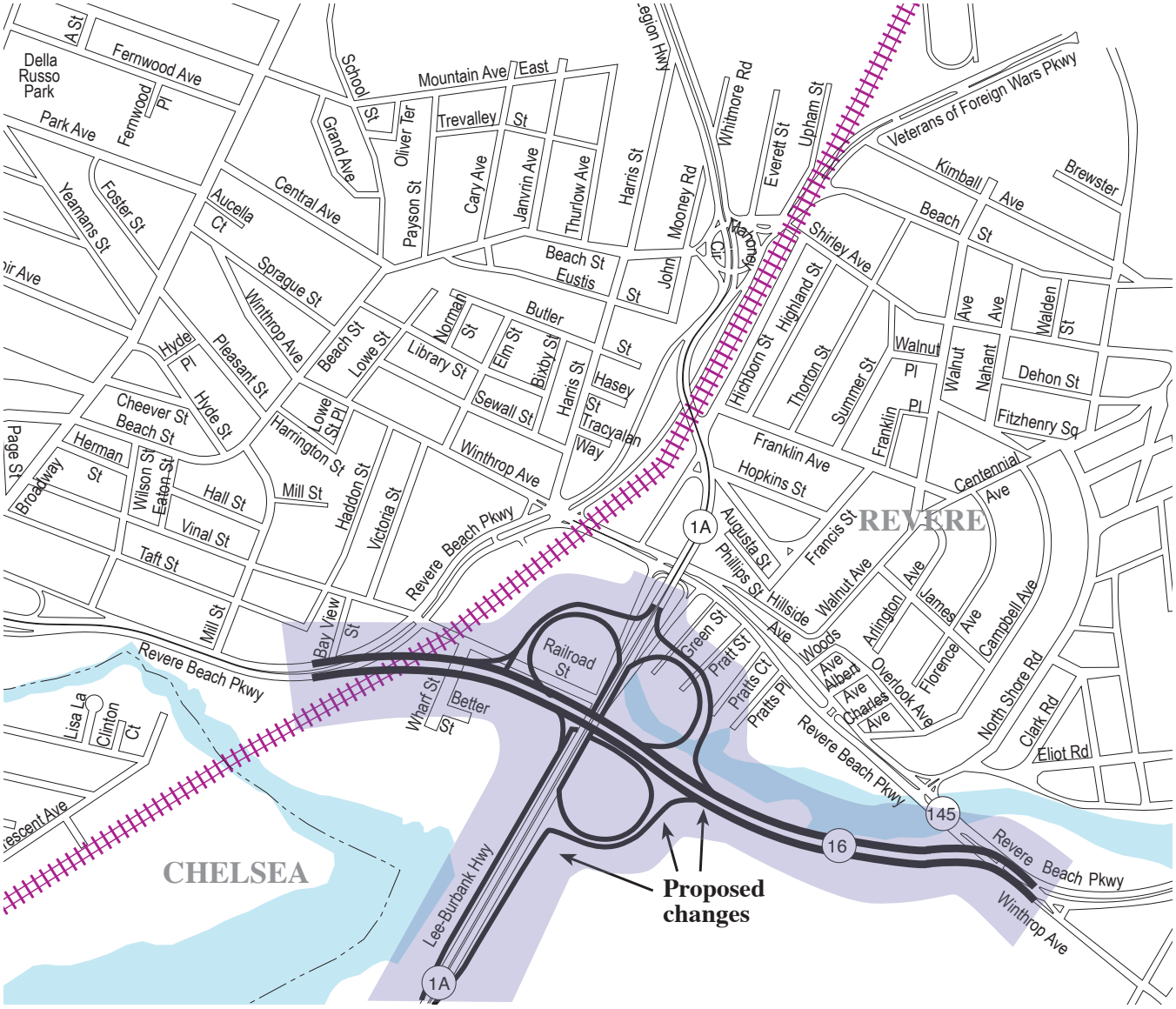
Note

According to the Lower North Shore Transportation Improvement Study (October 2000), a new connection between Route 1A and Route 16 (Revere Beach Parkway) will accomplish three objectives:

- Improve connections between the tunnels and Logan Airport and Route 1, using Route 1A and Route 16 (to be successful, improving these also requires an improved connection between Route 1 and Route 16)
- Provide a gateway to Revere Beach
- Move Route 16 traffic away from Mahoney Circle

This project is in close proximity to the Route 1/Route 16 connection project. The two projects will allow a direct connection between Routes 1 and 1A via Route 16, eliminating the need for regional traffic to utilize local streets. Both of these projects are components of a Lower North Shore transportation improvement scheme that includes: widening Route 1A from four lanes to six lanes between Curtis Street (north of Logan Airport) and Mahoney Circle in Revere; creating a direct express highway connection between Route 1A north of Logan Airport and the Chelsea Street Bridge to Chelsea; and grade-separating the intersection of Route 1A with Route 60 at Mahoney Circle in Revere.

MAP 13-24 Revere: Route 1A/Route 16 Connection



Salem: Boston Street ($2,300,000)

Description

Boston Street will be widened to three lanes between Route 107 and the Peabody city line to include a center turning lane.

Project's Context/Possible Impacts, by MPO Policy Area

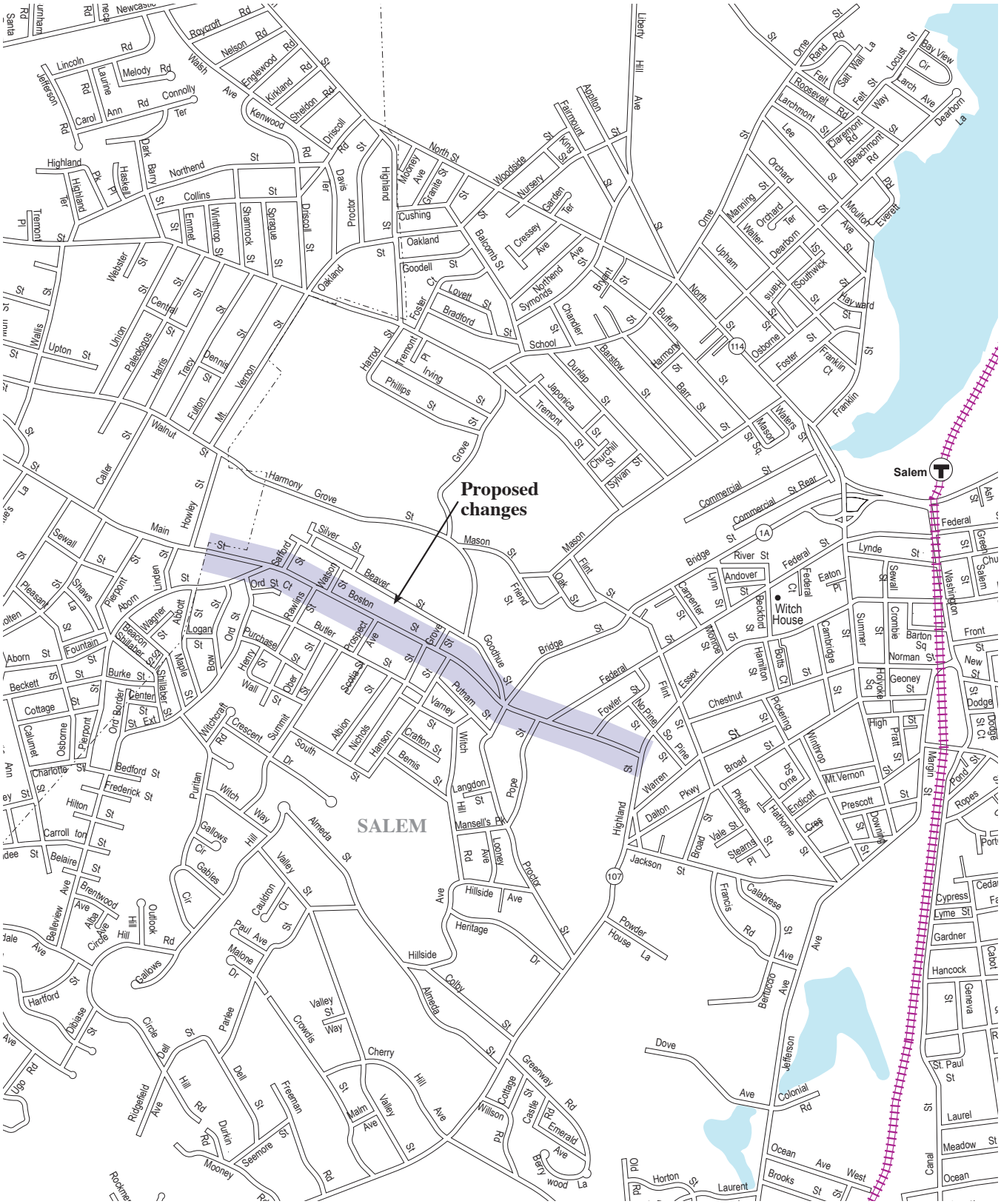
Land Use

This corridor of Boston Street is zoned for highway business and residential uses.

Mobility

According to the 2001/2002 Congestion Management System (CMS) data, the lowest speed captured by CMS monitoring was at Route 107 and Boston Street, where the average PM speed in the southbound direction was 9 mph. This speed is 70 percent less than the posted speed. Average PM delay in the southbound direction was 70 seconds. According to MassHighway traffic counts, the average daily traffic on Boston Street west of Essex Street is 22, 900 (2004 counts).

MAP 13-25 SALEM: BOSTON STREET



Salem: Bridge Street ($3,500,000)

Description

Bridge Street (Route 1A) from Flint Street to Washington Street will be widened to two lanes in each direction.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

A portion of this area of Bridge Street was recently rezoned to North River Canal Corridor Mixed Use District to encourage Mixed use redevelopment and a higher and better use of the land. A portion of the adjacent land remains residentially zoned for two-family use.

Safety

This project includes two high-crash locations—Bridge Street/North Street and Bridge Street/ Washington Street. Between 1999 and 2001, the Bridge Street/North Street intersection was the site of 75 crashes, of which 54 involved only property damage, 21 involved bodily injury. It ranked #445 on the list of the state's high-crash intersections. The Bridge Street/Washington Street intersection was the site of 54 crashes, of which 42 involved only property damage and 12 involved bodily injury. It ranked #969 on the list of the state's high-crash intersections.

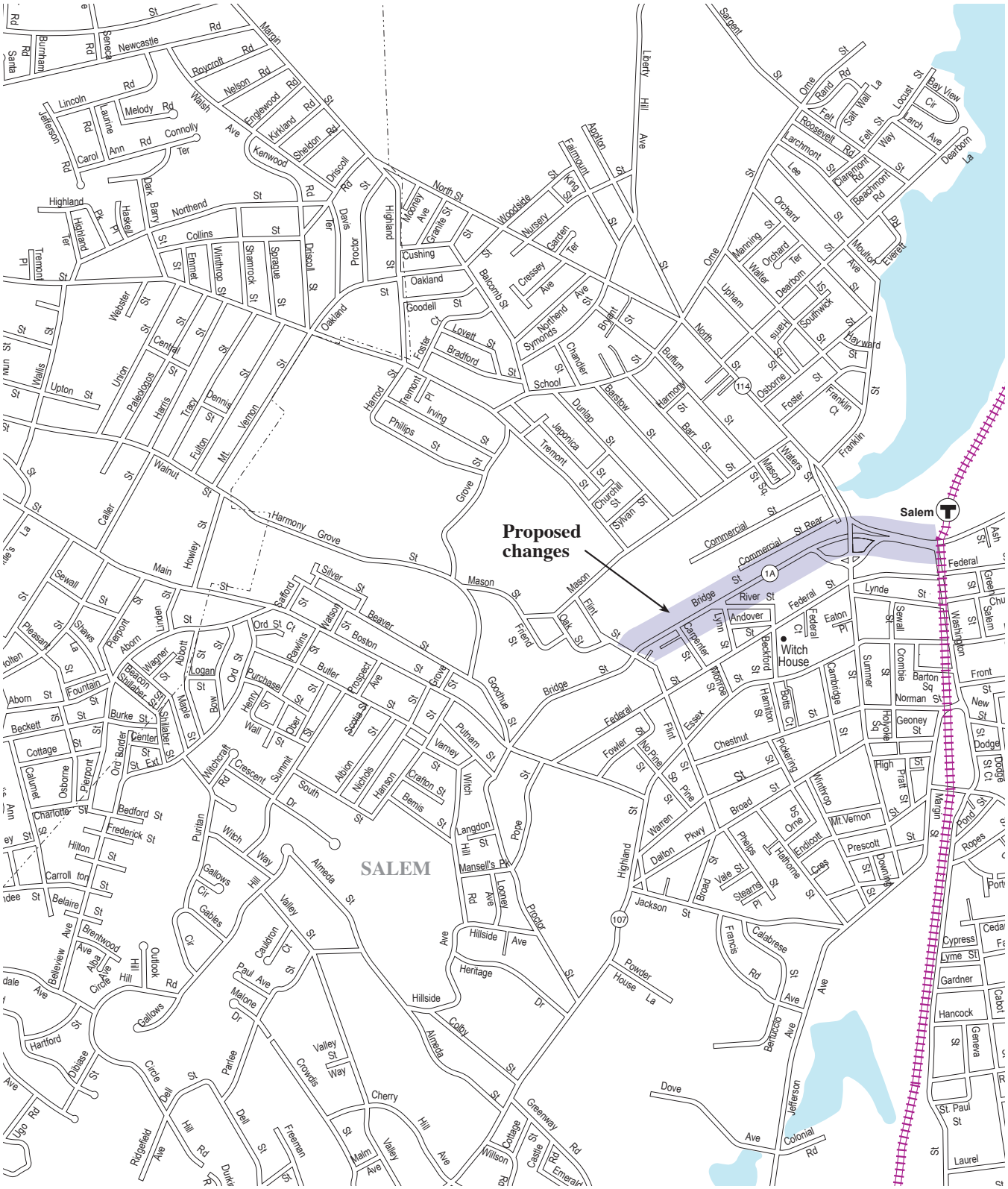
Mobility

According to MassHighway traffic counts, the average daily traffic on Bridge Street north of North Street is 23,900 vehicles (2004 figures).

Connectivity

The Salem commuter rail station is located in the vicinity of the project. The MBTA is working to expand parking at this commuter rail station. All MBTA buses that operate in Salem connect at this commuter rail station. The Bridge Street project will improve access to this site and, as envisioned, will enhance pedestrian access on Bridge Street and at the Washington Street rotary.

MAP 13-26 SALEM: BRIDGE STREET


Proposed changes
SALEM
Salem
Witch House
Bridge St
Federal St
Commercial St
Mason St
Derby St
Essex St
Pickering St
Boston St
Lafayette St
Washington St
Lynde St
Andover St
Flint St
Lafayette Sq
Hamilton St
Cambridge St
Summer St
Crombie St
Barton Sq
Norman St
Geoney St
Dodge St
Pratt St
High St
Mt Vernon St
Prescott St
Downing St
Margin St
Pond St
Ropes St
Chestnut St
Broad St
Warren St
Dalton Pkwy
Phelps St
Hathorne St
Endicott St
Winthrop St
Pine St
Jackson St
Francis St
Calabrese Ave
Bertuccio Ave
Jefferson Ave
Colonial Rd
Dove St
Powder House La
Hillside Ave
Heritage Dr
Colby St
Greenway Rd
Cherry Hill Ave
Valley St
Crowds St
Parlee St
Dell St
Paul Ave
Malone Dr
Gallows Hill Rd
Gallows Cir
Gables Cir
Witch Way
Witchcraft Rd
Crescent St
Summit St
South St
Puritan Rd
Hilton St
Carroll ton St
Frederick St
Bedford St
Charlotte St
Calumet St
Osborne St
Pierpont St
Cottage St
Beckett St
Burke St
Center St
Ord Border St
Shillaber St
Beacon St
Wagner St
Abbott St
Logan St
Boy St
Maple St
Henry St
Wall St
Ord St
Purchase St
Butler St
Prospect Ave
Rawlins St
Boston St
Watson St
Saffold St
Silver St
Beaver St
Ord St Ct
Lunden St
Pierpont St
Aborn St
Fountain St
Pleasant St
Sewall St
Howley St
Main St
Harmony Grove St
Wallis St
Webster St
Upton St
Union St
Paleologos St
Harris St
Tracy St
Dennis St
Fulton St
Mt Vernon St
Central St
Walnut St
Caller St
Emmet St
Winthrop St
Sharmock St
Sprague St
Driscoll St
Oakland St
Davis St
Proctor St
Highland St
Mooney Ave
Granite St
Cushing St
Goodell St
Lovett St
Bradford St
Foster Ct
Harod St
Tremont St
Irving St
Phillips St
Grove St
Goodhue St
Putnam St
Varney St
Witch St
Langdon St
Hill St
Mansell's Pk
Pope St
Proctor St
Looney Ave
Hillside Ave
Almeda St
Valley St
Cauldron Ct
Paul Ave
Malone Dr
Hartford St
Dibiase St
Circle St
Ridgefield Ave
Hill Rd
Dell St
Freeman St
Malm Ave
Wilson St
Cottage St
Castle Rd
Emerald St
Highland Ave
Highland Pl
Highland Ter
Haskell Pl
Dark Barry St
Northend St
Collins St
Tremont St
Pl
Webster St
Wallis St
Upton St
Union St
Paleologos St
Harris St
Tracy St
Dennis St
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Central St
Walnut St
Caller St
Howley St
Main St
Harmony Grove St
Sewall St
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Pierpont St
Aborn St
Fountain St
Beckett St
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Calumet St
Osborne St
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Charlotte St
Bedford St
Frederick St
Hilton St
Carroll ton St
Belaire St
Brentwood Ave
Belleview Ave
Outlook Hill Rd
Alea Ave
Circle Ave
Hartford St
Dibiase St
Ridgefield Ave
Hill Rd
Dell St
Freeman St
Malm Ave
Wilson St
Cottage St
Castle Rd
Emerald St
Greenway Rd
Cherry Hill Ave
Valley St
Crowds St
Parlee St
Dell St
Paul Ave
Malone Dr
Gallows Hill Rd
Gallows Cir
Gables Cir
Witch Way
Witchcraft Rd
Crescent St
Summit St
South St
Puritan Rd
Hilton St
Carroll ton St
Frederick St
Bedford St
Charlotte St
Calumet St
Osborne St
Pierpont St
Cottage St
Beckett St
Burke St
Center St
Ord Border St
Shillaber St
Beacon St
Wagner St
Abbott St
Logan St
Boy St
Maple St
Henry St
Wall St
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Purchase St
Butler St
Prospect Ave
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Boston St
Watson St
Saffold St
Silver St
Beaver St
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Pierpont St
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Harmony Grove St
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Upton St
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Caller St
Emmet St
Winthrop St
Sharmock St
Sprague St
Driscoll St
Oakland St
Davis St
Proctor St
Highland St
Mooney Ave
Granite St
Cushing St
Goodell St
Lovett St
Bradford St
Foster Ct
Harod St
Tremont St
Irving St
Phillips St
Grove St
Goodhue St
Putnam St
Varney St
Witch St
Langdon St
Hill St
Mansell's Pk
Pope St
Proctor St
Looney Ave
Hillside Ave
Almeda St
Valley St
Cauldron Ct
Paul Ave
Malone Dr
Hartford St
Dibiase St
Circle

Somerville: I-93/Mystic Avenue Interchange ($58,500,000)

Description

Construct a new underpass grade separating Route 28 northbound and convert the existing underpass to the exclusive use of Route 28 southbound. In addition, a new connector road will be constructed between Mystic Avenue and Middlesex Avenue and the Interstate 93 northbound off-ramp will be reconstructed to permit the connector road to have access to the Assembly Square Mall area. The Route 28 surface street system will operate in a one-way rotary-style system controlled by four coordinated traffic signals—one more than currently exists. Three other locations will also be coordinated with the four signals mentioned above: the Route 28/Assembly Square Mall entrance, the Mystic Avenue/Wheatland Street intersection, and the Middlesex Avenue/Assembly Square Connector.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project is located next to one of Somerville's central business districts. The northeast quadrant is designated as the Assembly Square Redevelopment District.

Safety

This project is located at a high-crash location—between 1999 and 2001, Route 28 at I-93 has been the site of 544 crashes, of which 328 involved only property damage, 215 involved bodily injury, and one involved a fatality. It ranked #1 on the list of the state's high-crash intersections. According to the Mystic Avenue/ Route 28/I-93 Interchange Improvement Study conducted by CTPS in 1994, the design of this project will eliminate short-weaving and merging conflicts and will improve sight distance and channelization.

Mobility

According to the Mystic Avenue/Route 28/Interstate 93 Interchange Improvement Study, the Route 28/Mystic Avenue southbound and the Route 28/Broadway intersections function at level of service F in the AM peak period. According to MassHighway traffic counts performed in 1995, the average daily traffic on Mystic Avenue north of Route 28 was approximately 40,000 vehicles, and on Route 28 south of Mystic Avenue it was 65,000 vehicles.

Connectivity

The I-93/Mystic Avenue interchange project is located at the intersection of two major roadways in the region and is serviced by three MBTA bus routes that access the MBTA's Sullivan Square Orange Line station and/or the Wellington Orange Line station. This improvement project is adjacent to the proposed Assembly Square Station project (the construction of an Orange Line station between Sullivan Square and Wellington stations), which is included in the Transportation Plan.

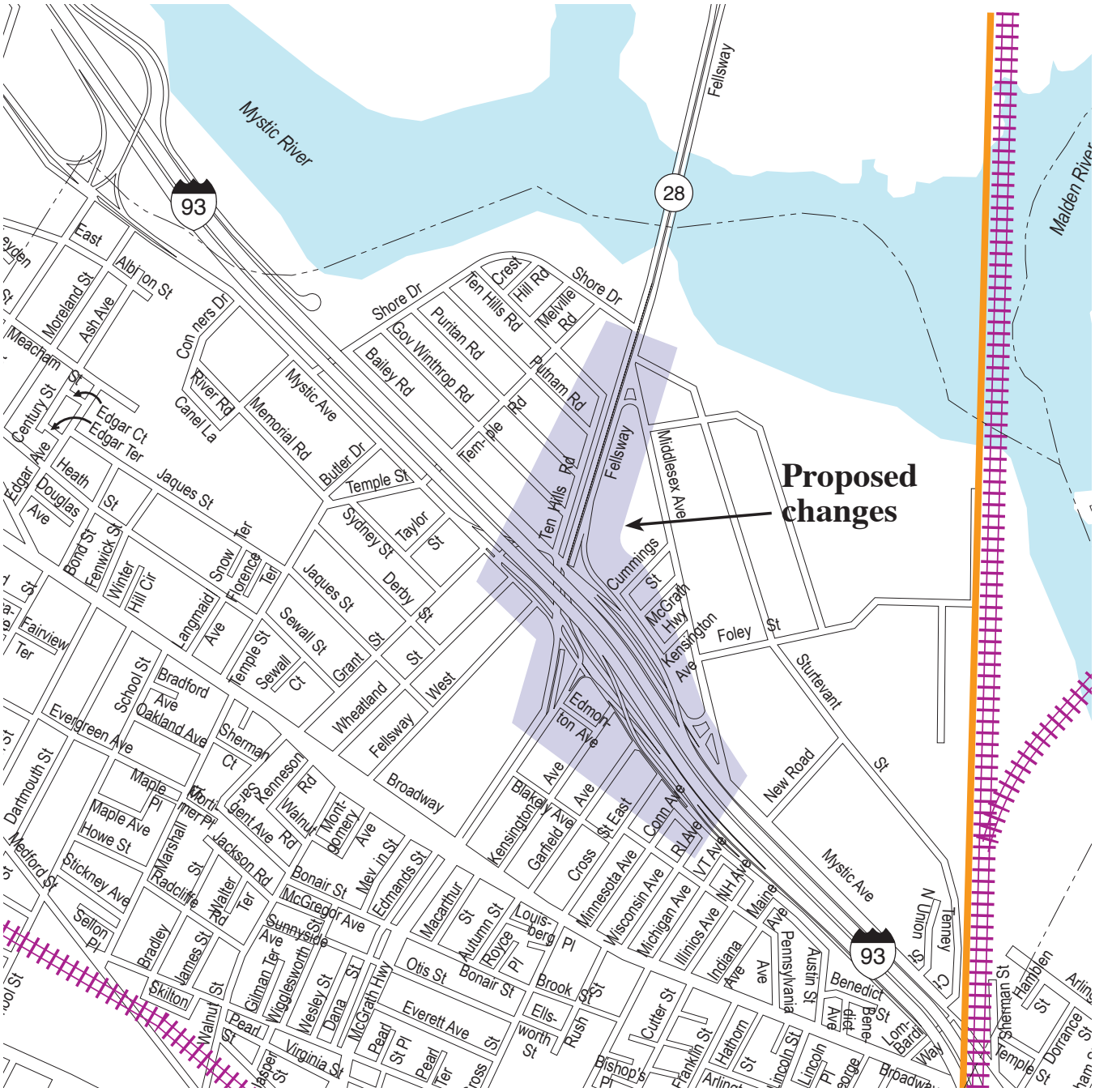
Economic Opportunities

The Assembly Square Redevelopment District is located in the vicinity of this project and has recently become the focus of proposed commercial development by the City of Somerville and private developers.

Note

The Central Transportation Planning Staff is conducting a corridor study of Route 28 from Route 16 in Medford to Land Boulevard in Cambridge. This interchange is included within the scope of study.

MAP 13-27 SOMERVILLE: I-93/MYSTIC AVENUE INTERCHANGE



Weymouth, Abington, Hingham, and Rockland: S. Weymouth Naval Air Station Access Improvements ($42,000,000)

Description

The primary benefit of this project is the facilitation of a significant economic development opportunity related to the reuse of the Naval Air Station. To support this reuse, the transportation improvements include:

- A new East-West Parkway through the Naval Air Station property establishing east-west connectivity between Route 18 and Route 3. The Parkway will be a median-divided, limited access boulevard consisting of two travel lanes in each direction.
- Specific alternatives have not been chosen for the two connections. The connection to the west will follow Reservoir Park Drive and Hingham Street to Route 3. It is expected that this corridor will be constructed to provide a consistent four-lane cross-section between the proposed parkway and Route 3.
- Proposed transit improvements may include new transit facilities and potential new services including shuttle bus service. The property is located in close proximity to the South Weymouth commuter rail station.

Improvements to Route 18 to the east in Weymouth have been included under a separate project.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Tri-Town is responsible for the redevelopment of the 1,400-acre former South Weymouth Naval Air Station. Current planning identified in the Revised Master Plan and Zoning By Laws approved in 2005 calls for mixed-use development on the site (Construction of 2,855 housing units—20 percent affordable and at least 400 reserved for senior housing, up to 2,000,000 sq. ft. of commercial and industrial space, a designated site for a school, a designated site for a community facility, an 18 hole golf course, playing fields and a multimodal transportation center).

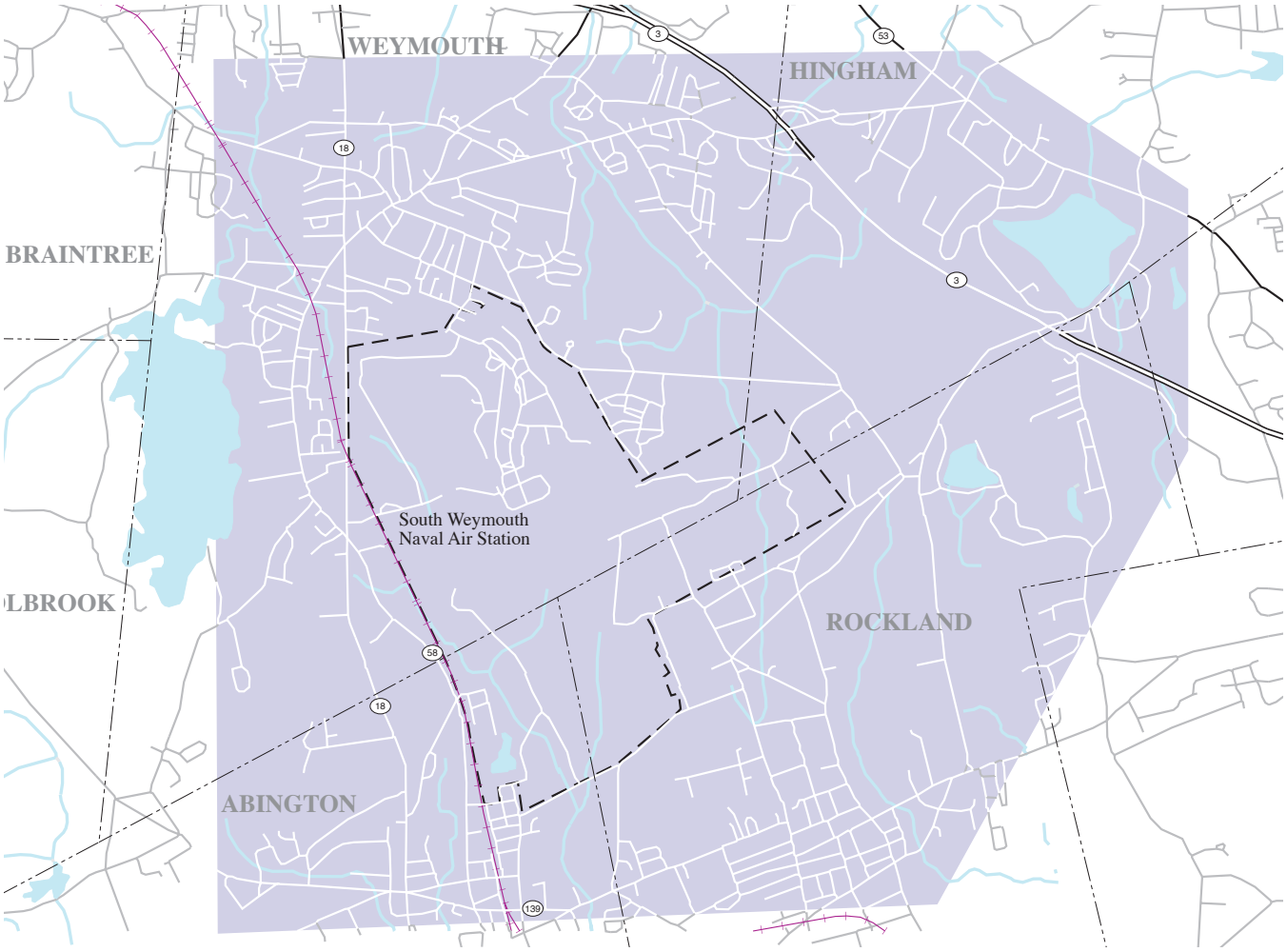
The project area (the redevelopment site and the surrounding communities, including the locations of the access improvements) includes areas of significant commercial and industrial land uses, including shopping centers, an industrial park, a hospital, and commercial corridors on roadways in the vicinity. There are also large areas of suburban, low- and medium-density residential development around the former Naval Air Station.

Safety

Between 1999 and 2001, the two interchanges and three of the intersections at which improvements are planned were classified as high-crash locations: Derby Street and Route 3 (Exit 15); Hingham Street (Route 228) and Route 3 (Exit 14); Whiting Street (Route 53) and Gardner Street; Whiting Street (Route 53) and Main Street (Route 228); Adams Street (Route 58) and North Avenue (Route 139).

- Route 3/Derby Street interchange (in Hingham) was the site of 116 crashes, of which 72 involved only property damage and 44 involved bodily injury. It ranked #152 on the list of the state's high-crash intersections.
- Route 3/Hingham Street (Route 228) interchange (in Rockland) was the site of 117 crashes, of which 71 involved only property damage and 46 involved bodily injury. It ranked #142 on the list of the state's high-crash intersections.
- Whiting Street (Route 53)/Main Street (Route 228) intersection (in Hingham) was the site of 76 crashes, of which 54 involved only property damage and 22 resulted in injuries. It ranked #427 on the list of the state's high-crash intersections.
- Adams Street (Route 58)/North Avenue (Route 139) intersection (in Abington) was the site of 40 crashes, of which 25 involved only

MAP 13-28 Weymouth, Abington, Hingham, and Rockland: S. Weymouth Naval Air Station Access Improvements



property damage and 15 resulted in injuries. It ranked #985 on the list of the state's high-crash intersections.

Mobility

A connector road will provide an additional link between Route 3 and Route 18, the region's two major north/south roadways, as well as an alternative access route to the redevelopment site. The connector road will also provide an additional link to the South Weymouth commuter rail station on the Plymouth Line, which is located on Route 18.

Connectivity

Tri-Town is working with the MBTA to explore several concepts for transit amenities, including additional parking at the South Weymouth commuter rail station and development of a multi-modal transit center linking rail, public and private bus services in the region, perhaps bus service to the Red Line in Braintree, and the Logan Express. The developer is considering electric shuttle bus service to link the station with work sites.

Economic Opportunities

The South Shore Tri-Town Development Corporation estimates that the development will result in 9,000 new jobs. The South Weymouth Access Study also estimates that jobs in neighboring towns will increase by approximately 6,600. Secondary employment growth is estimated at 8,500 above Metropolitan Area Planning Council and Old Colony Area Planning Council projections for 2020.

Weymouth: Route 18 Capacity Improvements Project ($24,000,000)

Description

Widen Route 18 to two continuous lanes in each direction (with four-foot shoulders) between Route 3 in Weymouth and Route 139 in Abington. Sidewalks will also be constructed. The Route 18 bridge over the MBTA Old Colony Line (to Plymouth) will be reconstructed and widened.

Intersection improvements (including additional left- and right-turn lanes and some roadway widening between intersections) on Route 18 at West Street, Park Avenue, Columbian Road, and Pond and Pleasant Streets are being constructed as separate projects.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

Zoning along the Route 18 corridor in Weymouth includes residential, highway transition, medical services (the South Shore Hospital and other related medical facilities), limited business, and general business. Zoning along Route 18 in Abington is industrial or highway commercial.

Safety

This project area includes three high-crash locations—Route 18/Route 3, Route 18/Middle Street, and Route 18/Park Avenue —all in Weymouth. Between 1999 and 2001, the Route 18/Route 3 intersection was the site of 200 crashes, of which 108 involved only property damage and 92 involved bodily injury. It ranked #45 on the list of the state's high-crash intersections. The Route18/Middle Street intersection was the site of 146 crashes, of which 104 involved only property damage and 42 involved bodily injury. It ranked #127 on the list of the state's high-crash intersections. The Route18/Park Avenue intersection was the site of 94 crashes, of which 64 involved only property damage and 30 involved bodily injury. It ranked #273 on the list of the state's high-crash intersections.

Mobility

According to MassHighway traffic counts, the average daily traffic volumes on Route 18 along this stretch of roadway are as follows:

Weymouth:

- North of Park Avenue (2000 counts) – 31,200 vehicles
- North of Trotter Road (1999 counts) – 25,200 vehicles
- North of Pond Street (2003 counts) – 26,200 vehicles

Abington:

- North of Route 139 (1999 counts) – 19,400 vehicles

Intersection analyses were performed as part of the South Weymouth Access Study in August 2000. The existing levels of service (LOS) during the PM peak period were as follows:

Weymouth:

- Route 18/West Street – LOS E
- Route 18/Park Avenue – LOS C
- Route 18/Columbian Street – LOS E
- Route 18/Pleasant Street – LOS D
- Route 18/Trotter Road – LOS D

Abington:

- Route 18/Route 139 – LOS D

According to 2002 Congestion Management System monitoring performed by CTPS, the average AM and PM speed on Route 18 in the northbound and southbound directions is calculated to be less than 15 mph for three segments of the roadway in the project area. The average travel speed on Route 18 is below 70 percent of posted speed along 25 segments in the northbound and southbound directions in the AM and

MAP 13-29 Weymouth: Route 18 Capacity Improvements Project

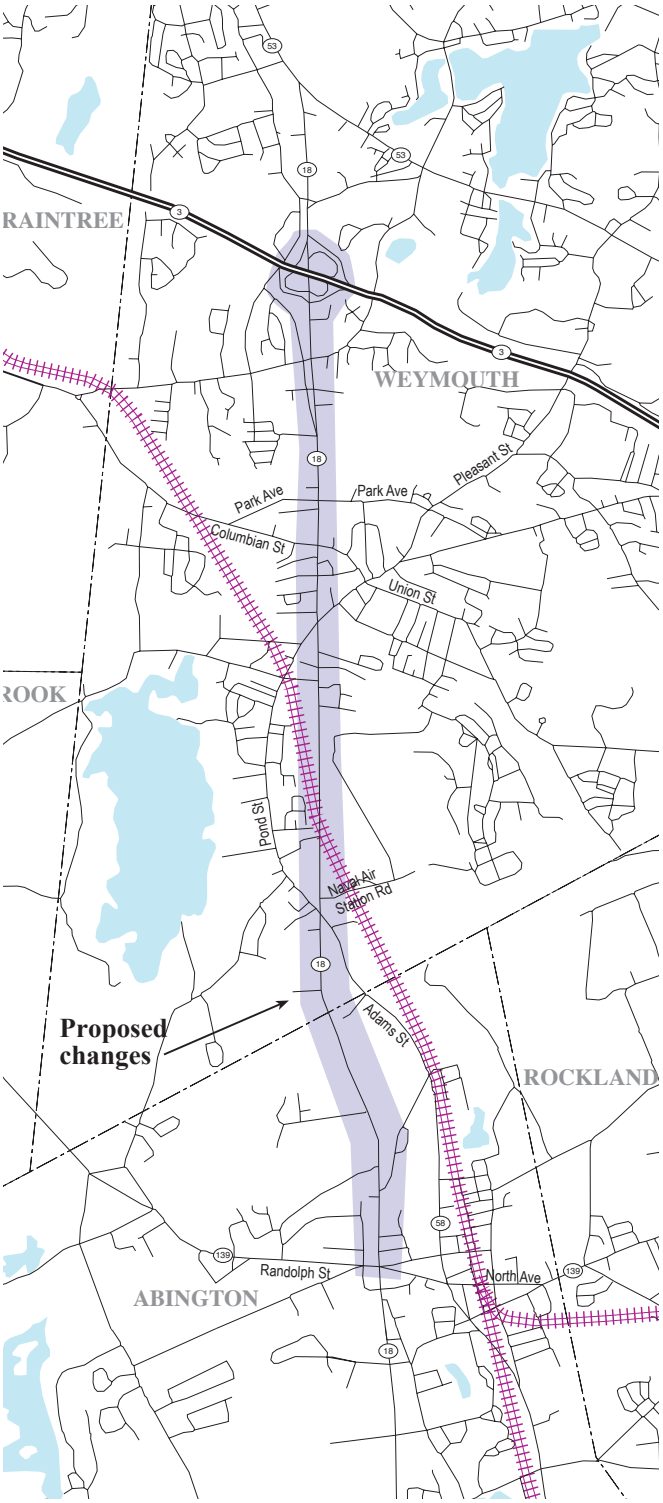
PM peak periods. Six signalized intersections in the project area are ranked in the top 25 most delayed intersections (monitored as part of the CMS roadway network) for the South Shore Coalition MAPC subregion in the PM peak period.

Connectivity

Route 18 provides access to the South Weymouth commuter rail station on the Plymouth Line. The South Shore Tri-Town Development Corporation, responsible for redevelopment of the South Weymouth Naval Air Station, is proposing an expanded, multimodal station in conjunction with the existing South Weymouth commuter rail station.

Economic Opportunities

This project is a component of the development plan for the former South Weymouth Naval Air Station, which involves the redevelopment of the 1,450-acre site, consistent with the Re-Use Plan formula. The South Shore Tri-Town Development Corporation foresees corporate office park, entertainment, and recreation uses, for the site, with more than 60 percent open space (recreational and conservation).



Weymouth to Duxbury: Route 3 South Additional Lanes ($210,600,000)

Description

Widen Route 3 from two lanes in each direction to three lanes in each direction from Weymouth (Exit 16 at Route 18) to Duxbury (Exit 11 at Route 14). It will restore the shoulder breakdown lanes, provide safety recovery zones, and upgrade interchange acceleration and deceleration lanes. The project also involves design configuration improvements at the interchange ramps at Exit 12 (Route 139 in Pembroke); related intersection improvements at highway ramps at Exits 11, 12, 13, and 15; and upgrades and expansions of the park-and-ride lots at Exits 12 and 14.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

More than 65 percent of the total land area in the Route 3 corridor communities is categorized as already developed, public open space, or land within water bodies; 34 percent is categorized as "remaining developable" land.

There is substantial existing commercial, office, and industrial development along the highway, particularly at the interchanges and where proximity to the highway provides visibility. Much of the land near the interchanges is zoned for these non-residential uses. There are wetlands in some areas along the roadway and also some residential development. Retail commercial uses are in place near all but the Exit 11 interchange in Duxbury, where wetland and open water exist. In addition, Exit 14 in Rockland has substantial industrial and office space in nearby industrial office parks and areas. Exit 15 has a nearby industrial park. Land use in Weymouth north of Exit 15 is both residential (including apartment and condominium complexes) and industrial.

Safety

Between 1999 and 2001, this project area included four interchanges that were classified as high-crash locations—Route 3/Derby Street, Route 3/Route 139, Route 3/Route 228, and Route 3/Route 18.

- The Route 3/Derby Street interchange (in Hingham) was the site of 116 crashes, of which 72 involved only property damage and 44 involved bodily injury. It ranked #152 on the list of the state's high-crash intersections.
- The Route 3/Route 139 interchange (in Pembroke) was the site of 121 crashes, of which 83 involved only property damage and 38 involved bodily injury. It ranked #175 on the list of the state's high-crash intersections.
- The Route 3/Route 228 interchange (in Rockland) was the site of 117 crashes, of which 71 involved only property damage and 46 involved bodily injury. It ranked #142 on the list of the state's high-crash intersections.
- The Route 3/Route 18 interchange (in Weymouth) was the site of 200 crashes, of which 108 involved only property damage and 92 involved bodily injury. It ranked #45 on the list of the state's high-crash intersections.

Mobility

According to MassHighway traffic counts, the average daily traffic volumes on Route 3 along this stretch of roadway are as follows:

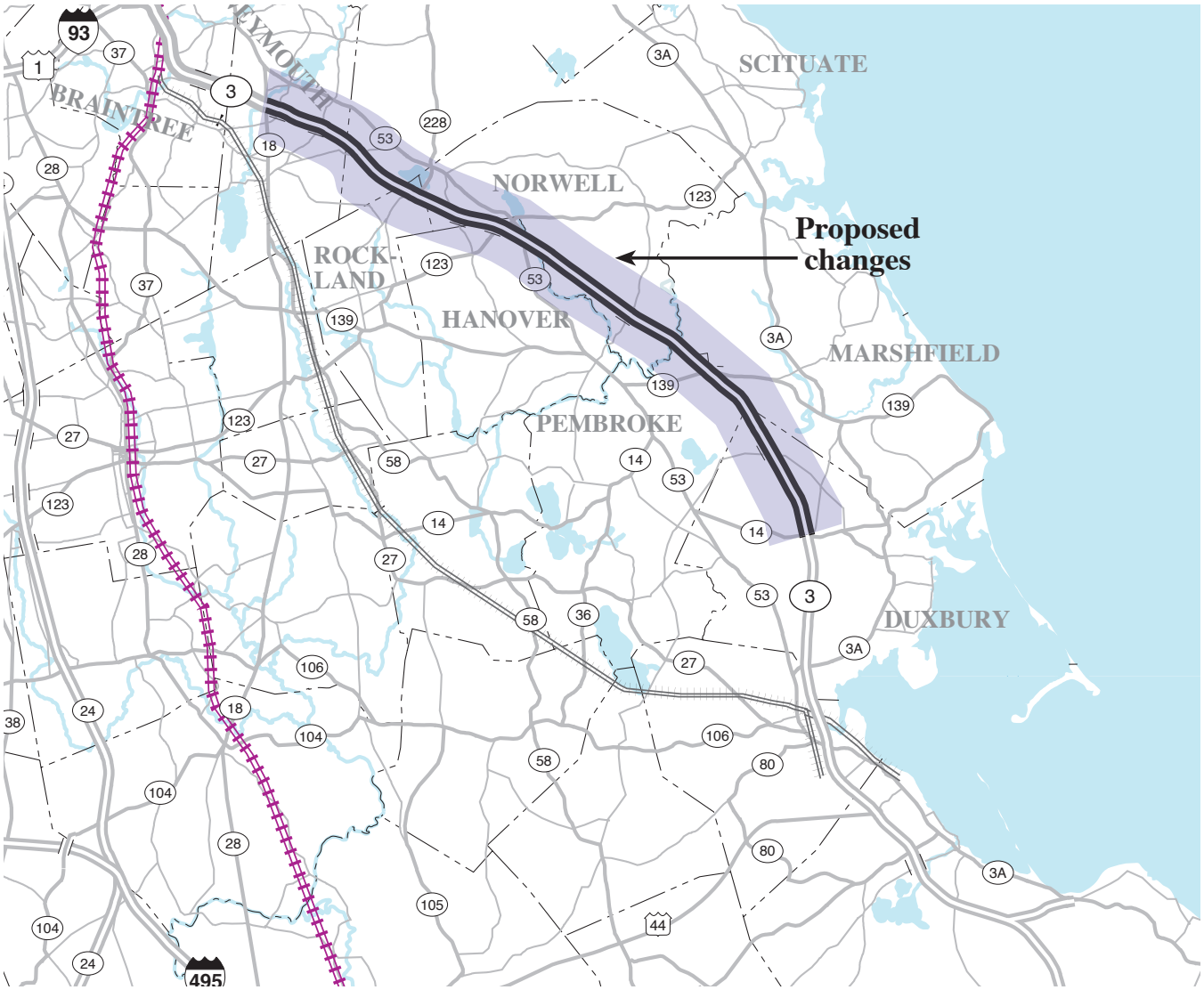
Weymouth:

- North of Route 18 Exit 16 (2004 counts) – 138,400 vehicles
- South of Route 18 Exit 16 (2003 counts) – 98,200 vehicles

Hingham:

- North of Derby Street Exit 15 (1998 counts) – 97,900 vehicles
- Between Exits 14 and 15 (2004 counts) – 103,800 vehicles

MAP 13-30 Weymouth to Duxbury: Route 3 South Additional Lanes



Norwell:

- Between Exits 13 and 14 (2001 counts) – 76,000 vehicles
- South of Exit 13 (2001 counts) – 60,300 vehicles

Pembroke:

- At the Marshfield town line (2003 counts) – 62,300 vehicles

Duxbury:

- North of Exit 11 (2001 counts) – 53,900 vehicles

According to traffic analyses performed for the supplemental draft environmental impact report, existing levels of service are E or F over much of the project area in both the AM and PM peak hours. Congestion has increased to the point that the State Police, MassHighway, and the Federal Highway Administration agreed to allow the use of the breakdown lane as a travel lane during peak periods.

Wilmington and Reading: I-93/Route 129 Interchange Improvement Project ($17,500,000)

Description

Reconstruct the Interstate 93/Route 129 (Lowell Street) interchange by:

- Constructing elevated slip ramps connecting I-93 northbound and southbound to Route 129 eastbound and westbound
- Widening the existing Route 129 bridge over I-93
- Widening the existing Route 129 bridge over the Boston-Maine Railroad
- Relocating the intersection of Route 129 and West Street and realigning the intersection of Woburn Street and Route 129
- Upgrading the signals at the intersections of Route 129/West Street and Route 129/Woburn Street
- Widening Route 129 from two lanes to four lanes from the I-93 interchange to Woburn Street, a distance of approximately one mile.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The project area adjacent to the interchange in the northwest quadrant in Wilmington is zoned for business use, while the land to the south is zoned for general industry. All other land within the project area is zoned for residential use. The land in Reading within the project area is zoned for residential use.

Safety

This project area includes two high-crash locations. Between 1999 and 2001, the I-93/Route 129 interchange was the site of 128 crashes, of which 84 involved only property damage and 44 involved bodily injury. It ranked #136 on the list of the state's high-crash intersections. The Route 129/Woburn Street intersection was the site of 56 crashes, of which 37 involved only property damage and 19 involved bodily injury. It ranked #609 on the list of the state's high-crash intersections.

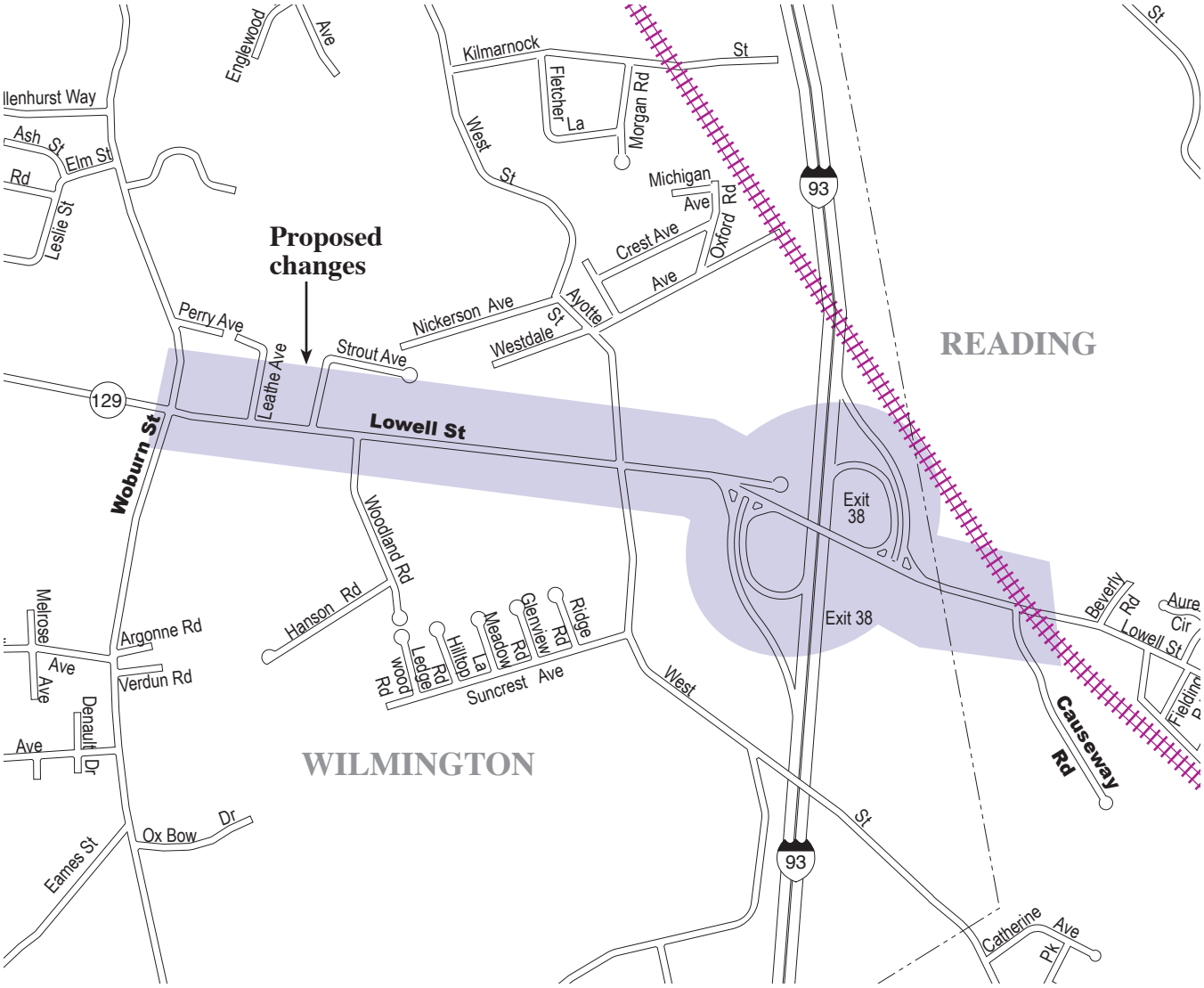
Mobility

According to MassHighway traffic counts performed in 1997 on Route 129 west of I-93, the average daily traffic (ADT) was 26,400 vehicles, while the ADT on Route 129 east of Interstate 93 was 15,700 vehicles. The Functional Design Report indicates that the existing levels of service (LOS) at the intersections in the study area are as follows:

- I-93 NB ramp/Route 129 – LOS C (AM peak hour) and LOS B (PM peak hour)
- I-93 SB ramp/Route 129 – LOS B (AM peak hour) and LOS D (PM peak hour)
- Route 129/West Street – LOS C (AM peak hour) and LOS C (PM peak hour)
- Route 129/Woburn Street – LOS F (AM peak hour) and LOS E (PM peak hour)

According to 2001 Congestion Management System (CMS) travel monitoring performed by CTPS, the average delay on Route 129 in the project area is greater than one minute in the eastbound and westbound direction in the AM and PM peak periods. In addition, the Woburn Street/Route 129 intersection is tentatively ranked the fifteenth most delayed intersection (monitored through the CMS program) for the North Suburban Planning Council subregion in the PM peak period.

MAP 13-31 Wilmington and Reading: I-93/Route 129 Interchange Improvement Project



Woburn: New Boston Street Bridge ($2,400,000)

Description

Construct a bridge on New Boston Street at the northern end of Woburn Industrial Park where New Boston Street crosses the MBTA Lowell Branch commuter rail line to Woburn Street in Wilmington. This connection existed until approximately thirty years ago, when the bridge was destroyed by fire; it was never reconstructed.

Project's Context/Possible Impacts, by MPO Policy Area

Land Use

The majority of the land in the New Boston Street area in Woburn is zoned for industrial use, and existing development in the area is primarily commercial/industrial. With the recent opening of the Anderson Regional Transportation Center (RTC) and the I-93 Industriplex interchange, the City of Woburn anticipates additional office and retail development in the project area over the next few years. Just north of the proposed project, in Wilmington, the land is zoned as industrial and includes Southeast Wilmington Industrial Park. Further north on Woburn Street in Wilmington and south of Route 129, the land is zoned as residential.

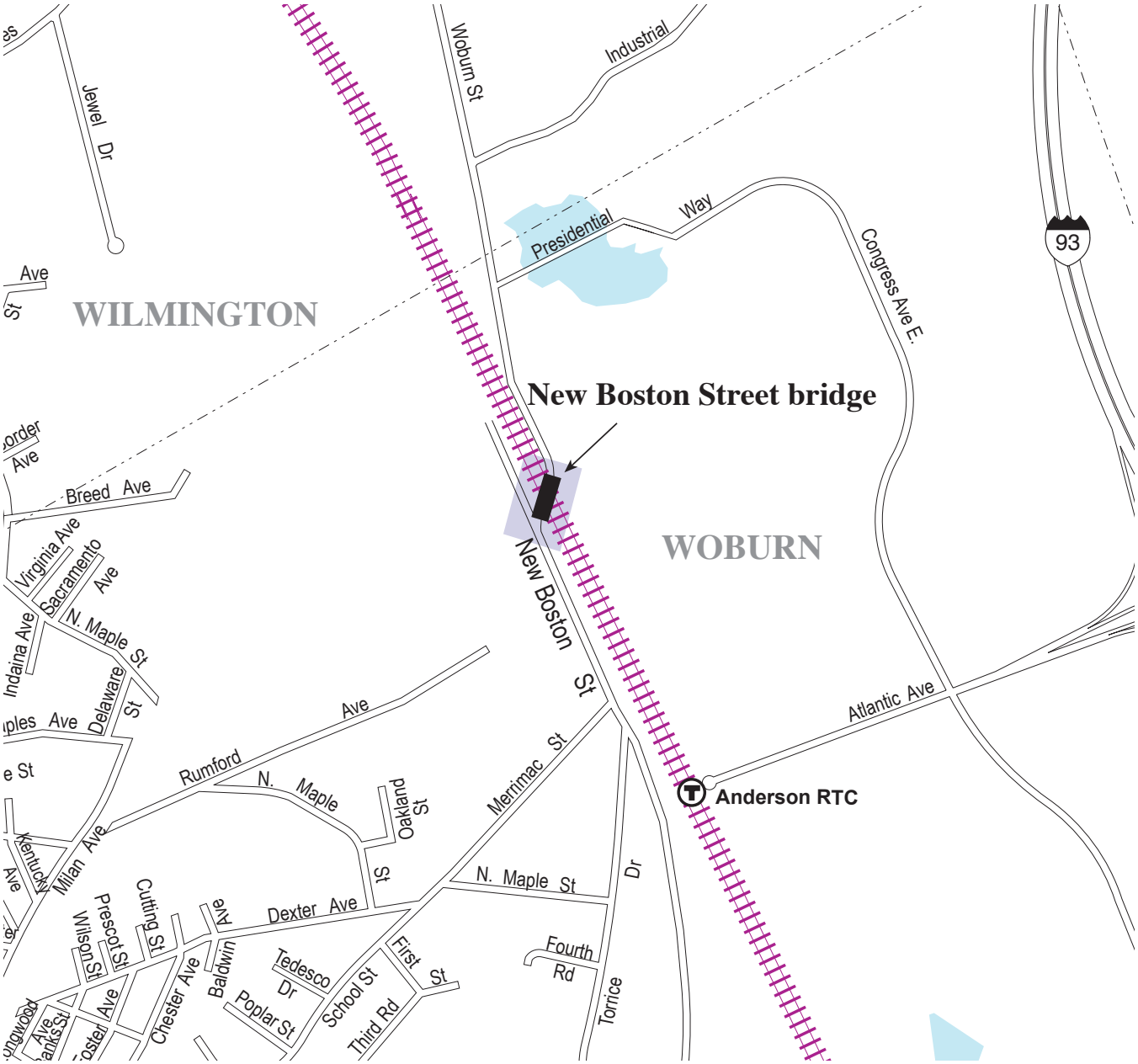
Mobility

No traffic studies have been performed to date; however, the opening of this bridge would provide a second means of access to the growing Industriplex area for residents of Wilmington and communities to the north, as well as for emergency vehicles from the North Woburn fire station.

Connectivity

The Anderson Regional Transportation Center is located just south of the proposed New Boston Street Bridge. The new bridge would provide an additional automobile access point for the park-and-ride and transit services offered at this center.

MAP 13-32 Woburn: New Boston Street Bridge



Transit Projects in the Recommended Plan

Table 13-4 lists the transit projects funded under the capacity expansion program, their total costs for the period of construction, and when they are projected to be completed. A brief project description of each project and its cost for the period of construction is provided below. The location of each project is shown in Figure 13-1.

TABLE 13-4

Expansion Transit Projects in the Recommended Plan, with Costs

	2007-2010	2011-2020	2021-2030	TOTAL
ONGOING NO-BUILD PROJECTS				
GREENBUSH COMMUTER RAIL LINE (BOSTON TO SCITUATE)	$151,000,000			$151,000,000
SILVER LINE, PHASE II (SOUTH BOSTON PIERS TRANSITWAY)	$31,000,000			$31,000,000
RECOMMENDED PROJECTS				
SIP COMMITMENTS (REGION)[4]	$160,000,000	$583,130,000		$743,130,000
URBAN RING PHASE 2 (COMPACT COMMUNITIES)	$24,000,000	$1,930,000,000		$1,954,000,000
NORTH SHORE TRANSIT IMPROVEMENTS (REVERE TO LYNN)	$19,500,000	$676,100,000		$695,600,000
SILVER LINE PHASE III (BOSTON)		$1,067,484,000		$1,067,484,000
100 ADDITIONAL BUSES TO IMPROVE SERVICE ON EXISTING ROUTES (REGIONWIDE)[5]		$68,428,000		$68,428,000
ASSEMBLY SQUARE ORANGE LINE STATION (SOMERVILLE)[6]		$25,000,000		$25,000,000
RUSSIA WHARF FERRY TERMINAL (BOSTON)	$2,200,000			$2,200,000
TOTAL	**$387,700,000**	**$4,350,142,000**	**$0**	**$4,737,842,000**

[4] See the description of SIP Commitment projects for the list of projects.

[5] The cost shown is not the total cost: operation of these buses will require construction of a new maintenance facility at a significant additional cost.

[6] Total funding for Assembly Square is $40 million. The $25 million programmed here is the amount of federal and state funds currently earmarked for the project. The remaining $15 million will be funded with non-MPO revenues (developer, local, etc.).

Boston Region: State Implementation Plan Projects ($743,130,000)

Description

The Massachusetts Department of Environmental Protection (DEP) has a State Implementation Plan (SIP) that contains procedures and programs to monitor, control, maintain, and enforce compliance with all national air quality standards. Specific projects are included in the SIP as mitigation measures for the Central Artery/Tunnel project. Implementation of these projects is required in order to provide air quality benefits in the region. The three projects that have not yet been completed are:

- Green Line Arborway Restoration
- Red Line–Blue Line Connector
- Green Line Extension to Ball Square/Tufts University

In December 2004, EOT and DEP were interested in reevaluating these projects to ensure that any further investments fund the best regionally significant projects to meet air quality goals and requirements. This was largely because transportation planning and decision-making have changed significantly since adoption of these Central Artery SIP commitments.

The process, which has been ongoing, included a number of phases, including: public outreach and air quality goal-setting, and the evaluation of the original and alternative SIP projects. DEP has proposed SIP revisions on the regulatory changes and submitted them to the U. S. Department of Environmental Protection (USEPA). They include substituting, for the projects listed above, the following projects:

- Fairmount Line improvements consisting of enhancements to existing stations and the addition of four new stations
- 1,000 new park-and-ride spaces serving commuter transit facilities within the Boston Region MPO area
- Complete final design of the Red Line–Blue Line Connector
- Green Line Extension from Lechmere Station to Medford Hillside with a spur to Union Square in Somerville

The SIP revisions are now being reviewed by USEPA and were not finalized before this Plan was adopted. The MPO is required to include all current SIP projects in the recommended Plan to comply with federal air quality regulations. Since the substitute projects were not approved prior to Plan adoption, JOURNEY to 2030 includes the three original projects—Green Line Arborway Restoration, Red Line–Blue Line Connector, and Green Line Extension to Ball Square/Tufts University—for air quality modeling purposes. Once the substitute projects are approved by USEPA, the MPO will revise JOURNEY to 2030 to include the new projects. The dollar amount included ($743,130,000) for the SIP projects is adequate to fund either the current set of projects (Green Line Arborway Restoration, Red Line-Blue Line Connector, and Green Line Extension to Ball Square/Tufts University) or the proposed substitute projects (Fairmount Line improvements, 1,000 new park-and-ride spaces, final design of the Red Line-Blue Line Connector, and Green line Extension from Lechmere Station to Medford Hillside with a spur to Union Square in Somerville).

Regionwide: Purchase 100 New Buses ($68,428.000)

Description

The proposal calls for expanding the MBTA bus fleet by 100 vehicles. These additional buses would allow for improved service frequencies on 50 bus routes serving the inner 14 communities of the MBTA service area, including Boston. Routes projected to receive increased service are those with crowding problems, as well as routes operating infrequent service through neighborhoods with high density and high transit-dependent populations. Service would be improved in both the peak and off-peak periods.

Note

The MBTA is currently evaluating the maintenance infrastructure needed to support the existing MBTA bus fleet. An additional maintenance infrastructure would be needed to maintain the 100-vehicle expansion of the bus fleet. The cost for this maintenance infrustructure is not included in the $68.428 million.

Compact Communities: Urban Ring Phase 2 ($1,954,000,000)

Description

The Urban Ring is a proposed system of public transit improvements that is designed to provide a new transit line through a circumferential corridor, or "ring," located roughly one to two miles outside of downtown Boston. The Urban Ring corridor passes through parts of Boston, Chelsea, Everett, Medford, Somerville, Cambridge, and Brookline, and it includes many of greater Boston's fastest growing areas. Phase 2 would consist principally of bus-rapid-transit (BRT) service in the corridor and is the subject of the current planning process.

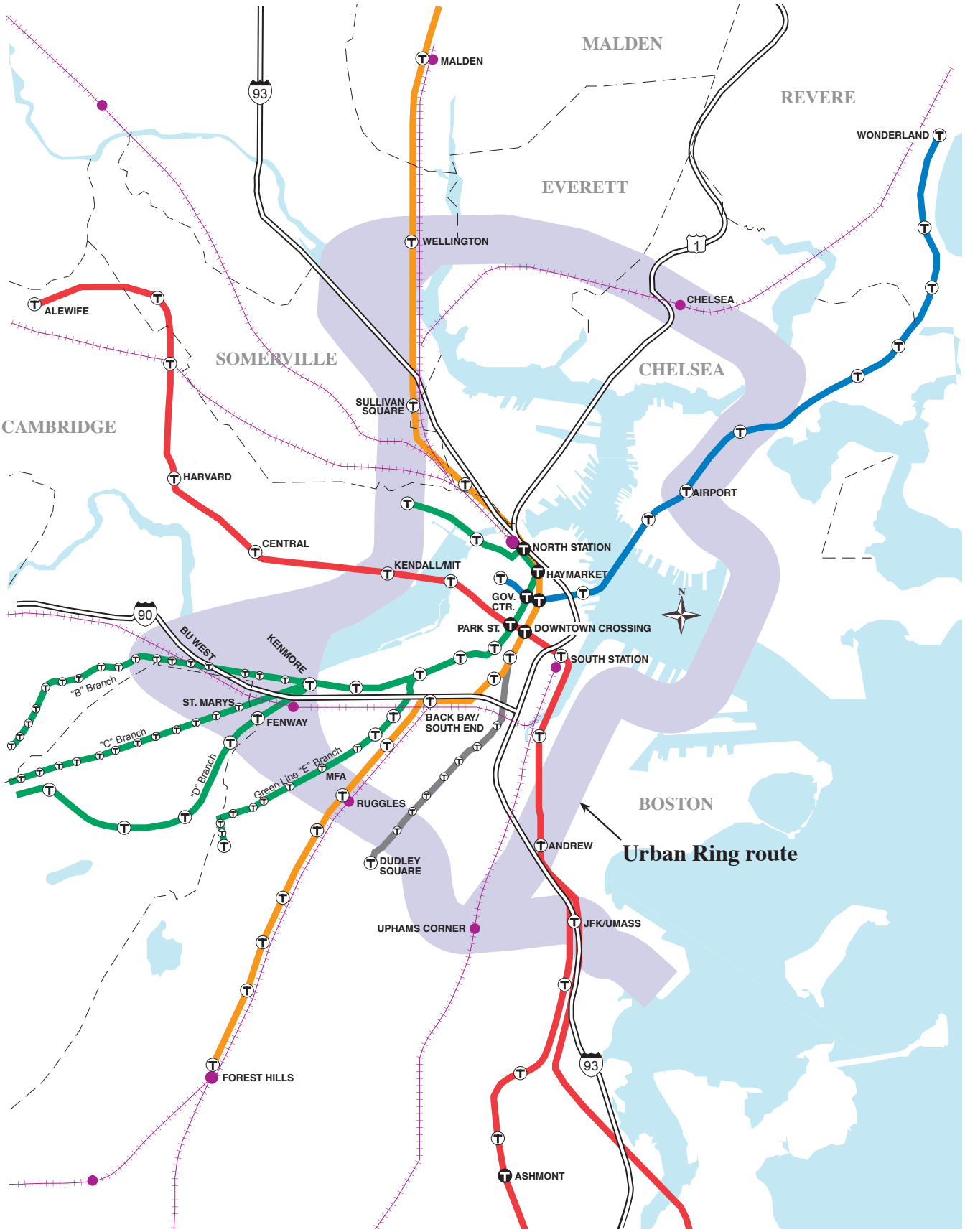
The Urban Ring Phase 2 would provide a system of overlapping BRT routes in the corridor. These would improve transit access and mobility for people in the corridor and throughout the region by providing more direct connections between origins and destinations within the Urban Ring corridor, and by providing transfer connections to the MBTA's existing radial rail transit and commuter rail network. In addition to the system of BRT routes, the Urban Ring Phase 2 project would create new stations on some existing commuter rail lines and would add feeder bus service to enhance connectivity in the Urban Ring corridor.

In 2006, the Executive Office of Transportation undertook a comprehensive public involvement process, working through an active Citizens Advisory Committee as well as general public meetings, smaller neighborhood briefings, and briefings for legislators and public agencies. To date, the project team has reviewed a series of over 40 possible routes, which have been compiled into a set of the following four alternatives.

- Alternative 1 – This alternative is based on the Locally Preferred Alternative developed in the Draft Environmental Impact Report, which was completed in 2004. It entails surface BRT routes, including a portion of dedicated right-of-way (either bus lanes or special bus-only roadways).
- Alternative 2 – This alternative also entails surface BRT routes, with a higher proportion (approximately 50 percent) of dedicated bus lanes or bus-only roadways.
- Alternative 3 – This alternative adds tunnel sections in some segments of the corridor, most notably through the Longwood Medical Area (LMA), which is the most congested and physically constrained area of the Urban Ring corridor.
- Alternative 4 – This alternative has a longer tunnel segment, extending through the LMA to Cambridge and/or Allston.

The project team is now engaged in providing information and gaining feedback on those alternatives, and is beginning the process of evaluating benefits, impacts, and costs. The project team will complete the technical analysis by April 2007, compare alternatives and develop a preferred alternative during April and May of 2007, and designate a preferred alternative and a strategy for phasing and minimum operating segments by June 2007.

MAP 13-33 Compact Communities: Urban Ring Phase 2



Revere to Lynn: North Shore Transit Improvements ($695,600,000)

Description

Blue Line Extension via Eastern Route Mainline

This project would consist of maintaining the existing Wonderland Station and constructing a connection to the Eastern Route Main Line (ERML) right-of-way that runs from north of the station to Lynn. This alternative utilizes a portion of the former Narrow Gauge right-of-way (the former Boston, Revere Beach, and Lynn Railroad) to a point just north of Revere Street, where a new set of elevated tracks would be constructed, running northwest for approximately 2,400 feet before joining the ERML approximately 250 feet south of Bridge Street. Through the Rumney Marsh area, the Blue Line would be constructed on a separate trestle approximately 80 feet east of the ERML embankment. At the Saugus River, the Blue Line extension alignment would cross the Saugus River on a new high-level, fixed-span bridge.

North of the Saugus River, the Blue Line extension would share the ERML right-of-way through Lynn with the two existing MBTA commuter rail tracks. The Blue Line tracks would remain elevated after crossing the Saugus River to enable a grade-separated crossing of the General Electric (GE) Riverworks complex. Immediately north of the GE Riverworks complex, the Blue Line tracks would descend to grade on the east side of the commuter rail tracks, sharing the embankment with the two commuter rail tracks. New bridges at Commerce Street, Shepard Street, Blossom Street, and Pleasant Street would be needed to accommodate the new tracks.

At Lynn Station, the existing commuter rail tracks and center-island platform would be retained. A new center island platform east of the existing platform would serve the Blue Line extension. To make the transfer between commuter rail and the Blue Line, passengers would descend from one platform to street level and then ascend to the other platform.

MAP 13-34 Revere to Lynn: North Shore Transit Improvements

Boston: Silver Line Phase III: South Station–Boylston Connector ($1,067,484,000)

Description

The third phase of the Silver Line is composed of a double-barrel bus-rapid-transit (BRT) tunnel that will connect the existing Silver Line service on Washington Street (which opened in 2002) to the existing Silver Line service on the South Boston Waterfront (which opened in 2004). The project includes two stations: one to connect to the Green Line at Boylston Street Station and one to connect to the Orange Line at Chinatown Station. The tunnel also includes a portal (where the vehicle transitions from the surface to underground) along Tremont Street near Marginal Road, adjacent to the Bay Village and Chinatown neighborhoods. Upon its completion, transit customers in Lower Roxbury and the South End will have direct access to the existing subway systems (with connections to the Green, Orange, and Red Lines) as well as direct access to the South Boston Waterfront and Logan International Airport.

MAP 13-35 Boston: Silver Line Phase III: South Station–Boylston Connector

Somerville: Construct Orange Line Station at Assembly Square ($40,000,000)

Description

This project would involve adding a new Orange Line station in Somerville. The station would be located between the existing Wellington Station in Medford and the existing Sullivan Station in the Charlestown section of Boston. The distance between Wellington and Sullivan stations is just over one mile, and current MBTA schedules show the travel time between stations as three minutes.

The new station would be located on the eastern edge of Somerville's Assembly Square redevelopment area. This 145-acre area is the city's largest redevelopment site, and has been the subject of some local controversy with competing visions of either dense, mixed-use development, or more automobile-oriented big-box retail development.

The proximity of Wellington and Sullivan Stations, the existing routing of MBTA bus routes to those stations, and their respective sites at major junctions of the highway network suggest that most of the passengers using a new station at Assembly Square would be traveling to or from the redevelopment area.

A new station at Assembly Square is anticipated to extend the Orange Line run time by two minutes and seven seconds. This added travel time will require an additional 6-car train set to support peak-period operations.

MAP 13-36 Somerville: Construct Orange Line Station at Assembly Square

Boston: Ferry Expansion – Russia Wharf/South Station ($2,200,000)

Description

This project would consist of implementing a new ferry route in Boston Inner Harbor, from the existing terminal at the Charlestown Navy Yard to a new terminal at Russia Wharf, which is located in Fort Point Channel at Congress Street. The construction at Russia Wharf is a CA/T legal commitment.

Note

The cost includes the construction of Russia Wharf ($2,200,000). The legal commitment of the Commonwealth is only the construction of the Wharf. The MPO is carrying the cost of the Wharf in the expansion category. Service would be provided by others.

MAP 13-37 Boston – Ferry Expansion: Russia Wharf/South Station

Projects Included in Other MPO Areas

The Boston Region MPO has included additional projects that are funded in other MPO areas and that affect travel within the Boston region. A list of these projects with the time frame of construction, is shown in Table 13-5. The MPO has also included these projects in the travel demand model for air quality conformity purposes. A brief description of each project and its costs for the time period of construction is also provided.

TABLE 13-5

Projects Included in Other MPO Areas and Endorsed by the Boston Region MPO

RESPONSIBLE MPO	PROJECT NAME	TIMEFRAME OF CONSTRUCTION
MERRIMACK VALLEY MPO	LOWELL JUNCTION INTERCHANGE	2011–2020
SOUTHEAST MASS. MPO	FALL RIVER/NEW BEDFORD COMMUTER RAIL	2011–2020
MONTACHUSETT MPO	FITCHBURG COMMUTER RAIL	2011–2020
CENTRAL MASS. MPO	I-90/I-495 (WESTBOROUGH AND HOPKINTON)	2021–2025
CENTRAL MASS. MPO	I-495/ROUTE 9 INTERCHANGE (WESTBOROUGH AND SOUTHBOROUGH)	2026–2030

Wilmington, Tewksbury, and Andover: Lowell Junction

Description

This project includes constructing a new highway interchange on Interstate 93 between Exit 42 (Dascomb Road) and Exit 41 (Route 125). The new interchange would provide improved access from Interstate 93 to the industrial and office properties in the Lowell Junction area (at the Tewksbury/Wilmington border). The project would also include the construction of a connection to a planned extension of Burtt Road to Ballardvale Street and the widening of I-93 to four lanes from the existing lane drop at the Wilmington/Tewksbury line to Exit 42 in Tewksbury.

Project's Context/Possible Impacts, by Relevant MPO Policy Area

Land Use

The area of the proposed interchange is located where the towns of Andover, Wilmington, and Tewksbury come together. Land use in the area of the proposed interchange in Andover is currently zoned Industrial. Land in the study area in Wilmington is also zoned Industrial, while land in Tewksbury is zoned as both Residential and Industrial.

Some of the land near the proposed interchange is available for future development, while the remainder is subject to absolute development constraints, according to the Executive Office of Environmental Affairs/Metropolitan Area Planning Council buildout analysis. However, the three communities have embarked on a cooperative effort to explore a new, unified land use development plan in the area that is consistent with the Commonwealth's sustainable development goals. This approach has been undertaken because officials in each community have recognized the development opportunities that construction of an interchange will bring to the area, and have concluded that establishing a coordinated land use plan will maximize the benefit that each community would receive from the project.

In support of this effort, the communities have hired a consultant to assist them in developing a shared community vision of the area, with the goal of developing "a broad policy statement of the type and character of development which each of the three communities wishes to achieve; the underlying community benefits and impacts that each wishes to manage; and the means by which to achieve these goals."[7] The consultant team is currently working with the Junction Route 93 Development Area Task Force to define alternative land use concepts for the area with the intent of identifying a preferred development scenario.

Safety

Because this is a new interchange that has not yet been constructed, there are no crash data for this project.

Mobility

According to MassHighway's 2005 Traffic Volumes for the Commonwealth, average daily two-way traffic on Interstate 93 north of Route 62 in Wilmington was 154,900 in 2004.

Average observed travel speeds on roadways are compiled in the MPO's Mobility Management System. Average observed speeds on Interstate 93 North at the location of the proposed interchange are 60 mph or greater during the AM and PM peak periods. Average observed speeds on Interstate 93 South at the location of the proposed interchange are 30-44 mph during the AM peak period (meeting the MMS's congestion threshold), and 60 mph or greater during the PM peak period.

According to the Lowell Junction Interchange Study conducted by Vanasse Hangen Brustlin, Inc. in 2006, significant congestion occurs at

[7] The Junction/Route 93 Development Area in Andover, Tewksbury and Wilmington, Massachusetts Letter of Agreement

both the Route 125 and Dascomb Road interchanges with I-93. Access to Lowell Junction is via local roadways that connect to these interchanges. Analyses performed at intersections in the study area indicate the following:

- Route 125/Ballardvale Street operates at a deficient level of service during both peak periods. Improvements to this intersection and the surrounding area are currently included in the 2004 Boston Regional Transportation Plan.
- Dascomb Road intersections with Frontage Road and Lovejoy Road operate at an acceptable level of service (LOS) during both peak periods.
- Analyses of unsignalized intersections performed at eight study-area locations indicate that all four intersections at the I-93 ramps (Exits 41 and 42) experience LOS "E" or "F" for side street traffic during both peak periods. Three of the local intersections experience LOS "F" during the PM peak and one operates at LOS "F" during the AM peak. Only one intersection operates at an acceptable LOS during both peak periods.

Connectivity

The proposed interchange will improve access to industrial and office properties in the Lowell Junction area from I-93. The MBTA's Haverhill commuter rail line runs near the location of the proposed interchange. The communities of Andover, Tewksbury, and Wilmington have embarked on a joint planning effort to develop a coordinated land use and development plan for the area. One of the land use scenarios now being considered calls for the construction of a commuter rail stop near the new interchange. The communities of Andover, Tewksbury, and Wilmington have embarked on a joint planning effort to develop a coordinated land use and development plan for the area. One of the land use scenarios now being considered calls for the construction of a commuter rail stop near the new interchange, but there are no plans for a new station in the area at this time.

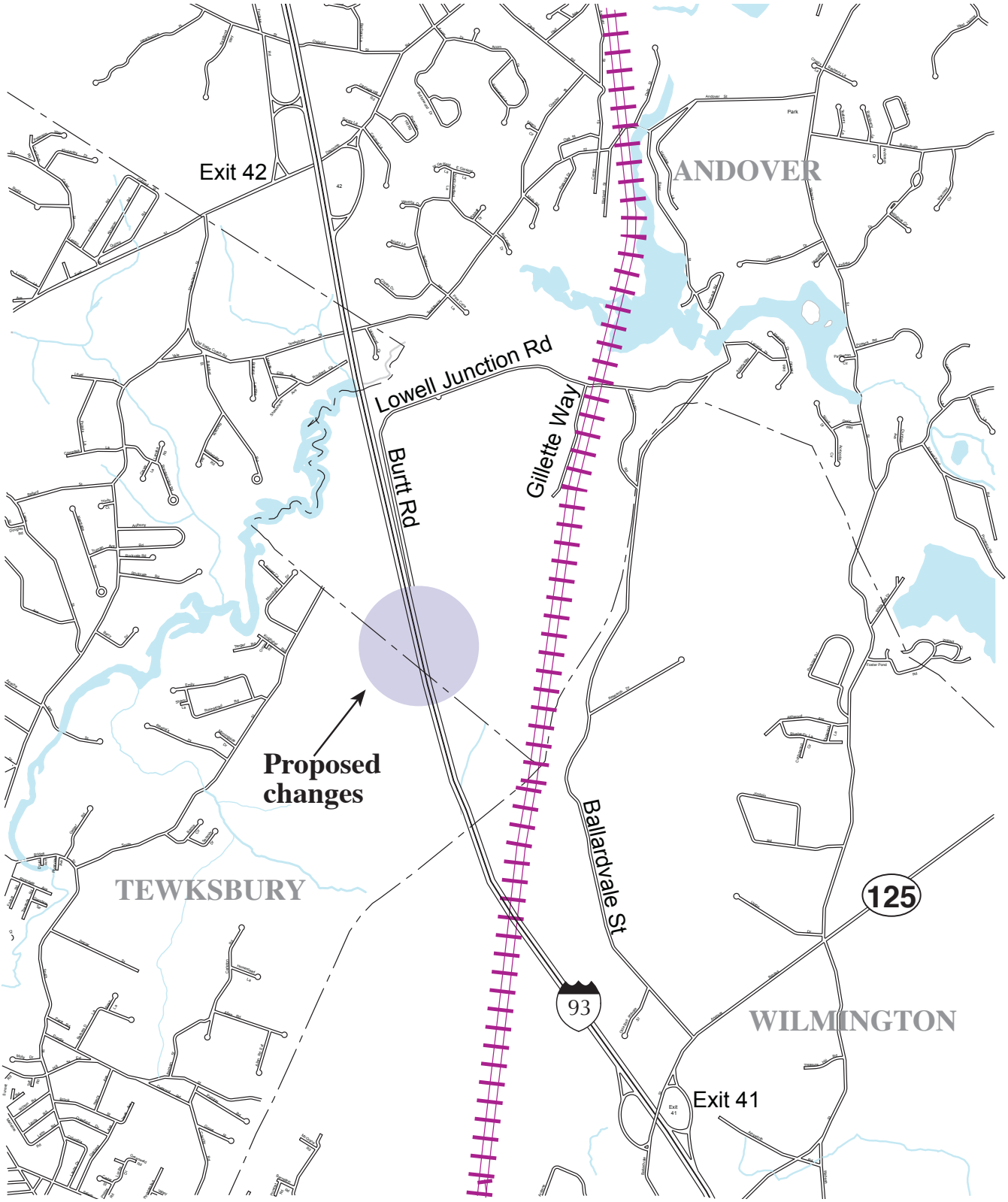
Economic Opportunities

The addition of the interchange will provide improved access to the existing industrial and commercial developments in the Lowell Junction area. It will also expand the economic base of the area by providing access to currently undeveloped land that is zoned for industrial and commercial use on both the east and west sides of I-93. Implementation of a sustainable-growth land use plan for the area could substantially increase the level of benefit that this project could provide to the three communities and to the Commonwealth.

Note

The Merrimack Valley MPO is responsible for including the funding for this project in their Transportation Plan. At this time, they are projecting that the project will be completed by 2020. The Boston Region MPO and Northern Middlesex MPO will list this project in their Plans because parts of the project fall within all three MPO areas.

MAP 13-38 Wilmington, Tewksbury, and Andover: Lowell Junction

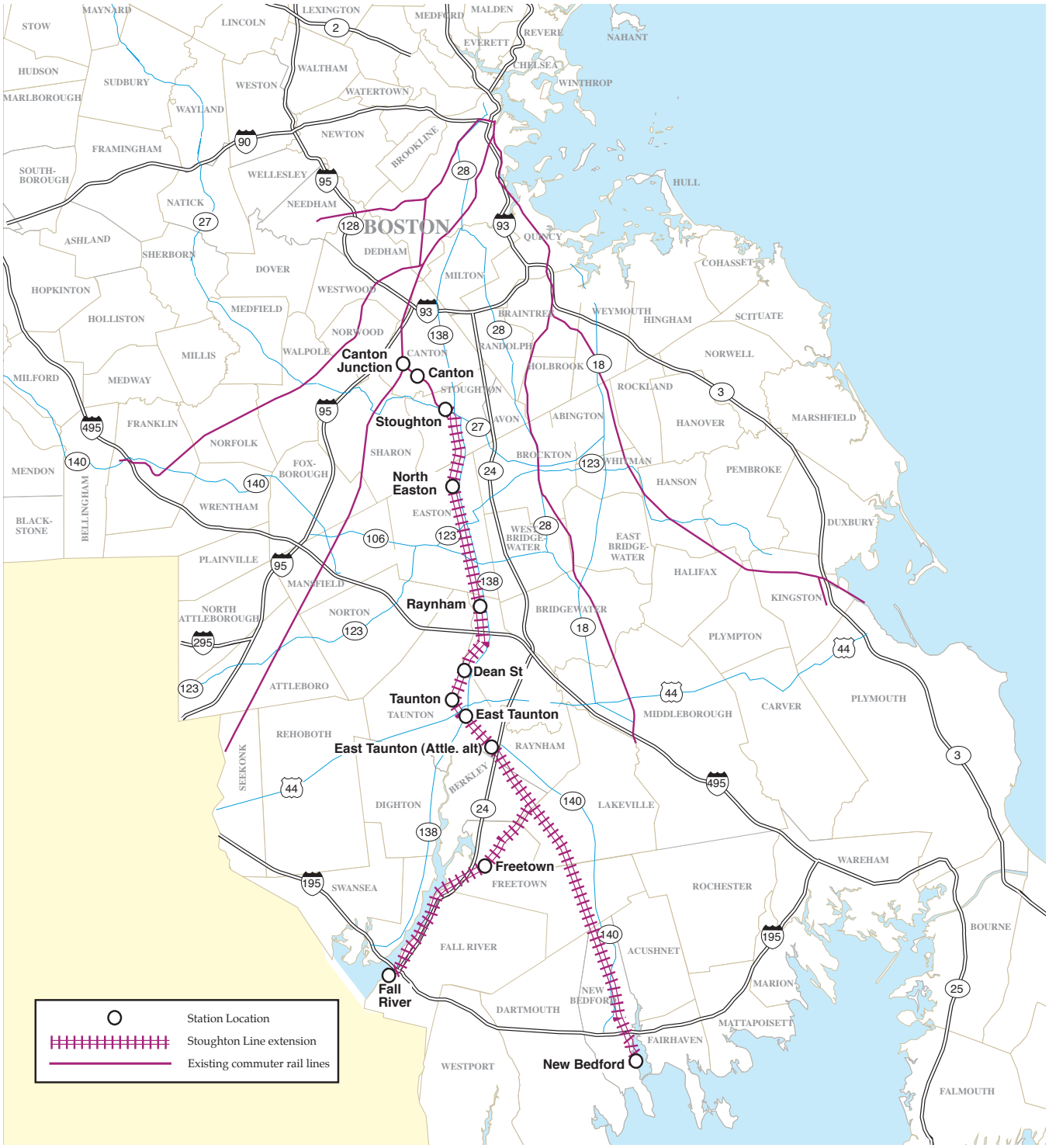


Fall River and New Bedford: Commuter Rail Extension

Description

This proposal is for an extension of MBTA commuter rail service from the cities of Taunton, Fall River, and New Bedford to Boston. Several alternate routes were evaluated by the MBTA in a series of environmental studies conducted from 1995 to 2002. The 2000 Supplemental Draft Environmental Impact Report concluded that the Stoughton alternative is the only practical alternative that would meet the project's objectives. The Stoughton Alternative would provide service through an extension of the existing Stoughton Line, which currently provides Boston service by connecting to the Shore Line.

MAP 13-39 Fall River and New Bedford: Commuter Rail Extension



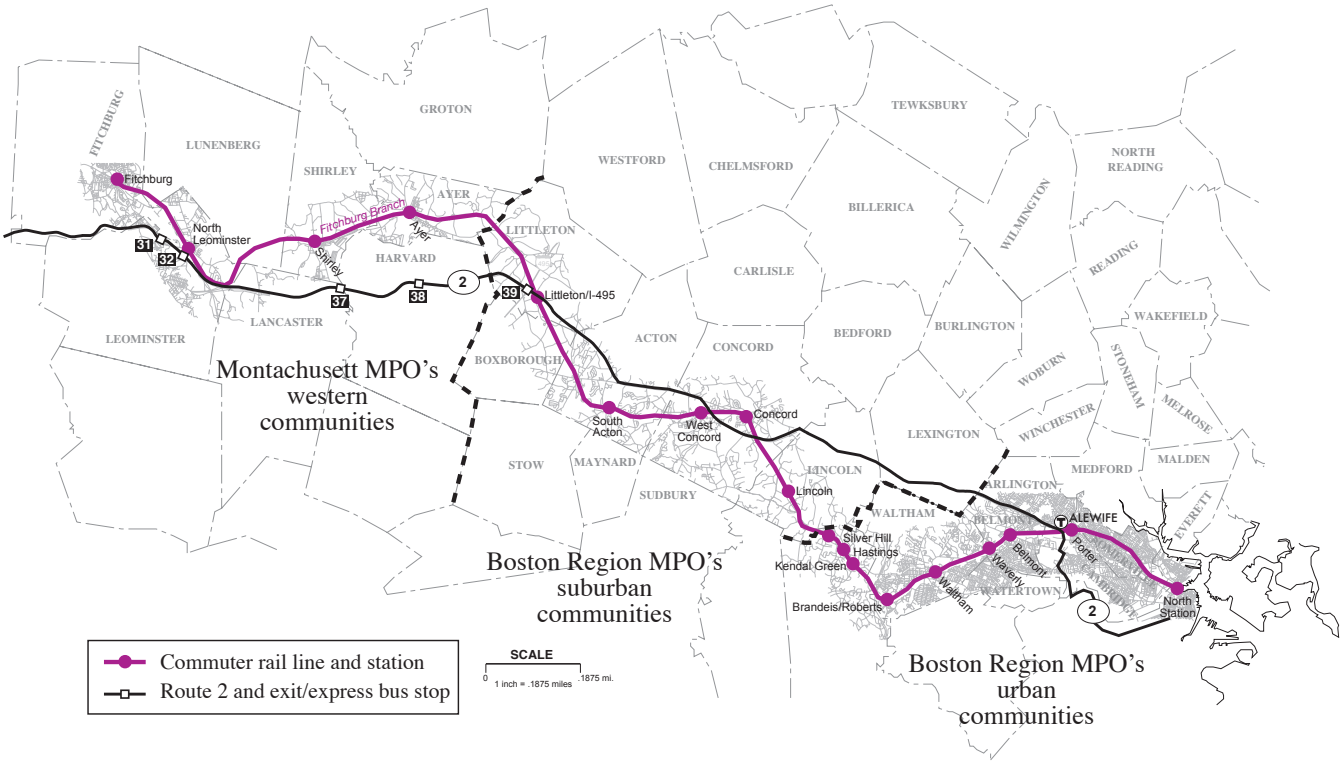
Fitchburg: Commuter Rail

Description

Improvements will be made along the Fitchburg commuter rail line to reduce the travel time between Fitchburg and Porter Square, in Cambridge, to one hour or less. The existing stations will remain and no new stations will be added. Improvements will include:

- Installation of double tracks from Ayer to South Action
- Replacement of the signal system
- Systemwide improvements to the track and right-of-way to increase speeds, as required
- Replacement of the Route 62 bridge in Concord
- Construction of a commuter rail flyover, or installation of a third track, to separate commuter and freight traffic at the Willows freight yard in Ayer
- Grade separation at key locations

MAP 13-40 Fitchburg: Commuter Rail



Westborough and Hopkinton: I-90/I-495 Interchange ($33,301,000)

Description

While there is no articulated plan for this interchange, it has been the subject of recent studies and discussions. The Arc of Innovation[8] identified this interchange as one of the 495 MetroWest Corridor's Top Ten Traffic Nightmares. A 1993 American Trucking Association Survey identified this interchange's "poor ramp design" as a structural impediment to efficient freight flow within the region. Stakeholder consultation interviews conducted for the Central Massachusetts Regional Planning Commission's (CMRPC) 2007 RTP revealed a long-term vision of an intermodal "super station" serving interstate highway traffic and the adjacent CSX rail line, which accommodates both freight movement and MBTA commuter rail service.

Project's Context/Possible Impacts, by MPO Policy Area

Safety

Between 1999 and 2001, the I-495/I-90 interchange was the site of 262 crashes, of which 192 involved only property damage and 72 involved bodily injury, none with fatalities.

Mobility

According to MassHighway traffic counts, the average daily traffic on I-495 and I-90 near this interchange is as follows:

I-90:

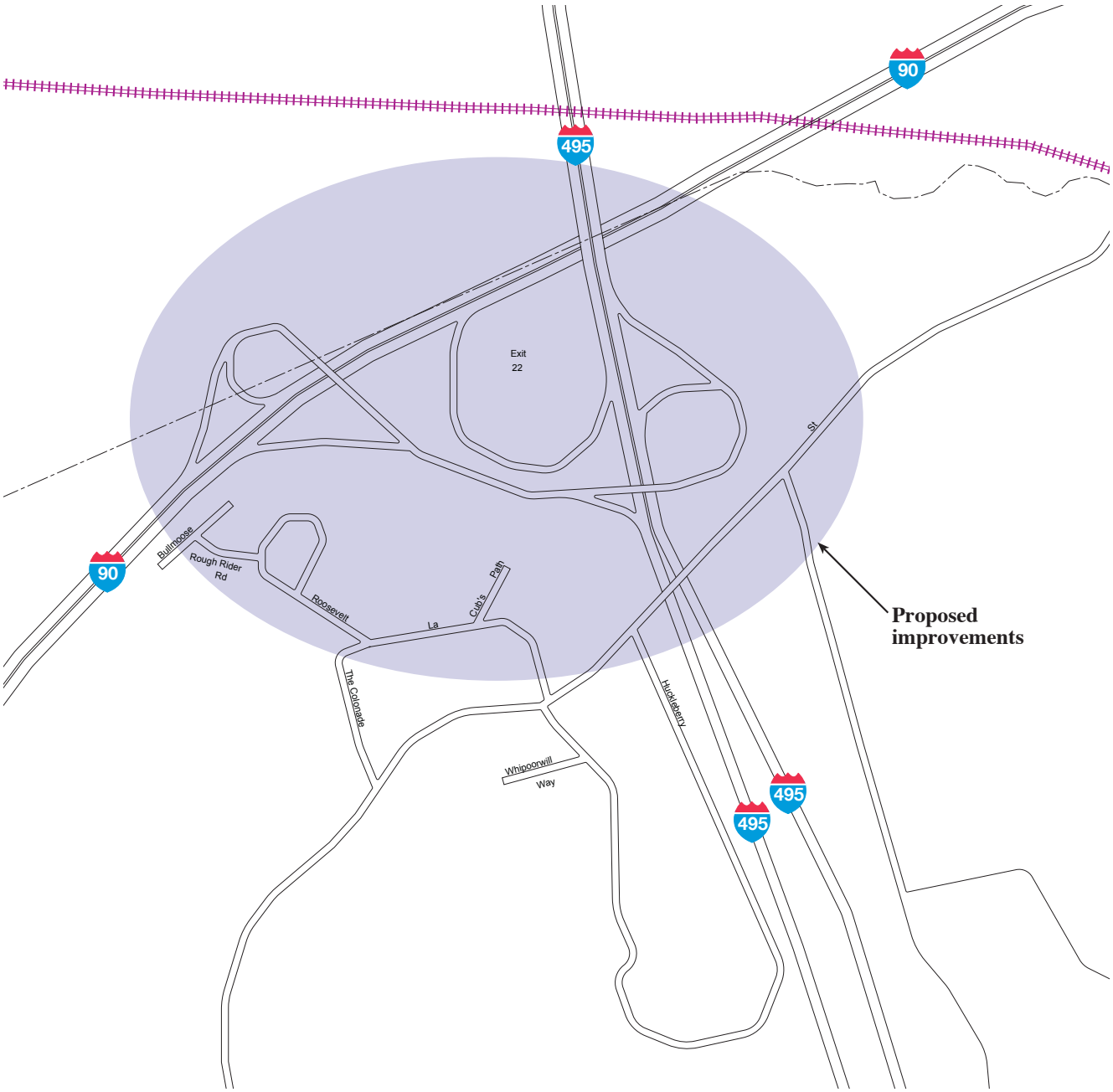
- Between Exits 11 and 11A (west of the interchange) – 87,700 (2005 counts)
- Between Exits 11A and 12 (east of the interchange) – 92,700 (2005 counts)

I-495:

- South of Route 9 (north of interchange) – 91,800 (2004 counts)
- South of I-90 – 98,900 (2004 counts)

[8] The Arc of Innovation is an economically growing region of 32 communities in the 495/ Metrowest region that has some of the state's largest and most innovative companies. These communities work through the 495/MetroWest Corridor Partnership Inc., which addresses regional needs through public/private collaboration.

MAP 13-41 Westborough and Hopkinton: I-90/I-495 Interchange



Westborough and Southborough: I-495/Route 9 Interchange ($30,387,000)

Description

While there is no articulated plan for this interchange, it has been the subject of recent studies and discussions. The Arc of Innovation[9] identified this interchange as one of the 495 MetroWest Corridor's Top Ten Traffic Nightmares. In 2005, the Town of Westborough discussed the potential for a slip ramp within the southwest quadrant as a mitigation measure for nearby development. The 2006 EMC development proposal includes improvements to the eastern side of the interchange.

Project's Context/Possible Impacts, by MPO Policy Area

Safety

Between 1999 and 2001, the I-495/Route 9 interchange was the site of 99 crashes, of which 66 involved only property damage and 33 of which involved bodily injury, none with fatalities.

Mobility

According to MassHighway traffic counts, the average daily traffic on I-495 and Route 9 near this interchange is as follows:

I-495:

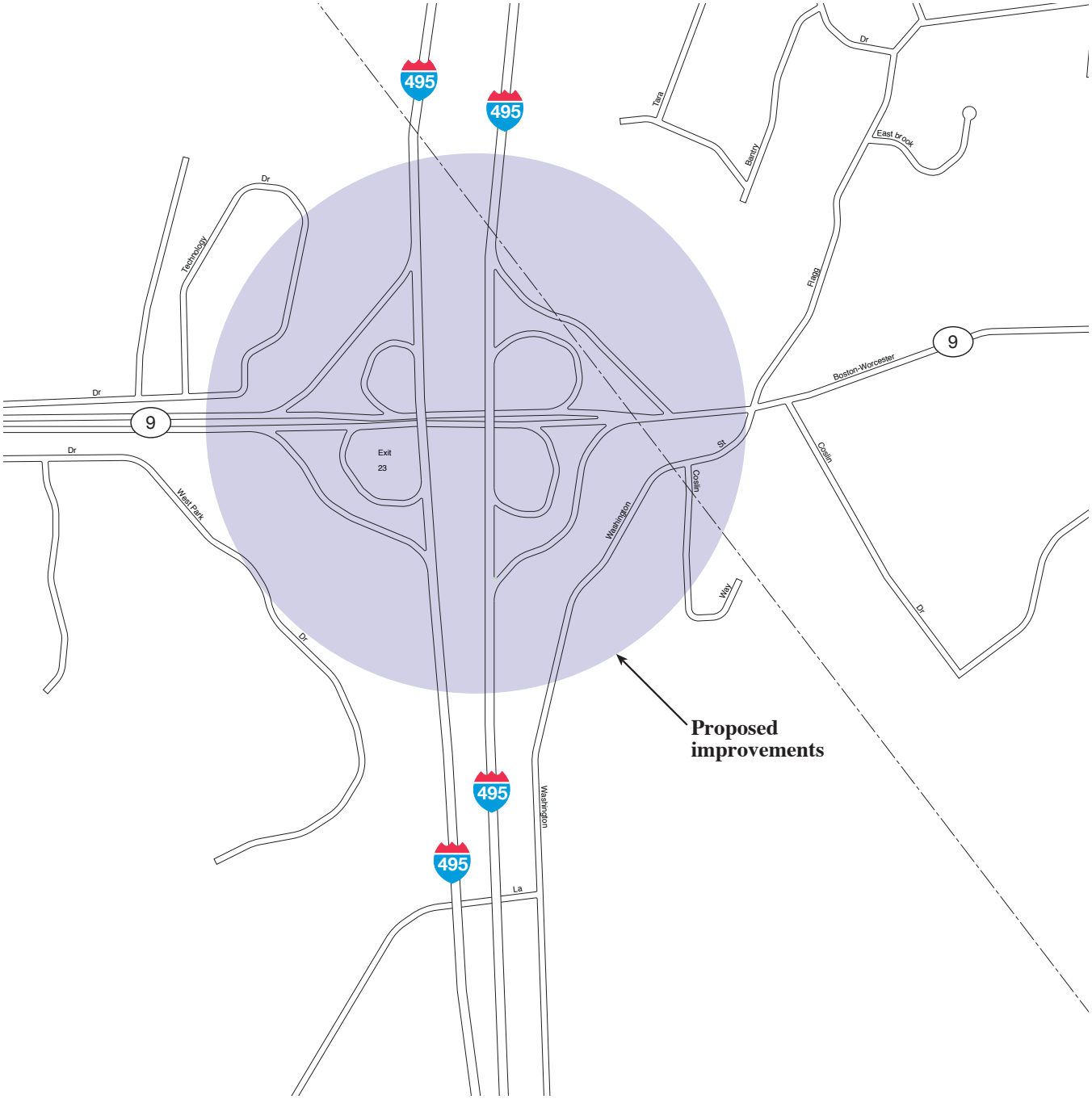
- South of Route 9, Westborough – 91,800 (2004 counts)

Route 9:

- East of Route 30, Westborough (west of the interchange) – 53,000 (2004 counts)
- West of Woodland Road, Southborough (east of the interchange) – 49,100 (2004 counts)

[9] The Arc of Innovation is an economically growing region of 32 communities in the 495/ Metrowest region that has some of the state's largest and most innovative companies. These communities work through the 495/MetroWest Corridor Partnership Inc., which addresses regional needs through public/private collaboration.

MAP 13-42 Westborough and Southborough: I-495/Route 9 Interchange



Illustrative Projects

Illustrative projects are defined as projects that could significantly contribute to mobility in the region, but which are not included in the recommended list of projects because there is not sufficient revenue to fund them. Also, the project descriptions have not been adequately developed in many cases. During the development of this Plan, the concept of illustrative projects was discussed and the MPO decided that before listing illustrative projects, a process for selection of projects in this category should be developed. The MPO will continue these discussions and include that selection process as part of an amendment to JOURNEY TO 2030. This amendment process is anticipated to begin within the current federal fiscal year.

Model Results and Interpretation of the Recommended Plan

The travel demand model set used in the analysis for this Plan is based on the traditional four-step urban transportation planning process of trip generation, trip distribution, mode choice, and trip assignment. This process is employed to estimate daily transit ridership, highway traffic volumes, and nonmotorized travel, primarily on the basis of forecasts of study area demography and projected highway and transit improvements.

The results of running the travel model are shown in Table 13-6. The population in this region is projected to increase by 10.8 percent between 2000 and 2030. During the same time period, employment is projected to grow by 10.2 percent. On a typical weekday, the overall level of trip-making, regardless of mode, is estimated to increase from 16.8 million trips in 2000 to 19.0 million trips in 2030. This represents a 13.4 percent increase, which represents an average annual growth through 2030 of a little over 0.4 percent.

The 2030 No-Build Alternative

Transit Trips

A "linked transit trip" involves more then one boarding of a transit vehicle en route from an origin, such as home, to a destination, such as work. Observed data indicate that there were approximately 852,000 linked transit trips on a typical weekday in 2000. In 2030, the number of linked transit trips is projected to reach about 987,000 under the No-Build scenario, a 16 percent increase. This increase is a result of two factors, growth in demographics and changes to the transportation system, shifting more people onto transit from other modes, such as auto and the nonmotorized mode. Some of the major transit projects that weren't in the 2000 scenario but were in the 2030 No-Build scenario are:

- Silver Line, Phases I and II
- Improvements to Worcester Commuter Rail Service
- Greenbush Commuter Rail

Each boarding of a transit vehicle (commuter rail, rapid transit, bus, bus-rapid-transit, and ferry) en route from an origin to a destination marks the beginning of an additional "unlinked transit trip." The unlinked trips are estimated to increase from 1.22 million in 2000 to 1.43 million in the 2030 No-Build scenario, a 17 percent increase. The commuter rail system represents less than 10 percent of the unlinked trips. Commuter rail is expected to increase to 142,000 trips a day in the 2030 No-Build scenario from 122,400 in 2000. This represents a 16 percent increase from the year 2000 levels, which is a result of the Greenbush and Worcester Improvements projects, in addition to growth of demographics, and future traffic congestion favoring the commuter rail over the auto mode. Ridership on the rapid transit system is projected to increase by approximately 9 percent. The majority of this increase is related to demographic growth. Local bus ridership is projected to increase by roughly 17 percent;

most of this is tied to the projected increase in rapid transit system ridership (feeder trips). The daily ridership on the express bus system is projected to increase by nearly 18 percent.

Bus-rapid transit service was implemented after 2000 and is operational today in the form of the Silver Line service, which is expected to have over 60,000 daily boardings in the 2030 No-Build scenario.

Ferry service shows little change. One possible reason may be the Greenbush commuter rail line, which hugs the coast and is near several ferry services. This may siphon off some of the potential ferry users to commuter rail.

Highway Trips

There are several metrics for measuring the highway transportation network. The three key ones presented in this chapter are vehicle trips (all vehicles, including automobiles), vehicle-miles of travel (VMT), vehicle-hours of travel (VHT), and average speed.

Vehicle trips include all vehicle types, such as personal vehicles, trucks, taxis, and vehicles from outside the region. There were about 12 million vehicle trips per day using the roadway system in 2000. This number is projected to increase by 14 percent, to 13.6 million vehicle trips per day, in 2030. Auto-person trips are a subset of the total vehicle trips and represent the person-trips made by regional household members in autos for different purposes on an average weekday. The auto trips are projected to increase by roughly 8 percent between 2000 and 2030. One explanation for the total number of vehicle trips increasing more than the auto-person trips is a larger increase in the number of vehicle trips made by people residing outside of our modeled area and made by other modes (trucks and taxis).

The total VMT on the region's highway network is projected to increase from 108 million in 2000 to 121 million (12.3 percent) in 2030 under the No-Build scenario. Most of this increase is due to the demographic growth being projected for 2000–2030 and to improvements to the transportation system.

VHT is expected to increase by 15 percent between 2000 and 2030. This VHT increase is larger than the increase in VMT because the additional traffic is causing more traffic congestion, which also leads to lower average speeds. The average speed on the highway system is expected to decrease by about 2.5 percent between 2000 and the 2030 No-Build scenario.

Nonmotorized Mode

The nonmotorized mode consists of walking and bicycling trips occurring within or between areas in our model called transportation analysis zones. Between 2000 and 2030, this mode is projected to increase from 2.37 million in 2000 to 2.82 million in 2030. This increase is a function of residences being located closer to work and activities, in addition to improvements to the walking network, namely more walking paths, and roads with sidewalks.

The JOURNEY to 2030 Recommended Build Alternative

Transit Trips

The Build alternative (the recommended Plan, as explained earlier in this chapter) consists of several new transit projects and highway projects in addition to what is assumed for the No-Build scenario. The transit projects include the Red Line–Blue Line Connector; the Silver Line Phase III; the Urban Ring Phase 2, a new Orange Line station at Assembly Square; Green Line extensions to Ball Square and Arborway; a Blue Line extension to Lynn Center; additional service on the Lowell and Haverhill Lines; service improvements on the Fitchburg Line; commuter rail extensions to New Bedford and Fall River; and 100 new buses.

The impact of adding these new transit projects is that there would be approximately 74,000 new linked transit trips in the system above what was

estimated in the 2030 No-Build scenario. About 57,000 of these would be the result of diversion from the auto mode, and the remaining 17,000 trips would be coming from nonmotorized modes. The addition of all the new transit projects described above would increase the regional mode share from 6.3 percent in the No-Build scenario to 6.8 percent in the Build scenario.

The unlinked trips are projected to increase from 1.43 million in the 2030 No-Build scenario to 1.54 million in the 2030 Build scenario, an 8 percent increase. As may be seen in Table 13-6, the commuter rail ridership would increase by 13 percent from 142,100 in the 2030 No-Build scenario to 160,800 in the 2030 Build scenario. This increase is primarily related to two commuter rail improvement projects, the Fitchburg Line, and commuter rail extensions to New Bedford and Fall River. The remainder of the commuter rail increase is linked with improvements to rapid transit and bus-rapid-transit (BRT) projects in the urban core area. The combined rapid transit and BRT ridership is expected to increase by about 13 percent. Rapid transit by itself is expected to experience a decrease of 1 percent, which is related to people using the BRT services in lieu of rapid transit. The main reason people use BRT and not rapid transit is that BRT service eliminates, in most instances, one or more transfers, and this translates into a time savings. Local and express bus trips are expected to fall by about 1 percent and 10 percent, respectively. This is also related to BRT services being expanded, namely the Silver Line, Phase III, and Urban Ring, and the resulting siphoning off some bus ridership. Ferry service is projected to experience a similar reduction, for the reasons stated above.

Highway Trips

As a result of these transit projects, the amount of future-year highway travel is projected to decrease slightly (the number of trips and vehicle-miles traveled each falling by about 0.2 percent) in the Build scenario. Highway projects in the 2030 Recommended Plan include Route 128 Capacity Improvements, I-93/Route 3 Interchange Improvements, I-93/I-95 Interchange Improvements in Canton, the I-93/I-95 Interchange Improvements in Reading and Woburn, and Route 3 Lane Additions. These highway projects and the reductions in congestion resulting from the increased use of transit are expected to lead to a slight increase (about 1 percent) in the average speed on the highway network.

Nonmotorized Mode

With the improvements in the transit services and highway facilities, about 17,000 nonmotorized trips are expected to be diverted away from nonmotorized modes under the Build scenario. Many of these trip diversions are likely to be caused by the Silver Line Phase III project, which will improve transit service in downtown Boston.

TABLE 13-6

2000 Base Year, 2030 No-Build, and 2030 Recommended Plan Transportation Network Model Results*

	2000 BASE YEAR	2030 NO-BUILD	% CHANGE FROM 2000 TO 2030 NO-BUILD	2030 RECOMMENDED PLAN	% CHANGE FROM 2030 NO-BUILD TO 2030 RECOMMENDED PLAN
SOCIOECONOMIC MEASURES					
POPULATION	4,310,000	4,777,000	10.8%	4,777,000	0%
HOUSEHOLDS	1,644,400	1,952,700	18.7%	1,952,700	0%
EMPLOYMENT	2,353,200	2,594,000	10.2%	2,594,000	0%
AVERAGE HOUSEHOLD SIZE	2.62	2.45	-6.7%	2.45	0%
TRIP GENERATION RESULTS (AVERAGE WEEKDAY)					
PERSON-TRIP TOTAL	16,788,100	19,034,400	13.4%	19,034,400	0%
PERSON-TRIPS INTO AND OUT OF THE REGION	2,030,800	2,873,900	41.5%	2,873,900	0%
INTRAREGIONAL PERSON TRIPS INTO AND OUT OF THE REGION	14,757,300	16,160,500	9.5%	16,160,500	0%
MODE CHOICE RESULTS (AVERAGE WEEKDAY)					
TOTAL PERSON-TRIPS	14,239,900	15,679,300	10.1%	15,679,300	0.0%
LINKED TRANSIT TRIPS	852,000	987,100	15.9%	1,060,800	7.5%
WALK ACCESS	730,000	846,800	16.0%	911,400	7.6%
DRIVE ACCESS	122,000	140,300	15.0%	149,400	6.5%
AUTO PERSON-TRIPS	11,015,500	11,872,100	7.8%	11,815,300	-0.5%
NONMOTORIZED TRIPS	2,372,400	2,820,100	18.9%	2,803,200	-0.6%
TRANSIT MODE SHARE	6.0%	6.3%	5.2%	6.8%	7.5%
AUTO MODE SHARE	77.4%	75.7%	-2.1%	75.4%	-0.5%
NONMOTORIZED MODE SHARE	16.7%	18.0%	8.0%	17.9%	-0.6%
TRANSIT ASSIGNMENT RESULTS (AVERAGE WEEKDAY)					
UNLINKED TRANSIT TRIPS	1,219,600	1,425,400	16.9%	1,536,500	7.8%
RAPID TRANSIT LINES	672,400	731,000	8.7%	723,500	-1.0%
COMMUTER RAIL LINES	122,400	142,100	16.1%	160,800	13.2%
LOCAL BUSES	390,000	455,800	16.9%	451,000	-1.1%
EXPRESS BUSES	26,000	30,600	17.7%	27,400	-10.5%
FERRY	5,500	5,500	0.0%	5,200	-5.5%
BUS RAPID TRANSIT	N/A	60,400	N/A	168,600	179.1%
TRANSFER RATE (UNLINKED/LINKED TRIPS)	1.43	1.44	0.9%	1.45	0.3%
HIGHWAY ASSIGNMENT RESULTS (AVERAGE WEEKDAY)					
VEHICLE-TRIPS ASSIGNED	11,985,400	13,625,000	13.7%	13,597,500	-0.2%
VEHICLE-MILES OF TRAVEL	107,801,500	121,077,100	12.3%	120,850,000	-0.2%
AVERAGE TRIP LENGTH	8.99	8.89	-1.2%	9.02	1.5%
VEHICLE-HOURS OF TRAVEL	3,353,900	3,862,500	15.2%	3,811,600	-1.3%
AVERAGE TRAVEL TIME	16.8	17.0	1.3%	16.8	-1.1%
AVERAGE SPEED	32.1	31.3	-2.5%	31.7	1.1%

* Results shown represent 164 communities in the eastern Massachusetts model area.

14

ENVIRONMENTAL JUSTICE ASSESSMENT

As part of its regional equity program (discussed in Chapter 9), the MPO performed a detailed, system-level analysis of transportation equity in the region, examining the distribution of the transportation system's benefits and burdens among environmental justice and non–environmental justice areas and among environmental justice and non–environmental justice population zones. (These types of areas and zones are defined in the section below.) The analysis also examined the impacts, in terms of various performance measures, of this Plan's recommended set of projects through 2030 (see Chapter 13 for the list of projects) on those types of areas and zones. Measures focus on mobility, accessibility, and environmental impact concerns.

As interpreted from federal guidance, the MPO should recommend a regional set of transportation projects in its Plan that does not burden environmental justice areas when compared to a network that includes no projects other than those already underway. MPO members used the results of a preliminary environmental justice analysis to inform their decisions when selecting the projects that are included in this Plan. The results of the final analysis, summarized in this chapter, showed that the MPO's recommended set of transportation projects, or the "Build" network, in the year 2030 does not burden environmental justice areas and environmental justice population zones more than the 2030 No-Build network.

Environmental Justice Areas and Environmental Justice Population Zones

Environmental Justice Areas

As discussed in Chapter 9, environmental justice areas are based on the demographics of the people living in a transportation analysis zone (TAZ). TAZs are

an aggregation of census geography based on population and numbers of trips. According to the definition used for the MPO's regional equity program, "A TAZ will be considered an Environmental Justice Area if it is over 50 percent minority or has a median household income at or below 60 percent of the region's median" (60 percent of the region's median household income of $55,800 is $33,480). The TAZ's total minority population must be at least 200.

There are environmental justice areas in each of the following (see Figures 9-1 and 9-2):

The municipalities of:

- Cambridge
- Chelsea
- Everett
- Framingham
- Lynn
- Malden
- Medford
- Milford
- Peabody
- Quincy
- Randolph
- Revere
- Salem
- Somerville
- Waltham

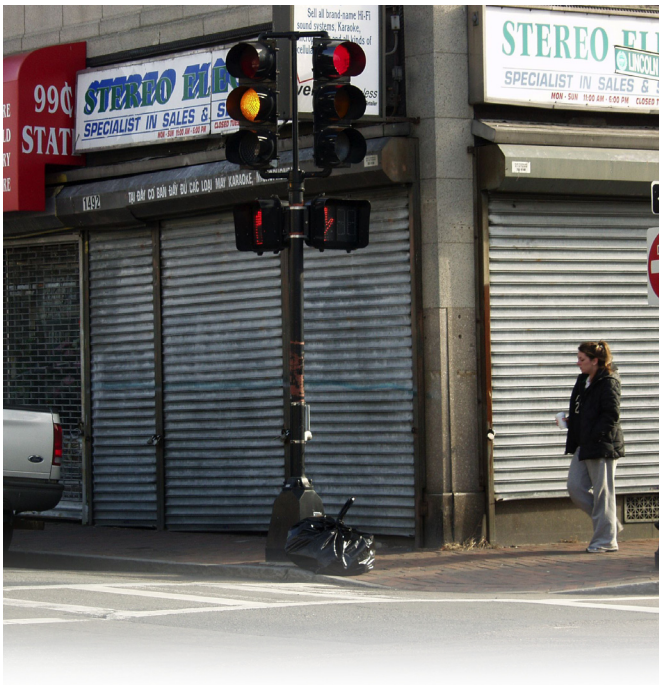
The Boston neighborhoods of:

- Allston-Brighton
- Charlestown
- Chinatown
- Dorchester
- East Boston
- Fenway
- Hyde Park
- Jamaica Plain
- Mattapan
- Roslindale
- Roxbury
- South Boston
- South End

In addition to being the focus of the regional equity program, environmental justice areas are used in the accessibility portion of the MPO's environmental justice analysis, as described in this chapter.

Environmental Justice Population Zones

In the mobility, congestion, and environmental portions of the analysis, environmental justice population zones are used. To locate environmental justice populations, the MPO selected broader criteria for lower-income and minority TAZs than those used for locating environmental justice areas. Though not required, this greater



inclusion of TAZs is in line with—and slightly more inclusive than—the Massachusetts Executive Office of Environmental Affairs (EOEA) definition of environmental justice populations. The MPO's thresholds for these environmental justice populations are as follows:

- Low income – The MPO median household income in 2000 was approximately $55,800. A low-income TAZ was defined as having a median household income at or below 80 percent of this level ($44,640).
- Minority – 21.4 percent of the MPO population in 2000 was composed of minorities (nonwhite and Hispanic). A minority TAZ was defined as having a percentage of minority population greater than 21.4 percent.

The environmental justice population zones in the Boston Region MPO area and in the urban core are shown in Figures 14-1 and 14-2, respectively.

The 2030 demographic forecasts assumed the same distributions of the environmental justice areas and environmental justice population zones as were observed in the 2000 census and that the environmental justice population's growth rate will be the same as the rate that the Metropolitan Area Planning Council has forecast for the overall population of the given area. The 2030 Build and 2030 No-Build networks used the same demographic forecasts.

Performance Measures

The MPO used performance measures as indicators of benefits and burdens for environmental justice and non–environmental justice areas and for environmental justice population and non–environmental justice population zones populations. These measures fall into three categories:

- Accessibility to needed services and jobs
- Mobility and congestion
- Environment

The first measure was applied to environmental justice and non–environmental justice areas, the second and third to environmental-justice-population zones and non–environmental justice population zones.

Accessibility Analysis

MPO staff analyzed access to needed services and jobs in terms of average transit and highway travel times from environmental justice areas to industrial, retail, and service employment opportunities; health care; and institutions of higher education. The analysis of transit travel times included destinations within a 40-minute transit trip, and the analysis of highway travel times included destinations within a 20-minute auto trip. The accessibility analysis also included an examination of the number of destinations within a 40-minute transit trip and a 20-minute auto trip.

Staff examined differences between the 2000 Base Year network, 2030 No-Build network, and 2030 Build network for environmental justice and non–environmental justice areas. The accessibility performance measures were:

- The average travel time to industrial, retail, and service jobs within a 40-minute transit trip and a 20-minute auto trip
- The average number of industrial, retail, and service jobs within a 40-minute transit trip and a 20-minute auto trip
- The average travel time to hospitals, weighted by the number of beds, within a 40-minute transit trip and a 20-minute auto trip
- The average number of hospitals, weighted by the number of beds, within a 40-minute transit trip and a 20-minute auto trip
- The average travel time to facilities of two- and four-year institutions of higher education, weighted by enrollment, within a 40-minute transit trip and a 20-minute auto trip
- The average number of facilities of two- and four-year institutions of higher education, weighted by enrollment, within a 40-minute transit trip and a 20-minute auto trip

FIGURE 14-1

Environmental Justice Population Zones

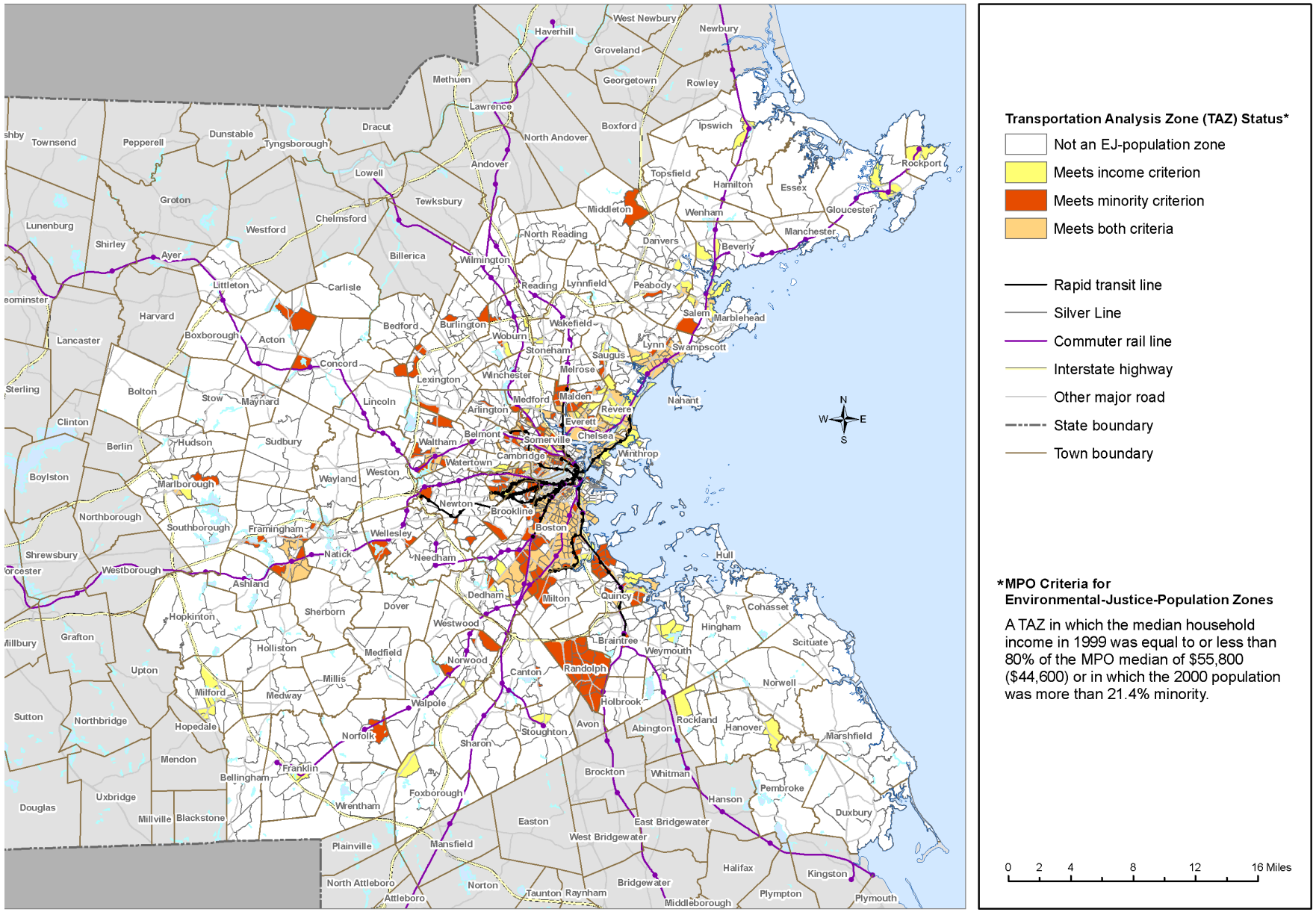
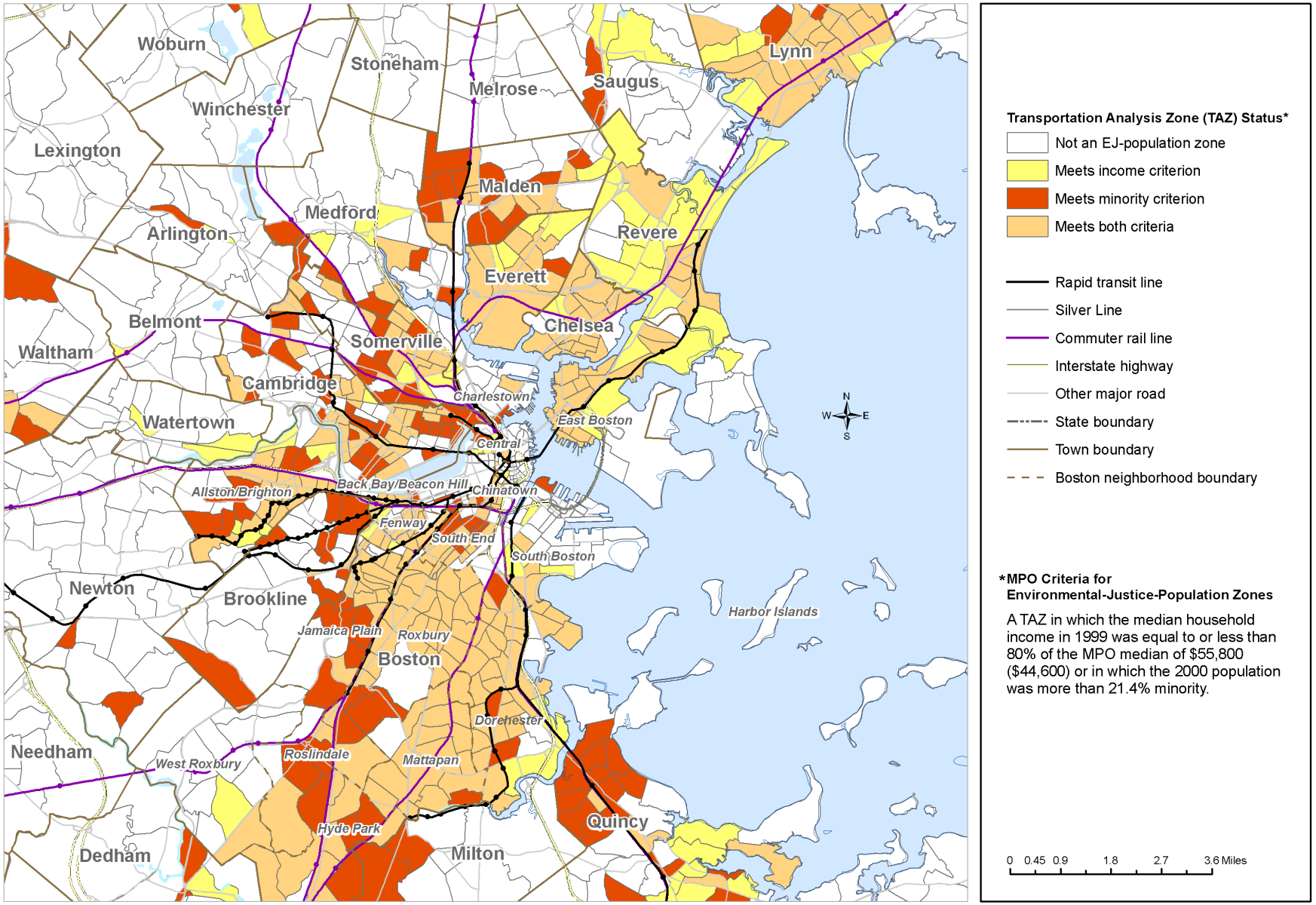


FIGURE 14-2

Environmental Justice Population Zones in the Urban Core



Mobility, Congestion, and Environmental Analysis

MPO staff analyzed mobility, congestion, and the environmental impacts by comparing performance measures for environmental justice population zones to those for non–environmental justice zones. Staff examined differences between the average levels of these performance measures within the two types of zone for the 2000 Base Year network, 2030 No-Build network, and 2030 Build network.

The mobility, congestion, and environmental performance measures were:

- Congested VMT – congested vehicle-miles traveled: the volume of vehicle-miles traveled within the TAZ on highway links with a volume-to-capacity ratio of 0.75 or higher
- VMT per square mile – the number of vehicle-miles traveled per square mile of dry land within a TAZ
- CO per square mile – the number of kilograms of carbon monoxide emitted per square mile of dry land within a TAZ
- Transit production time – the average door-to-door travel time for all transit trips produced in the TAZ
- Highway production time – the average door-to-door travel time for all highway trips produced in the TAZ
- Transit attraction time – the average door-to-door travel time for all transit trips attracted to the TAZ
- Highway attraction time – the average door-to-door travel time for all highway trips attracted to the TAZ

Summary of Recommended-Plan Results

The environmental justice analysis determined that while the 2030 recommended plan Build network improves accessibility, mobility, congestion, and environmental conditions relative to the 2030 No-Build network for both environmental justice and non–environmental justice areas and for both environmental justice population zones and non–environmental justice population zones,

TABLE 14-1

Accessibility Analysis Results for Transit Trips in the 2030 No-Build and 2030 Build Networks

	2030 NO-BUILD		2030 BUILD		NO-BUILD VS. BUILD	
	EJ	NON-EJ	EJ	NON-EJ	EJ	NON-EJ
TRAVEL TIME TO INDUSTRIAL JOBS*	32.0	33.2	32.0	33.3	-0.1%	0.1%
TRAVEL TIME TO RETAIL JOBS*	32.2	33.9	32.1	33.9	-0.2%	0.1%
TRAVEL TIME TO SERVICE JOBS*	31.9	33.6	31.7	33.6	-0.6%	0.1%
TRAVEL TIME TO COLLEGES*	32.0	33.5	31.9	33.6	-0.4%	0.3%
TRAVEL TIME TO HOSPITALS*	32.7	33.8	32.2	33.8	-1.7%	0.1%
NUMBER OF INDUSTRIAL JOBS	46,436	26,508	52,244	28,586	12.5%	7.8%
NUMBER OF RETAIL JOBS	38,358	21,722	42,295	23,352	10.3%	7.5%
NUMBER OF SERVICE JOBS	285,400	137,456	314,822	149,101	10.3%	8.5%
NUMBER OF COLLEGES (ENROLLMENT)	38,051	18,795	41,683	20,325	9.5%	8.1%
NUMBER OF HOSPITAL BEDS	2,667	1,290	2,995	1,437	12.3%	11.4%

* Travel time is measured in minutes

TABLE 14-2

ACCESSIBILITY ANALYSIS RESULTS FOR HIGHWAY TRIPS IN THE 2030 NO-BUILD AND 2030 BUILD NETWORKS

	2030 NO-BUILD		2030 BUILD		NO-BUILD VS. BUILD	
	EJ	NON-EJ	EJ	NON-EJ	EJ	NON-EJ
TRAVEL TIME TO INDUSTRIAL JOBS*	13.5	13.5	13.5	13.5	0.1%	0.0%
TRAVEL TIME TO RETAIL JOBS*	13.4	13.3	13.4	13.3	-0.1%	0.1%
TRAVEL TIME TO SERVICE JOBS*	13.2	13.3	13.2	13.3	0.0%	0.0%
TRAVEL TIME TO COLLEGES*	13.5	14.0	13.4	14.0	-0.3%	-0.1%
TRAVEL TIME TO HOSPITALS*	12.8	13.2	12.8	13.3	0.0%	0.2%
NUMBER OF INDUSTRIAL JOBS	100,061	79,327	101,023	80,677	1.0%	1.7%
NUMBER OF RETAIL JOBS	80,355	58,326	80,961	59,232	0.8%	1.6%
NUMBER OF SERVICE JOBS	476,224	283,291	478,109	286,253	0.4%	1.0%
NUMBER OF COLLEGES (ENROLLMENT)	73,231	38,845	73,601	39,145	0.5%	0.8%
NUMBER OF HOSPITAL BEDS	6,697	3,840	6,746	3,884	0.7%	1.1%

* Travel time is measured in minutes

it benefits environmental justice areas and environmental justice population zones slightly more. Results are aggregated for each type of area and zone and are averaged by the number of environmental justice and non–environmental justice TAZs, respectively.

Accessibility Analysis Results

Results from the accessibility analysis show the following for trips from environmental justice areas to nearby jobs, colleges, and hospitals (Table 14-1 for transit trips and Table 14-2 for highway trips):

- Travel times to area destinations are less or the same for environmental justice areas in the 2030 Build network when compared to those in the 2030 No-Build network.
- People in environmental justice areas will be able to access more area destinations within a 20-minute drive or 40-minute transit ride in the 2030 Build network than in the 2030 No-Build network.
- The decrease in travel times and the increase in the number of area destinations accessed in the 2030 Build network are more pronounced for transit trips than for highway trips.

Mobility, Congestion, and Environmental Analysis Results

Results from the mobility, congestion, and environmental analysis show the following for trips within environmental justice-population zones (Table 14-3):

- Travel time is slightly less for environmental justice population zones in the 2030 Build network than in the 2030 No-Build network.
- Congested VMT is less for environmental justice population zones in the 2030 Build network than in the 2030 No-Build network.
- VMT per square mile is less for environmental justice population zones in the 2030 Build network compared to the 2030 No-Build network.
- The 2030 Build network yields less CO emissions per square mile for environmental justice population zones when compared to the 2030 No-Build network.

TABLE 14-3

Mobility, Congestion, and Environmental Analysis Results in the 2030 No-Build and 2030 Build Networks

	2030 NO-BUILD		2030 BUILD		NO-BUILD VS. BUILD	
	EJ	NON-EJ	EJ	NON-EJ	EJ	NON-EJ
CONGESTED VMT	3,799	9,278	3,742	9,178	-1.5%	-1.1%
VMT PER SQUARE MILE	176,768	140,851	174,676	140,089	-1.2%	-0.5%
CO PER SQUARE MILE	1,391	1,100	1,372	1,095	-1.3%	-0.4%
TRANSIT ATTRACTION TRAVEL TIME*	42.7	50.0	42.1	49.7	-1.5%	-0.6%
TRANSIT PRODUCTION TRAVEL TIME*	42.8	52.4	42.5	52.3	-0.8%	-0.2%
HIGHWAY ATTRACTION TRAVEL TIME*	13.2	13.5	13.0	13.4	-1.0%	-1.0%
HIGHWAY PRODUCTION TRAVEL TIME*	15.1	14.7	15.0	14.6	-0.7%	-0.8%

* Travel time is measured in minutes

Selected Projects That Will Benefit Environmental Justice Areas and Environmental Justice Population Zones

The following transit projects will improve air quality and provide more transportation options for environmental justice populations:

- Boston: Silver Line Phase III – Reduces transit travel time and transfers along its corridor.
- Compact Communities: Urban Ring Phase 2 – Reduces transit travel time and transfers along its corridor in addition to providing capacity relief at downtown transfer locations.
- Revere to Lynn: North Shore Transit Improvements – Provides environmental justice populations in Lynn and Revere faster and cheaper access to high-demand locations.
- Somerville: Construct Orange Line Station at Assembly Square – Provides better access to rapid transit stations, employment, and retail opportunities.
- Regionwide: Purchase 100 New Buses – Reduces capacity concerns and improves schedule adherence along routes that are recipients of the new buses.

These highway projects will benefit people living in nearby and adjacent environmental justice areas in the following ways:

- Boston: Route 1A/Boardman Street Grade Separation – This project will improve air quality by allowing traffic to flow more freely through the area.
- Boston: East Boston Haul Road/Chelsea Truck Route – This project will reduce traffic on local and neighborhood streets through the dedicated freight-haul road and will provide a pedestrian connection to the proposed East Boston Greenway.
- Framingham: Route 126/Route135 Grade Separation – This project will improve air quality in the area by allowing traffic to flow more freely. It will also improve connectivity for people accessing downtown destinations.

- Revere: Mahoney Circle Grade Separation – This project will improve air quality by allowing traffic to flow more freely through the area. Additionally, it will improve connectivity for people accessing nearby destinations and the Revere Beach Blue Line station.
- Somerville: I-93/Mystic Avenue Interchange – This project will improve air quality in the area by allowing traffic to flow more freely. It will also improve connectivity for people accessing the proposed Assembly Square Orange Line station.

More Detailed Results from the Accessibility Analysis and the Mobility, Congestion, and Environmental Analysis

MPO staff compared model results for the 2030 No-Build network and 2030 Build network to current, or 2000 Base Year, conditions to see how conditions are estimated to change for environmental justice areas and populations by the year 2030. The results of these comparisons are summarized below.

Other Accessibility Analysis Results

Figure 14-3 shows that while average transit travel times to area jobs, colleges, and hospitals are at least 30 minutes, they are notably less for environmental justice areas than for non–environmental justice areas.

Figure 14-4 shows that while average highway travel times to colleges and hospitals are at least 10 minutes, they are slightly less for environmental justice areas than for non–environmental justice areas. The differences in average highway travel time to jobs are statistically insignificant. Figures 14-3 and 14-4 show that differences in average travel times between environmental justice areas and non–environmental-justice areas are more pronounced for transit trips than for highway trips.

FIGURE 14-3
Average Transit Travel Times to Area Destinations for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

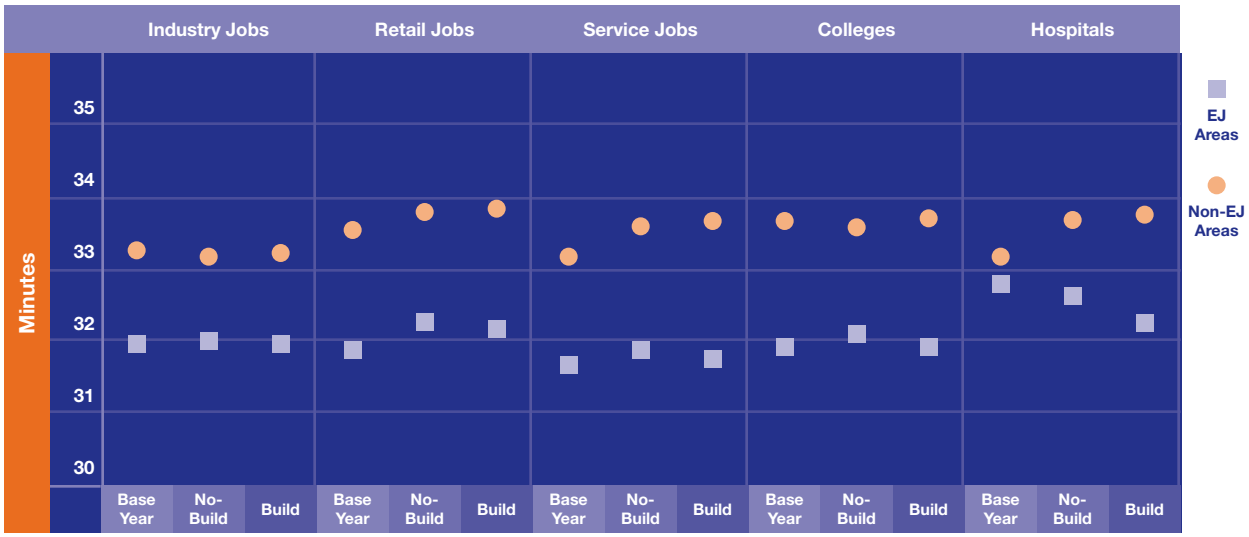
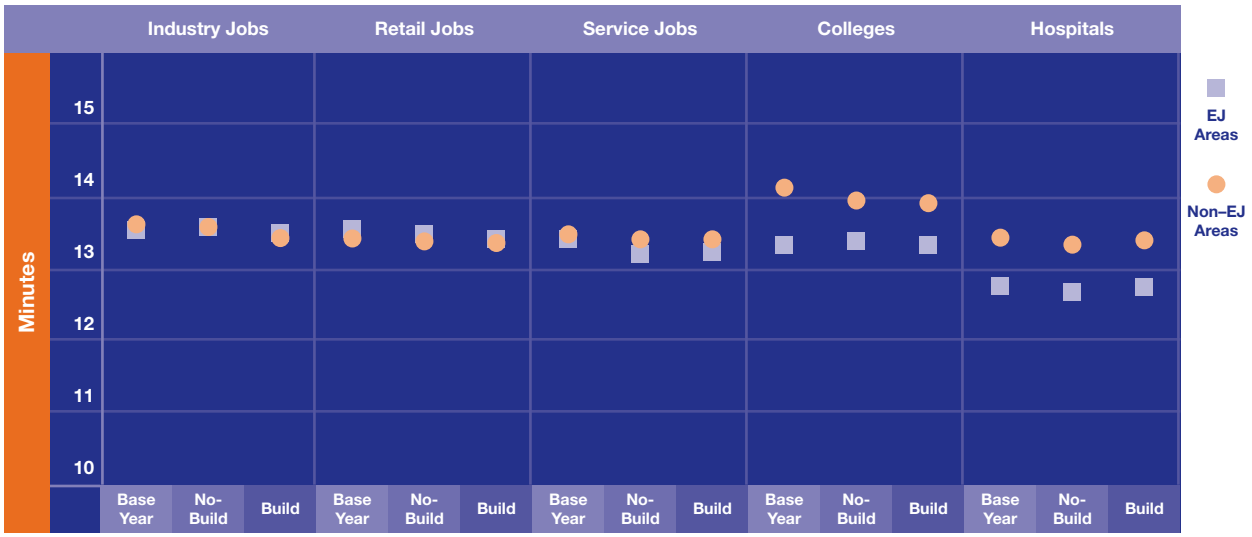


FIGURE 14-4
Average Highway Travel Times to Area Destinations for Environmental Justice and Non-Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks



Figures 14-5 to 14-7 show that the average environmental justice area has transit and highway access to notably more jobs than the average non–environmental justice area. These figures also show that people are estimated to have access to more jobs with the 2030 Build network than with the 2000 Base Year network.

FIGURE 14-5
Average Number of Basic Industry Jobs to Which There is Access for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

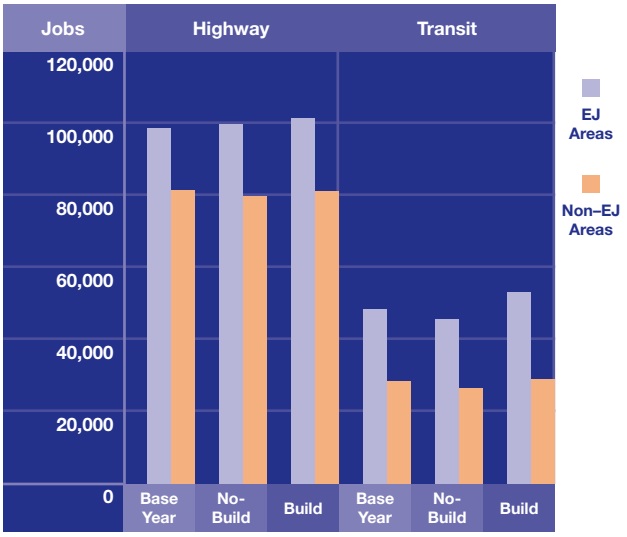


FIGURE 14-6
Average Number of Retail Industry Jobs to Which There is Access for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

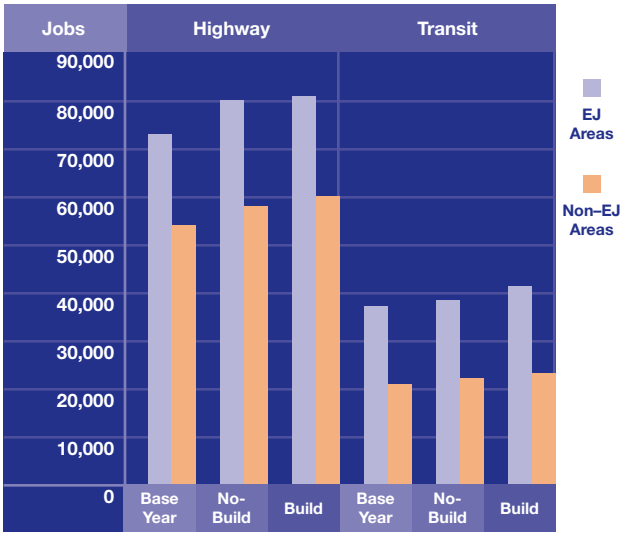


FIGURE 14-7
Average Number of Service Industry Jobs to Which There Is Access for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

FIGURE 14-8
Average Number of Colleges (in Terms of Enrollment) to Which There Is Access for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

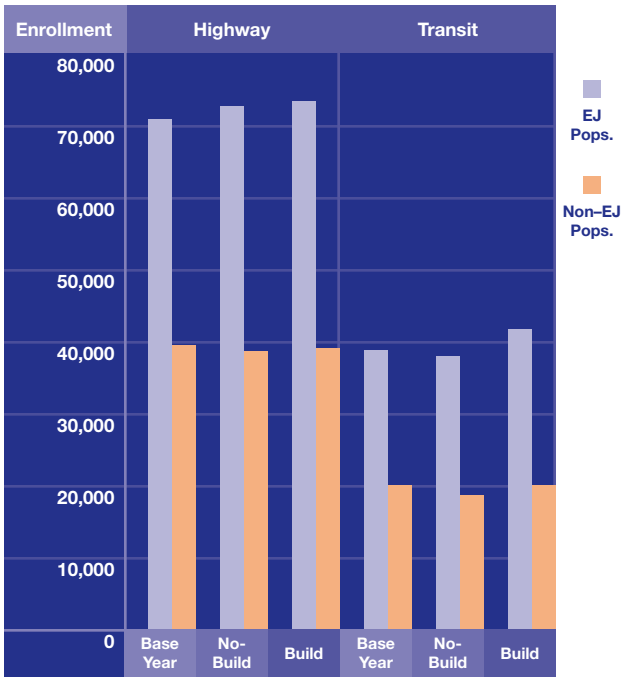
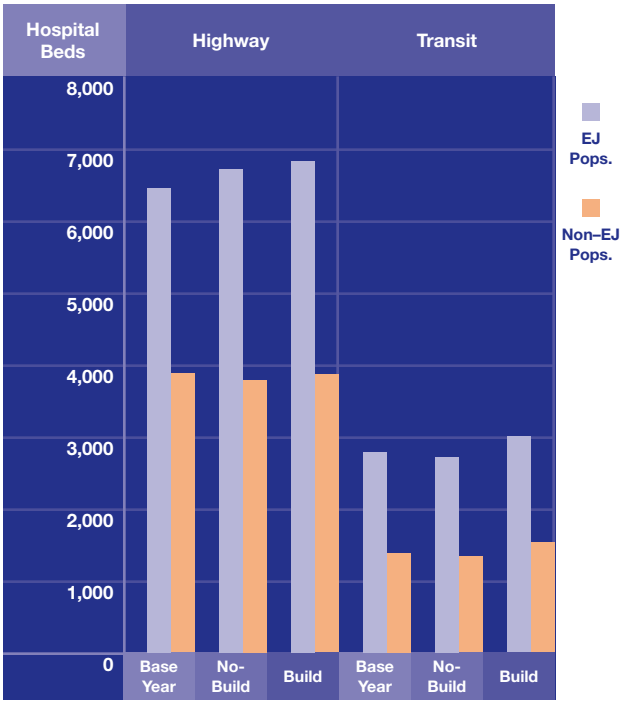


Figure 14-8 shows that the average environmental-justice area has transit and highway access to notably more two- and four-year colleges than the average non–environmental justice area. The figure also shows that people are estimated to have access to more two- and four-year colleges with the 2030 Build network than with the 2000 Base Year network.

Figure 14-9 shows that the average environmental justice area has transit and highway access to notably more hospital beds than the average non–environmental justice area. It also shows that people will have access to more hospitals with the 2030 Build network than with the 2000 Base Year network.

FIGURE 14-9
Average Number of Hospitals (in Terms of Beds) to Which There is Access for Environmental Justice and Non–Environmental Justice Areas in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks



Other Mobility, Congestion, and Environmental Analysis Results

Figure 14-10 shows that average transit travel times for attractions and productions are shorter for environmental justice population zones than for non–environmental justice population zones, with only slight differences between the 2030 networks and the 2000 Base Year network.

FIGURE 14-10
AVERAGE TRANSIT TRAVEL TIMES FOR ENVIRONMENTAL JUSTICE POPULATION ZONES AND NON–ENVIRONMENTAL JUSTICE POPULATION ZONES IN THE 2000 BASE YEAR, 2030 NO-BUILD, AND 2030 BUILD NETWORKS

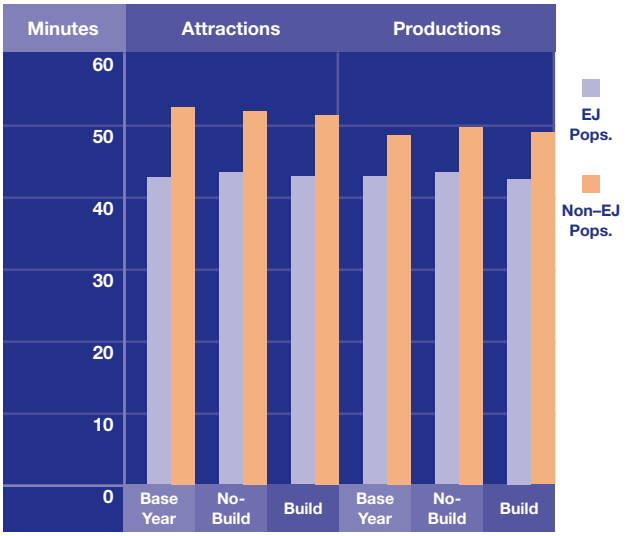
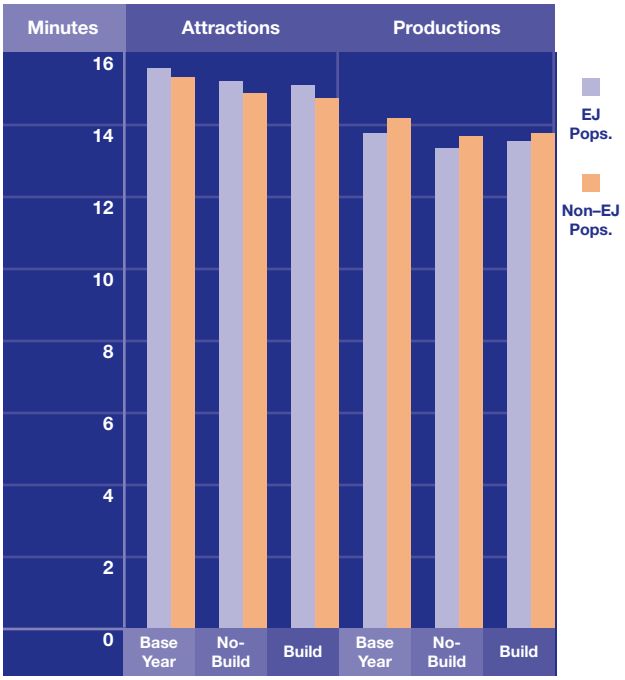


Figure 14-11 shows that average highway attraction travel times are longer for environmental justice population zones; however, they are only approximately 30 seconds longer. Average highway production travel times are shorter for environmental justice population zones.

Figures 14-10 and 14-11 show that average travel times are usually longer for the 2000 Base Year network and are usually shorter for the 2030 Build network. Differences in average travel time between environmental justice population zones and non–environmental justice population zones are more pronounced for transit than for highway trips.

Figure 14-12 shows that average congested VMT is less for environmental justice population

FIGURE 14-11
AVERAGE HIGHWAY TRAVEL TIMES FOR ENVIRONMENTAL JUSTICE POPULATION ZONES AND NON–ENVIRONMENTAL JUSTICE POPULATION ZONES IN THE 2000 BASE YEAR, 2030 NO-BUILD, AND 2030 BUILD NETWORKS



zones than for non–environmental justice population zones. It also shows that both of the 2030 networks are estimated to improve conditions over the 2000 Base Year network.

Figure 14-13 shows that average VMT per square mile is greater for environmental justice population zones than for non–environmental justice population zones. However, the difference is less with the 2030 Build network than the 2000 Base Year network, meaning that the disparity decreases with the recommended plan.

Figure 14-14 shows that average CO emissions are greater for environmental justice population zones than for non–environmental justice population zones. However, both of the 2030 networks improve conditions over the 2000 Base Year network, and the difference in average CO emissions between environmental justice population zones and non–environmental justice population zones is less for the 2030 Build network than for

FIGURE 14-12
Average Congested VMT for Environmental Justice Population Zones and Non–Environmental Justice Population Zones in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

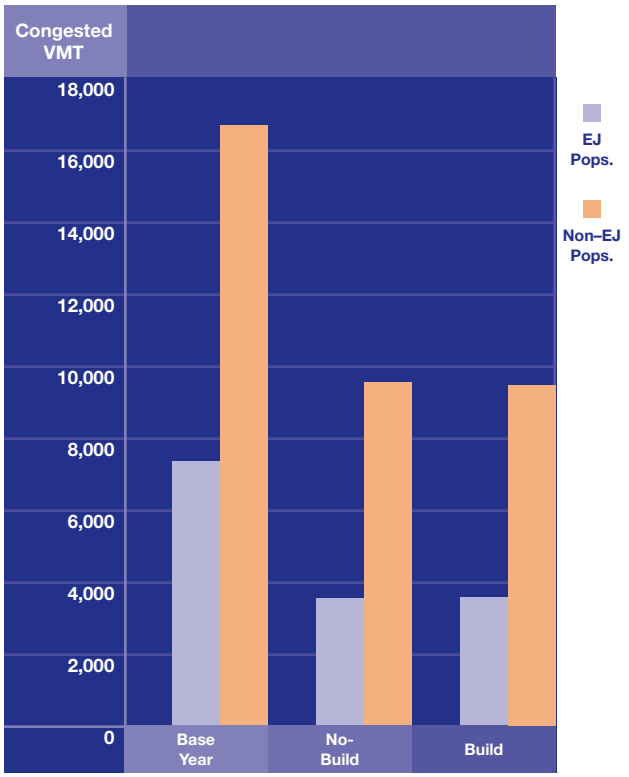
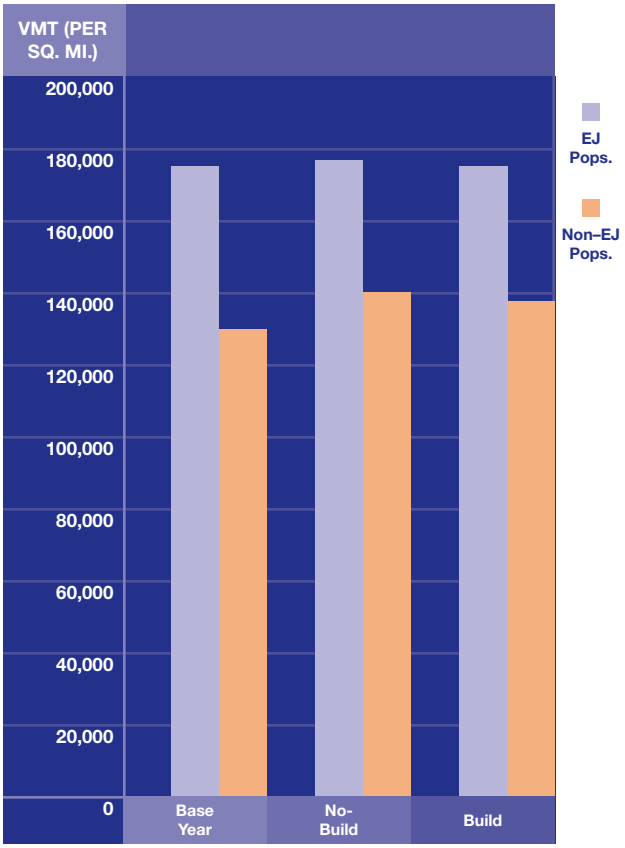


FIGURE 14-13
Average VMT per Square Mile for Environmental Justice Population Zones and Non–Environmental Justice Population Zones in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks

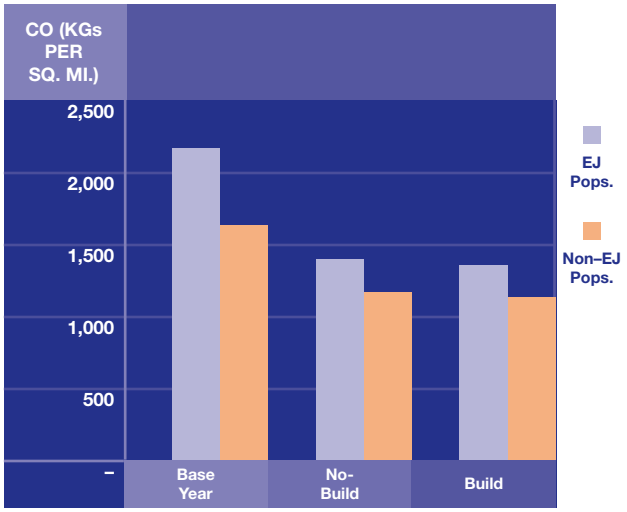


the 2000 Base Year network, meaning that the disparity decreases with the recommended-plan.

Conclusion

The environmental justice analysis indicates that while the 2030 recommended plan Build network improves accessibility, mobility, congestion, and environmental conditions relative to the 2030 No-Build network for both environmental justice and non–environmental justice areas and both environmental justice-population zones and non–environmental justice-population zones, it benefits environmental justice areas and environmental-justice population zones slightly more. The accessibility portion of the analysis found that the decrease in travel times and the increase in the number of area destinations accessed with the 2030 Build network is more pronounced for transit trips than for highway trips.

FIGURE 14-14
Average CO Emissions per Square Mile for Environmental Justice Population Zones and Non–Environmental Justice Population Zones in the 2000 Base Year, 2030 No-Build, and 2030 Build Networks



15

AIR QUALITY CONFORMITY DETERMINATION

Introduction

The 1990 Clean Air Act Amendments (CAAA) require metropolitan planning organizations within nonattainment areas to perform air quality conformity determinations prior to the approval of Transportation Plans and Transportation Improvement Programs (TIP), and at such other times as required by regulation. A nonattainment area is one that the United States Environmental Protection Agency (EPA) has designated as not meeting certain air quality standards. A conformity determination is a demonstration that plans, programs, and projects are consistent with the State Implementation Plan (SIP) for attaining the air quality standards. The CAAA requirement to perform a conformity determination ensures that federal approval and funding go to transportation activities that are consistent with air quality goals. This chapter presents information and analyses for the air quality conformity determination of the JOURNEY TO 2030 Plan, as required by federal regulations (40 CFR Part 93) and the Massachusetts Conformity Regulations (310 CMR 60.03). It also includes the regulatory framework, conformity requirements, planning assumptions, mobile source emissions budgets, and conformity consultation procedures related to the determination.

Legislative Background

The 1970 Clean Air Act defined a one-hour national ambient air quality standard (NAAQS) for ground-level ozone. The one-hour ozone standard is 0.12 parts per million, averaged at each monitor over one hour and not to be exceeded more than once per year. Hourly values are determined by readings recorded at air quality monitors located throughout the state. The 1990 CAAA further classified degrees of nonattainment of the one-hour standard based on the severity of the monitored levels of the pollutant. The entire Commonwealth of Massachusetts was

classified as being in serious nonattainment for the one-hour ozone standard, with a required attainment date of 1999. The attainment date was later extended, first to 2003 and a second time to 2007.

In 1997, the EPA proposed a new, eight-hour ozone standard that replaced the one-hour standard, effective June 15, 2005. Scientific information had shown that ozone could affect human health at lower levels, and over longer exposure times than one hour. The new standard was challenged in court, and after a lengthy legal battle, the courts upheld it. It was finalized in June 2004. The eight-hour standard is 0.08 parts per million, averaged over eight hours and not to be exceeded more than once per year. Nonattainment areas were again further classified based on the severity of the eight-hour values. Massachusetts as a whole was classified as being in moderate nonattainment for the eight-hour standard, but it was separated into two nonattainment areas—Eastern Massachusetts and Western Massachusetts.

The Eastern Massachusetts nonattainment area includes all of Barnstable, Bristol, Dukes, Essex, Middlesex, Nantucket, Norfolk, Suffolk, and Worcester counties. With this nonattainment classification, the CAAA requires the Commonwealth to reduce its emissions of volatile organic compounds (VOCs) and nitrogen oxides (NOx), the two major precursors to ozone formation, to achieve attainment of the eight-hour ozone standard by 2009.

In addition, on April 1, 1996, the cities of Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville were classified as being in attainment for carbon monoxide (CO). As part of the Plan, an air quality conformity analysis must still be completed for these communities, as they have a carbon monoxide maintenance plan approved as part of the SIP. The 2010 CO motor vehicle emission budget established for the Boston CO attainment area with a maintenance plan is 228.33 tons of CO per winter day.

As of April 22, 2002, the community of Waltham was redesignated as being in attainment for CO, with an EPA-approved limited-maintenance plan. In areas with approved limited-maintenance plans, federal actions requiring conformity determinations under the transportation conformity rule are considered to satisfy the "budget test" (as budgets are treated as not constraining in these areas for the length of the initial maintenance period). Any requirements for future"project-level" conformity determinations for projects located within this community will continue to use a "hot-spot" analysis to ensure that any new transportation projects in this CO attainment area do not cause or contribute to CO nonattainment.

On September 6, 2002, the Massachusetts Department of Environmental Protection (DEP) submitted to the EPA a revision of the Massachusetts SIP that included a revised one-hour ozone attainment demonstration for eastern Massachusetts. This SIP revision included a 2007 mobile-source emission budget for VOC and NOx

emissions in the eastern Massachusetts Ozone Nonattainment Area. The EPA found the one-hour budget adequate for conformity purposes on December 6, 2002. With the adoption of the new eight-hour ozone standard, DEP is required to submit an 8-hour budget for attainment of this new standard by 2007. However, a conformity determination is required to be performed on this Plan. Therefore, the EPA determined that the Boston Region MPO must show conformity with the one-hour budget adopted in December 2002. The Boston Region MPO is using the one-hour budget for this conformity determination.

Conformity Regulations

Designated MPOs are required to perform conformity determinations by ozone nonattainment area for their Transportation Plans and TIPs. Section 176 of the CAAA defines conformity to a State Implementation Plan to mean conformity to the plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of the standards. The Boston Region MPO must certify with regard to the activities outlined in the Transportation Plan and TIP that:

- None will cause or contribute to any new violation of any standard in any area.
- None will increase the frequency or severity of any existing violation of any standard in any area.
- None will delay the timely attainment of any standard or any required interim emission reductions or other milestones in any area.

The EPA issued final conformity regulations in the November 24, 1993, *Federal Register,* and DEP issued conformity regulations effective December 30, 1994. They set forth requirements for determining conformity of Transportation Plans, TIPs, and individual projects. The federal conformity regulations were amended several times through May 2005. The components of the required conformity analysis are listed below and are explained in detail subsequently.

Conformity Criteria

- Horizon years
- Latest planning assumptions
- Latest emission model used
- Timely implementation of transportation control measures (TCMs)
- Conformity in accordance with the consultation procedures and SIP revisions
- Public participation procedures
- Financially constrained document

Procedures for Determining Regional Transportation Emissions

The Conformity Test

- Consistent with emission budgets set forth in SIP
- Contributes to reductions in CO nonattainment areas

This conformity determination will show the consistency of the Plan with the 2007 mobile-source emission budget for VOC and NOx in the Eastern Massachusetts Ozone Nonattainment Area and with the CO emission budget for the Boston, Cambridge, Chelsea, Everett, Malden, Medford, Quincy, Revere, and Somerville maintenance area.

Conformity Determination Criteria

This conformity determination has been prepared in accordance with 40 CFR Part 93, Transportation Conformity Rule Amendments: Flexibility and Streamlining: Final Rule. It shows that the Transportation Plan has been prepared following all the guidelines and requirements of the Rule.

Horizon Year Requirements

The horizon years for regional model analysis have been established following 40 CFR 93.106(a) of the Federal Conformity Regulations. The years for which emissions are calculated are shown below.

- 2000 – Milestone Year: This year is currently being used as the base year for calculation of emission reductions of VOCs and NOx.
- 2007 – Milestone Year
- 2010 – Milestone Year: This year is used to show conformity with the ozone budget in Eastern Massachusetts and the CO budget in the Boston nonattainment area.
- 2020 – Analysis Year
- 2030 – Horizon Year: Last forecast year of the Plan

Current Planning Assumptions

Section 93.110 of the Federal Conformity Regulations outlines the requirements for the most recent planning assumptions that must be in place at the time of the conformity determination. Assumptions must be derived from current estimates and future projections of population, household, employment, travel, and congestion data developed by the MPO. Analysis for the Plan is based on U.S. census data and information obtained from the Metropolitan Area Planning Council (MAPC), MassHighway, and other sources. The following is a list of the sources of data used for model calibration in this analysis:

- **Population, households, and household size:** Summary File 1 Data for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Employment:** CTPS's Eastern Massachusetts Site-Level Employment Database for 2000, finalized in 2006.
- **Population, household, and employment forecasts:** Metropolitan Area Planning Council, Eastern Massachusetts demographic forecasts, smart-growth scenario, completed in June 2006 and amended in November 2006.
- **Household income, resident workers, and vehicle ownership:** Summary File 3 data for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Household workers:** Census Transportation Planning Package Part 1 for Massachusetts from the 2000 U.S. Census of Population and Housing.
- **Traffic volumes:** Massachusetts Highway Department, 2003 Traffic Volumes for the Commonwealth of Massachusetts (contains data from 1992–2003), June 2004. Additional traffic counts taken by MassHighway and CTPS.
- **Project-level data:** Obtained from the responsible implementing agency.

Transit Service Policy Assumptions

The transit service assumptions used in ridership modeling for the Plan were based on MBTA service in the spring of 2000. The model calibration was performed using the following:

- *Ridership and Service Statistics,* 8th edition, MBTA, 2002.
- The Central Artery/Third Harbor Tunnel Regional Transit Mitigation Program, as outlined in agreements between the Massachusetts DEP and Executive Office of Transportation (EOT).

The operating policies and assumed transit ridership have not changed since the conformity determination prepared for the 2004–2025 Regional Transportation Plan in August 2005.

Emission Inventory Assumptions

For the Plan, conformity is determined in relation to the SIP mobile-source emission budgets that were approved in December 2002 for VOC and NOx. The VOC mobile-source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile-source budget for NOx is 226.363 tons per summer day.

The Boston Region MPO area's VOC and NOx emissions are included with those in the following MPO regions to show conformity with the SIP in the Eastern Massachusetts Ozone Nonattainment Area:

- Cape Cod MPO
- Central Massachusetts MPO
- Merrimack Valley MPO
- Montachusett Region MPO
- Northern Middlesex MPO
- Old Colony MPO
- Southeastern Region MPO
- Martha's Vineyard Commission*
- Nantucket Planning and Economic Development Commission*

* These regions are considered to be MPOs for planning purposes

CO emission projections have been set for the nine cities in the Boston area classified as being in attainment for CO. An emission attainment inventory for CO of 501.53 tons per winter day was established for all sources of CO emissions (mobile, industrial, and all other sources) for the redesignation year 1993. Of that 501.53 tons, 305.43 tons per winter day was allocated for mobile sources. In addition to the attainment year inventory, the EPA required that emission projections for every five years through 2010 be developed for all sources to ensure that the combination of all CO emissions will not exceed the 501.53 tons per winter day maximum allowance in the future. The mobile-source emission projection of 228.33 tons per winter day has been set for 2010. Emissions from the nine towns in the Boston area may not exceed the amount in the last year of the maintenance plan (2010).

EOT's Office of Transportation Planning estimated the results for all of the MPOs in the Eastern Massachusetts Ozone Nonattainment Area using

a statewide travel demand model (the Boston Region MPO model results were included as the latest planning assumptions for the conformity analysis). The air quality analysis has been finalized for all of the MPOs, and EOT has made the final conformity determination for this ozone nonattainment area.

Latest Emission Model

Emission factors used for calculating emission changes were determined using MOBILE 6.2, the model used by DEP in determining the mobile-source budget. Emission factors for motor vehicles are specific to each model year, pollutant type, temperature, and travel speeds. MOBILE 6.2 requires a wide range of input parameters, including inspection and maintenance program information and other data such as anti-tampering rates, hot/cold start mix, emission failure rates, vehicle fleet mix, and fleet age distribution.

The input variables used in this conformity determination were received from DEP. The inputs used for the 2000 Base Year were the same as those used in determining the latest emissions inventory for the Commonwealth of Massachusetts. The inputs used for the years 2007 through 2030 were also received from DEP and include information on programs that were submitted to the EPA as the strategy for the Commonwealth to obtain ambient air quality standards.

Timely Implementation of Transportation Control Measures

Transportation control measures (TCMs) were required in the SIP in revisions submitted to the EPA in 1979 and 1982 and those submitted as part of the Central Artery/Tunnel project. The TCMs included in the 1979 and 1982 submissions were accomplished through construction or through implementation of ongoing programs. The only exceptions are the bus immersion-heater program, the Newton Rider bus service, the private bus insurance discount concept, and the pedestrian malls in Lynn, Cambridge, and Needham. Other services have been substituted for these TCMs. These projects were all included in past Boston Region MPO Transportation Plans and TIPs.

TCMs were also submitted as a SIP commitment as part of the Central Artery/Tunnel project mitigation. The status of these projects has been updated using the Administrative Consent Order (ACO) signed by EOT and the Executive Office of Environmental Affairs (EOEA) in September 2000 and January 2005, and the Project Update and Schedule, which was submitted by the MBTA to DEP in January 2007. All of the projects are in the Plan as completed projects. They include:

- Southeast Expressway High-Occupancy-Vehicle (HOV) Lane
- HOV Lane on I-93 to Mystic Avenue
- 20,000 New Park-and-Ride Spaces
- Ipswich Commuter Rail Extension to Newburyport
- Old Colony Commuter Rail Extension
- Framingham Commuter Rail Extension to Worcester
- South Boston Piers Transitway

Reevaluation Process of SIP TCMs

The September 2000 ACO reconciled and adjusted dates of completion for all projects required as mitigation for the Central Artery/Tunnel project that had not been completed at that time. The conformity determination of this Plan includes all projects that are part of the ACO. The two transit TCM SIP commitment projects in the ACO that were not completed on schedule are the Greenbush Line of the Old Colony Commuter Rail Service and the Arborway Restoration project. Interim substitute projects were submitted to DEP for these projects and are included in this conformity determination.

An amended ACO was signed in January 2005 by the transportation agency in meeting public transit commitments that are part of mitigation measures for the Central Artery/Tunnel project. It outlines revised schedules, mitigation measures, a supplemental environmental project, and financial penalties to address violations. All projects included in both ACOs are included in this Plan and conformity determination.

As outlined in the ACOs, several SIP TCM commitments are outstanding. The Office for Commonwealth Development (OCD), EOT, and DEP were interested in reevaluating the uncompleted projects to ensure that any further transportation investments fund the best regionally significant projects that meet air quality goals and requirements. Transportation planning and decision-making have changed significantly since adoption of the original Central Artery/Tunnel SIP commitments. The agencies embarked upon a reevaluation process for three projects—the Green Line Arborway Restoration, the Red Line–Blue Line Connector, and the Green Line Extension to Ball Square/Tufts University.

In 2003, the MBTA completed a new Program for Mass Transportation (PMT). The PMT is the MBTA's long-range planning document and the foundation for transit capital planning in eastern Massachusetts. The 2003 PMT prioritized projects within modes and by investment category.

It expanded on the evaluation criteria that were used in previous PMTs and determined overall project ratings based on factors such as utilization, mobility, cost-effectiveness, air quality, service quality, economic and land use impacts, and environmental justice. The PMT rated the Arborway Restoration, Red Line–Blue Line Connector, and Green Line to Ball Square/Tufts University projects as medium-priority rapid transit expansions. The PMT ratings suggested that these projects may no longer be the best investments for the region.

In this Plan, the MPO used the PMT ratings to select transit projects. Despite their medium rating within the PMT, the MPO did prioritize funding for these projects because they are SIP commitments, and the Commonwealth is required to show timely implementation of the TCMs.

The Executive Office of Transportation and the Boston Region MPO both place a significant emphasis on objective criteria, and this focus has been reflected in the transportation decision-making process. In 2003, EOT developed objective criteria and presented them to the Commonwealth's MPOs and the general public. The Boston Region MPO had already begun work

on objective criteria, and its criteria were similar to those developed for statewide use. The MPO applied the objective criteria to its 2005–2009, 2006–2010, and 2007–2010 TIPs. The use of objective selection criteria for programming funds is an important change within the Commonwealth. The state, along with its MPOs, has adopted a more rational, transparent approach to project prioritization.

For these reasons, OCD, EOT, and DEP, along with other partners, began the process of reexamining the Red Line–Blue Line Connector, Green Line Extension to Ball Square/Tufts University, and Arborway Restoration projects. OCD, EOT, and DEP recognized the importance of this effort, since the timely implementation of TCM's is critical for the Commonwealth to achieve federal air quality conformity and its own air quality goals.

Correspondence between EOT and DEP has been ongoing since the adoption of the 2004 Plan. On December 8, 2003, DEP's then Commissioner Golledge sent a letter to EOT's then Secretary Grabauskas notifying EOT that there are areas of noncompliance with the ACO and requesting a meeting between the two agencies. The agencies met, and on January 22, 2004, Commissioner Golledge sent a follow-up letter reasserting the need for the agencies to work together to address outstanding issues. He stated that a process needed to be established to involve and solicit input from the public.

At the May 18, 2004, Central Artery/Tunnel Project Environmental Oversight Committee meeting, Commissioner Golledge said there was a need to revisit the mitigation projects. He stated that this would be done in a public, open, and transparent manner. If there were to be any changes, the overall goal would be to ensure that the air quality benefits are equal to those of the existing mitigation projects. Mobility, ridership, service quality, environmental justice, land use, and economic development would also be considered. EOT developed a process in consultation with DEP and included input from the public to determine if the existing mitigation projects were the projects that would provide the best air quality benefits to the public. The Boston Region MPO was involved in that process.

On September 2, 2004, EOT submitted the Transit Commitments 2004 Project Schedule and Project Update to the Massachusetts Department of Environmental Affairs. In the cover letter transmitting the report, EOT recognized the air quality benefits of the transit commitments and was dedicated to providing equal or greater benefits if any changes were made to the existing list of projects. They outlined their intentions for a comprehensive public involvement process and for working cooperatively with concerned MPOs should any changes to the SIP be necessary. In the letter, EOT asked DEP to confirm the air quality benefits to be derived from the remaining projects. The confirmation allowed EOT to begin an open and transparent process for developing a possible new set of projects, or even a single new project, to attain the air quality benefits of the transit commitments.

On October 26, 2004, Commissioner Golledge responded by calling for a joint public meeting on the remaining transit commitments. He also agreed with the estimates of emission reductions that were included in the September 2, 2004, letter.

On November 10, 2004, EOT submitted a summary of the reasoning that prompted the revisiting of the SIP commitments to FHWA, FTA, and DEP. The six-step process began in December 2004, with an estimated completion date, at that time, of December 2005.

The first step of the process included initial outreach and air-quality goal setting. This process began with a public meeting, sponsored by EOT and DEP, held on December 14, 2004, at the Gardner Auditorium, located in the State House. Two additional public meetings were scheduled because a number of people commented that many could not attend on December 14

because the meeting was held during the day. Public meetings were held in Jamaica Plain and Somerville subsequently.

DEP reviewed the public comments and provided an air quality budget in a letter to EOT dated March 25, 2005, that quantified the air quality benefits needed to complete the Commonwealth's remaining obligations to the SIP. DEP's then Commissioner Golledge established the air quality benefits associated with the three projects being reevaluated with an overall upward adjustment of 10 percent.

EOT and the Boston Region MPO completed step two of the process—the evaluation of the original and alternative SIP TCM projects. This step involved the examination of the high-priority transit projects included in the PMT and all outstanding SIP transit commitments in the Boston Region MPO area using the state's objective criteria to determine the most important regional projects. EOT presented their preferred alternative to the three projects to DEP in a letter dated May 18, 2005, and to the Boston Region MPO in meetings on May 26, 2005, and June 14, 2005. The preferred alternative includes:

- Enhanced Green Line extended beyond Lechmere to Medford Hillside and Union Square
- Fairmount Line Improvements
- 1,000 Additional Parking Spaces in the Boston Region

The MPO posted this information on its Web site and scheduled a public meeting to hear comments concerning these changes on June 22, 2005. On July 19, 2005, the MPO sent EOT a letter detailing the outcome of EOT's consultation with the MPO on the reevaluation process.

EOT and DEP proposed a SIP revision of regulatory changes. DEP agreed to consider regulatory changes, after EOT reevaluated the remaining SIP commitments. The primary reason for these changes is the infeasibility thresholds of engineering, environment, and economics. EOT submitted the SIP substitutions along with suggested regulatory changes required to implement the projects, in a letter from EOT Secretary Cogliano to DEP's then Commissioner Golledge on August 10, 2005.

DEP published a notice of public hearing on the proposed amendments to 310 CMR 7.36. The public hearing took place on December 21, 2005. The comment period closed on January 17, 2006. DEP reviewed over 500 written comments that were received and discussed them with the state agencies. The final draft of the revised regulation was reviewed by the EOEA and submitted to the Executive Office of Administration and Finance (A&F). It was approved by A&F, filed with the Secretary of State, and published in the *Massachusetts Register,* effective December 1, 2006. DEP submitted the revised regulation to EPA on December 15, 2006, for their review, which could take six months or longer.

Since this reevaluation process has not been completed, the three original SIP commitments are included in the JOURNEY TO 2030 Plan. The progress on the reevaluation process will continue to be reported in the Boston Region MPO's annual TIP.

Consultation Procedures

The conformity regulations require the MPO to make a conformity determination according to consultation procedures set out in the state and federal regulations and to follow public involvement procedures established by the MPO under federal metropolitan transportation planning regulations.

Both the state and federal regulations require that the Boston Region MPO, EOT, MassHighway, DEP, EPA (Region 1), and FHWA (Region 1) consult on the following issues:

- Selection of regional emissions analysis models, including model development and assessing project design factors for modeling.
- Selection of inputs to the most recent EPA-approved emissions factor model.
- Selection of CO hot-spot modeling procedures, as necessary.
- Identification of regionally significant projects to be included in the regional emissions analysis.
- Identification of projects, which have changed in design and scope.
- Identification of exempt projects.
- Identification of exempt projects that should be treated as non exempt because of adverse air quality impacts.
- Identification of the latest planning assumptions and determination of consistency with SIP assumptions.

These issues have all been addressed through consultation among the agencies listed above.

Public Participation Procedures

Title 23 CFR Sections 450.324 and 40 CFR 90.105(e) require that the development of the Transportation Plan, TIP, and related certification documents provide an adequate opportunity for public review and comment.

Section 450.316(b) establishes the outline for MPO public participation programs. The Boston Region MPO's public participation program was formally adopted in March 2002. The development and adoption of this program conforms to these requirements. The program guarantees public access to the Transportation Plan and TIP and all supporting documentation, provides for public notification of the availability of the Transportation Plan and TIP and the public's right to review the documents and comment on them, and provides a public review and comment period prior to the adoption of the Transportation Plan and TIP and related certification documents by the MPO.

On February 25, 2007, a public notice was placed in the *Boston Globe* informing the public of its right to comment on this draft document. On April 12, 2007, the Boston Region MPO voted to approve the Plan and its Air Quality Conformity Determination. This allowed ample opportunity for public comment and MPO review of the draft document. These procedures comply with the associated federal requirements.

Financial Consistency

Title 23 CFR Section 450.324 and 40 CFR 93.108 require the Transportation Plan to "be financially constrained by year and include a financial plan that demonstrates which projects can be implemented using current revenue sources and which projects are to be implemented using proposed revenue sources."

This Boston Region Transportation Plan, JOURNEY TO 2030, is financially constrained to projections of federal and state resources reasonably expected to be available during the appropriate time frame. Projections of federal resources are based upon the estimated apportionment of the federal authorizations contained in SAFETEA-LU, the six-year transportation reauthorization bill, as allocated to the region by the state or as allocated among the various MPOs according to federal formulas or MPO agreement. Projections of state resources are based upon the allocations contained in the current Transportation Bond Bill and historic trends. Therefore, the Plan complies with federal requirements relating to financial planning.

Procedures for Determining Regional Transportation Emissions

The federal conformity regulations set forth specific requirements for determining transportation emissions. The requirements and the procedures used for the Plan are summarized below.

Demographics, Employment, and Transportation Demand

Specific sources of population, household, employment, and traffic information used in the Plan have been listed above under the Latest Planning Assumptions section. Chapter 13 outlines recommendations for specific projects for the time period ending in 2030 for the Boston region.

Only regionally significant projects are required to be included in the travel-demand modeling efforts. The final federal conformity regulations define regionally significant as follows:

> A transportation project (other than an exempt project) that is on a facility which serves regional transportation needs (such as access to and from the area outside of the region, major activity centers in the region, major planned developments such as new retail malls, sport complexes, etc., or transportation terminals as well as most terminals themselves) and would be included in the modeling of a metropolitan area's transportation network, including at a minimum all principal arterial highways and all fixed guideway transit facilities that offer an alternative to regional highway travel.

In addition, specific projects have been exempt from regional modeling emissions analysis. The categories of exempt projects include:

- Intersection channelization projects
- Intersection signalization projects at individual intersections
- Interchange reconfiguration projects
- Changes in vertical and horizontal alignment
- Truck size and weight inspection stations
- Bus terminals and transfer points

The Recommended Plan Network in this conformity determination is composed of projects proposed in the approved Transportation Improvement Programs, projects in the Plan, and projects in the MBTA capital budget. A list of the projects that meet these criteria and are included in the Recommended Plan network and this conformity determination is provided in Table 15-1.

In addition to emissions calculated using the regional transportation model (includes emissions from cars, trucks, and motorcycles), a separate analysis was performed off model to determine emissions from commuter rail, commuter boat, and the MBTA bus program. These calculations are shown in Table 15-2.

TABLE 15-1

JOURNEY TO 2030: FUTURE NEEDS ANALYSIS RECOMMENDED PLAN NETWORKS

PROJECT	2010 BUILD	2020 BUILD	2030 BUILD
MIDDLESEX TURNPIKE IMPROVEMENTS (BEDFORD, BURLINGTON, & BILLERICA)	X	X	X
RTE. 128 CAPACITY IMPROVEMENTS (BEVERLY TO PEABODY)			X
EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE (BOSTON)		X	X
ARBORWAY RESTORATION OR SUBSTITUTE PROJECTS (BOSTON)	X	X	X
100 ADDITIONAL BUSES TO IMPROVE SERVICE ON EXISTING RTES		X	X
RED LINE/BLUE LINE CONNECTOR (BOSTON)		X	X
ROUTE 1A/BOARDMAN STREET GRADE SEPARATION (BOSTON)		X	X
RUSSIA WHARF FERRY TERMINAL (BOSTON)	X	X	X
RUTHERFORD AVENUE/SULLIVAN SQUARE (BOSTON)		X	X
CONSOLIDATED RENTAL CAR FACILITY (BOSTON LOGAN AIRPORT)		X	X
SILVER LINE PHASE 3 (50/50) (BOSTON)		X	X
GREEN LINE TO BALL SQUARE/TUFTS UNIVERSITY (BOSTON, MEDFORD & SOMERVILLE)		X	X
I-93/ROUTE 3 INTERCHANGE- BRAINTREE SPLIT (BRAINTREE)		X	X
URBAN RING PHASE 2 (COMPACT COMMUNITIES)		X	X
I-93/I-95 INTERCHANGE (CANTON)		X	X
I-95 (NB)/DEDHAM STREET RAMP (CANTON)	X	X	X
CONCORD ROTARY (CONCORD)			X
ROUTE 2/CROSBY'S CORNER (CONCORD AND LINCOLN)		X	X
ROUTE 1/114 CORRIDOR IMPROVEMENTS (DANVERS & PEABODY)			X
RIVER'S EDGE BOULEVARD [FORMERLY TELECOM CITY BOULEVARD] (EVERETT, MALDEN AND MEDFORD)		X	X
ROUTE 16 - REVERE BEACH PARKWAY (EVERETT, MEDFORD & REVERE)			X
ROUTE 126/135 GRADE SEPARATION (FRAMINGHAM)			X
ROUTE 85 IMPROVEMENTS (HUDSON)		X	X
ROUTE 1 IMPROVEMENTS (MALDEN & REVERE)			X
I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE (MARLBOROUGH & HUDSON)		X	X
NEEDHAM STREET/HIGHLAND AVENUE (NEWTON & NEEDHAM)		X	X
QUINCY CENTER CONCOURSE, PHASE 2 (QUINCY)		X	X
I-93/I-95 INITIATIVE (READING & WOBURN)		X	X
MAHONEY CIRCLE GRADE SEPARATION (REVERE)			X
ROUTE 1/ROUTE 16 INTERCHANGE (REVERE)		X	X
ROUTE 1A/ROUTE 16 CONNECTION (REVERE)			X
NORTH SHORE TRANSIT IMPROVEMENTS (REVERE TO LYNN)		X	X
BOSTON STREET (SALEM)		X	X
BRIDGE STREET (SALEM)		X	X
ASSEMBLY SQUARE ORANGE LINE STATION (SOMERVILLE)		X	X
I-93/MYSTIC AVENUE INTERCHANGE (SOMERVILLE)			X
SOUTH WEYMOUTH NAVAL AIR STATION ACCESS IMPROVEMENTS (WEYMOUTH, HINGHAM, & ROCKLAND)		X	X
ROUTE 18 (WEYMOUTH)	X	X	X
ROUTE 3 SOUTH ADDITIONAL LANES (WEYMOUTH TO DUXBURY)			X
I-93/ROUTE 129 INTERCHANGE (WILMINGTON & READING)		X	X
NEW BOSTON STREET BRIDGE (WOBURN)			X

TABLE 15-2

Summary of Emissions from Off-Model Sources of VMT in Eastern Massachusetts

VOC EMISSIONS								
MODE	2007		2010		2020		2030	
	GRAMS	TONS	GRAMS	TONS	GRAMS	TONS	GRAMS	TONS
BUSES	50,000	0.055	50,000	0.055	52,000	0.057	52,000	0.057
COMMUTER RAIL	393,000	0.433	365,000	0.402	379,000	0.418	331,000	0.365
COMMUTER BOAT	392,000	0.431	392,000	0.431	392,000	0.431	392,000	0.431
TURNPIKE PARK-AND-RIDE	-9,000	-0.010	-6,400	-0.070	-3,300	-0.004	-3,000	-0.003
TOTAL	**826,000**	**0.911**	**800,600**	**0.883**	**819,700**	**0.904**	**772,000**	**0.851**

NOx EMISSIONS								
MODE	2007		2010		2020		2030	
	GRAMS	TONS	GRAMS	TONS	GRAMS	TONS	GRAMS	TONS
BUSES	1,844,000	2.033	1,844,000	2.033	2,275,000	2.508	2,275,000	2.508
COMMUTER RAIL	7,093,000	7.819	6,531,000	7.199	6,731,000	7.420	5,867,000	6.467
COMMUTER BOAT	741,000	0.817	741,000	0.817	741,000	0.817	741,000	0.817
TURNPIKE PARK-AND-RIDE	-22,200	-0.024	-15,800	-0.017	-4,100	-0.005	-2,600	-0.003
TOTAL	**9,655,800**	**10.644**	**9,100,200**	**10.031**	**9,742,900**	**10.740**	**8,880,400**	**9.789**

Changes in Project Design Since the Last Conformity Determination Analysis

The Commonwealth requires that any change in project design from the previous conformity determination for the region be identified. The last conformity determination was performed on the 2007–2010 Transportation Improvement Program, in August 2006. Changes that have occurred since the last conformity determination are as follows:

- Demographic projections have been updated and are included in the transportation demand model.
- The list of recommended projects in the Plan has changed.
- Conformity determination must use new emission factors submitted by DEP that reflect the latest assumptions.

Model-Specific Information

40 CFR Part 93.111 outlines requirements pertaining to the network-based transportation demand models. These requirements include modeling methods and functional relationships that are to be used in accordance with accepted professional practice and are to be reasonable for purposes of emission estimation. The Boston Region MPO has used the methods described in the conformity regulations in the analysis of this Plan.

Highway Performance Monitoring System Adjustments

As stated in EPA guidance, all areas of serious ozone and carbon monoxide nonattainment must use FHWA's Performance Monitoring System (HPMS) to track daily vehicle-miles of travel (VMT) prior to attainment to ensure that the state is in line with commitments made in reaching attainment of the ambient air quality standards by the required attainment dates. MassHighway provided HPMS information to DEP. DEP used this information in setting mobile-source budgets for VOCs, NOx, and CO in all SIP revisions prior to 1997. DEP has since revised its VOC and NOx budgets using transportation-demand model runs. However, the models must still be compared to HPMS data since HPMS is currently the accepted tracking procedure as outlined in the regulations.

The conformity regulations require that all model-based VMT be compared with the HPMS VMT to ensure that the region is in line with VMT and emission projections made by DEP. An adjustment factor that compares the 2000 HPMS VMT to the 2000 transportation model VMT has been developed. This adjustment factor is then applied to all modeled VOC and NOx emissions for the years 2007 through 2025 to ensure consistency with EPA-accepted procedures.

$$\frac{\text{2000 HPMS VMT}}{\text{2000 Modeled VMT}} = \text{Adjustment factor for VOC and NOx}$$

HPMS adjustment factors, calculated on a regional basis, are applied to the model output of future scenarios, and they occasionally change as base-year models are updated or improved. The latest HPMS factors for the Eastern Massachusetts Ozone Nonattainment Area are shown in Table 15-3.

Since the CO emission budget for the Boston CO attainment area was determined using the HPMS method rather than the transportation model, a different adjustment factor is applied to

TABLE 15-3

HPMS Adjustment Factors

	2000 HPMS	2000 TRAVEL DEMAND	HPMS/MODEL
REGION	**VMT (MILES)**	**MODEL VMT (MILES)**	**CONVERSION FACTOR**
CAPE COD	6,204,000	4,763,248	1.302
CENTRAL MASS.	12,920,000	14,533,106	0.889
MARTHA'S VINEYARD	219,000	159,409	1.374
MERRIMACK VALLEY	8,920,000	8,563,266	1.042
BOSTON	59,139,000	79,040,650	0.748
MONTACHUSETT	5,366,000	4,815,154	1.114
NANTUCKET	108,000	56,498	1.912
NORTHERN MIDDLESEX	7,261,000	6,907,993	1.051
OLD COLONY	6,058,000	6,590,912	0.919
SOUTHEASTERN MASS.	14,007,000	13,631,934	1.028
TOTAL EASTERN MA	**120,202,000**	**139,062,169**	**0.864**

the CO emissions for the nine cities and towns in that area. This was done by comparing the 1990 CO emissions from the nine cities and towns resulting from the 1990 base year model run to the 1990 HPMS-generated CO emissions data submitted as part of the SIP. The HPMS data was divided by the model data to determine the CO adjustment factor to be applied to all modeled CO emissions for future years. The CO HPMS adjustment factor is 0.71.

The Conformity Test

Consistency with Emission Budgets Set Forth in the SIP

The Boston Region MPO has conducted an air quality analysis of JOURNEY TO 2030. The purpose of the analysis is to evaluate the air quality impacts of the projects included in the Plan on the SIP. The analysis evaluates the change in ozone-precursor (VOCs and NOx) emissions and CO emissions due to implementation of the Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA's final conformity regulations. They are also consistent with procedures used by DEP to develop Massachusetts's "1990 Base Year Emission Inventory," "1996 Reasonable Further Progress Plan," "Post-1996 Reasonable Further Progress Plan," "1996 Rate of Progress Report," and "Ozone Attainment Demonstration" for the SIP. All consultation procedures were followed to ensure that a complete analysis of the Plan was performed and was consistent with the SIP.

The primary test for showing conformity with the SIP is to demonstrate that the air quality conformity of this Plan is consistent with the emission budgets set forth in the SIP. The Massachusetts Reasonable Further Progress Plan (RFP) was deemed complete by the EPA on June 5, 1997. The EPA determined that the 15 percent RFP SIP submittal contained an adequate mobile source emissions budget to conduct conformity determinations using the conformity criteria. In addition, the 2007 mobile-source emission budget for eastern Massachusetts was found adequate for conformity purposes by the EPA in December 2002.

The MPO staff estimated VOC and NOx emissions for the Boston region. On behalf of EOT, MassHighway included the Boston Region MPO emissions estimates in the final emission totals for all areas and all MPOs in Massachusetts. The VOC mobile-source emission budget for 2007 for the Eastern Massachusetts Ozone Nonattainment Area has been set at 86.7 tons per summer day, and the 2007 mobile-source budget for NOx is 226.363 tons per summer day. As shown in Tables 15-4 and 15-5, the results of the air quality analysis demonstrate that the VOC and NOx emissions from all build scenarios are less than the VOC and NOx emissions budgets for the Eastern Massachusetts Ozone Nonattainment Area.

The CO mobile-source attainment inventory for 1993 for the nine cities in the Boston area recently reclassified as being in attainment is 305.43 tons per winter day. The projection of mobile sources for the Boston area is 228.33 tons per winter day for 2010. Estimates of CO emissions for the nine cities in the Boston maintenance area for various years are shown in Table 15-6. The CO emissions are less than the CO emission budget.

Conclusion

The Clean Air Act Amendments of 1990 established air quality conformity requirements for transportation plans, programs, and projects. The EPA published a final rule in the November 24, 1993, *Federal Register,* which was last amended on August 15, 1997, providing procedures to be followed by the U.S. Department of Transportation in determining conformity of transportation plans, programs, and projects with the SIP for meeting air quality standards. Eastern Massachusetts has been designated a "moderate" ozone nonattainment area for the eight-hour ozone standard. Federal conformity regulations require that the impact of transportation plans,

TABLE 15-4

VOC Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(All emissions expressed in tons per summer day)

YEAR	BOSTON REGION ACTION EMISSIONS	EASTERN MASS. ACTION EMISSIONS	EMISSION BUDGET	DIFFERENCE (ACTION – BUDGET)
2000	N/A	166.545	N/A	N/A
2007	22.7093	61.957	86.700	-24.743
2010	18.7438	49.718	86.700	-36.982
2020	13.5291	29.805	86.700	- 56.895
2030	12.9286	28.714	86.700	- 57.986

TABLE 15-5

NOx Emissions Estimates for the Eastern Massachusetts Ozone Nonattainment Area
(All emissions expressed in tons per summer day)

YEAR	BOSTON REGION ACTION EMISSIONS	EASTERN MASS. ACTION EMISSIONS	EMISSION BUDGET	DIFFERENCE (ACTION – BUDGET)
2000	N/A	287.877	N/A	N/A
2007	63.7815	174.098	226.363	-52.265
2010	48.2882	129.201	226.363	-97.162
2020	24.2932	45.439	226.363	- 180.924
2030	20.1948	34.744	226.363	- 191.619

TABLE 15-6

Winter Carbon Monoxide (CO) Emissions Estimates for the CO Maintenance Area for the Nine Cities in the Boston Area
(All emissions expressed in tons per winter day)

YEAR	BOSTON BUILD EMISSIONS	EMISSION BUDGET	DIFFERENCE (ACTION – BUDGET)
2010	62.10	228.33	-166.23
2020	49.27	228.33	-179.06
2030	45.85	228.33	-182.48

programs, and projects on nonattainment areas be evaluated.

The Boston Region MPO has conducted an air quality analysis for projects in JOURNEY TO 2030. The purpose of the analysis is to evaluate the air quality impacts of the Plan on the SIP. The analysis evaluates the change in ozone precursor emissions (VOCs and NOx) and CO emissions due to the implementation of the Plan. The modeling procedures and assumptions used in this air quality analysis follow the EPA's and the Commonwealth's guidelines and are consistent with all present and past procedures used by the Massachusetts DEP to develop and amend the SIP.

EOT has found the emission levels from all areas and all MPOs in eastern Massachusetts, including emissions resulting from implementation of the Plan, to be in conformance with the SIP according to state and federal conformity criteria. Specifically, the following conditions are met:

- The VOC emissions for the build scenarios are less than the 2007 VOC mobile-source emission budget for analysis years 2007 through 2030.
- The NOx emissions for the build scenarios are less than the 2007 NOx mobile-source emission budget for analysis years 2007 through 2030.
- The CO emissions for the build scenarios are less than projections for analysis years 2010 through 2030 for the nine cities in the Boston CO maintenance area.

In accordance with Section 176(c)(4) of the Clean Air Act as amended in 1990, the Boston Region MPO has completed this review and hereby certifies that JOURNEY TO 2030 and its latest conformity determination conditionally conform with 40 CFR Part 93 and 310 CMR 60.03 and are consistent with the air quality goals in the Massachusetts State Implementation Plan.

APPENDIX A

PUBLIC COMMENTS

In developing JOURNEY TO 2030, the MPO conducted a variety of outreach activities, beginning in the fall of 2005, targeting audiences that included: area residents; municipal, state, and federal officials; businesses; and traditionally underrepresented persons, including people with disabilities, low-income and minority communities, and non–English speakers. Methods for eliciting public input included the following:

- *Open houses* that informed the public about the transportation-planning process and about studies and projects underway, and that offered a forum for discussion and an exchange of ideas. Open houses were held from 2005 through 2007 and focused on Plan topics such as policies, modeling, regional equity, projects, and land use scenarios.
- *Regional forums* held in February 2006 and February 2007 to hear the views of particular constituencies, such as local officials, and to provide information on the Plan and the Mobility Management System.
- *Regional equity and environmental justice forums* held in April 2006 and January 2007 for professionals working in the environmental justice neighborhoods and members of the public to discuss the transportation needs of low-income and minority neighborhoods.
- *"Invite Us Over" sessions*, where MPO staff visited municipal, community, and professional organizations, as requested, to present information and discuss ideas for the Plan.
- *Workshops* held in July 2006 and February and March 2007 to provide information about all of the certification documents and to give the public an opportunity to comment on the Plan and its projects and programs.
- *MAPC subregion meetings*, where MPO staff met periodically with MAPC subregional groups to gather information on projects that would be included in the Plan, update the subregional groups on the Plan process, and accept comments.

The comments received during the outreach activities conducted prior to the official public comment period are included in Table A-1. These comments were received

between November 2, 2005, and February 22, 2007, and were used in the development of the Draft Plan. Table A-2 includes all comments received during the official public comment period, which began on February 26, 2007, and ended on March 27, 2007. The MPO reviewed this set of comments and made changes where appropriate before adoption of the Final Plan. All comments in both tables have been summarized, except where indicated otherwise.

Table A-1

Comments Received During the Development of the Draft Plan

(November 2, 2005 – February 22, 2007)

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Arnold G. Pinsley	Natick Resident	Public transit is needed in the MetroWest Subregion. The existing service (LIFT) is not convenient. There is no constant source of funding for bus service in MetroWest. Regional planning is poorly conducted in the Boston area.	E-mail	11/2/05
Gino Carlucci	Town Planner, Sherborn	Expand transit availability and access. Promote projects that foster efficient use of land and conservation of resources. Identify and support funds for transit expansion. Provide links between modes. The MPO should document benefits of transportation investment in economic, environmental, social, and land use terms. Change the first policy to read "Promote transportation projects that support smart growth and efficient land use at state, regional, and local levels." New policy: "Prioritize modes that use resources most efficiently."	November TRANSREPORT Insert	11/15/05
Unidentified		Extend Green Line through Somerville to serve environmental justice communities.	November TRANSREPORT Insert	11/15/05
Frank S. DeMasi	Wellesley Planning Board	Improve ADA and pedestrian access to Wellesley commuter rail stations. Consider transit-oriented development at Wellesley Square station. Provide a transportation link between Riverside Station on the Green Line to commuter rail. Install a real-time traffic monitoring and control system on Route 9 in Wellesley. Create suburban transit service in Wellesley. Provide funding for improved bicycle/pedestrian infrastructure.	November Open House (printed comment)	11/15/05
Barry M. Steinberg	Association for Public Transportation	Provided a vision statement of the transportation system in 2020. Transit should be a desirable alternative to the automobile. Economic development should be served by an efficient transit system and pedestrian network. Innovative programs should be implemented to reduce traffic congestion.	November Open House (printed comment)	11/15/05
Frank S. DeMasi	Wellesley Planning Board	Freight should be a more prominent component in the Plan. Information on current rail lines used for freight and the amount of freight transported should be in the Plan. He is concerned that freight alternatives cannot be tested in the regional model.	November Open House (verbal comment)	11/15/05
Wig Zamore	MVTF, STEP	The health impacts of transportation systems should be included in Plan analysis. Information on VMT, VHT, and transit use can be used to do micro-level analysis	November Open House (verbal comment)	11/15/05
Elliott Laffer	NABB	The cost of transit capacity expansion projects should be compared with traditional transit expansion projects before determining Plan priorities.	November Open House (verbal comment)	11/15/05
Ryan Park	California Resident	Build North/South Rail Link. Provide more detail in the MPO principles and policies. Transportation providers, authorities, and city and state governments should adopt the same or similar policies. Encourage public participation through Internet slide shows or surveys.	November TRANSREPORT Insert	11/22/05
Meg Robertson	North Reading Resident	Improve public transportation to increase ridership and to get people out of their cars. Make more safe pedestrian access to transit. Build the Urban Ring. Connect walking/biking routes to public transportation.	November TRANSREPORT Insert	11/28/05

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Allen Bondeson	Chelmsford Resident	Identified sections of I-95/128 that are congested during peak periods. Suggests running express commuter rail trains and improvements to tracks entering North Station to reduce commute times. Route 2 should be a divided highway from Cambridge west. Reduce T pass price and increase downtown parking rates. Reduce parking fees at transit stations.	November TRANSREPORT Insert	11/28/05
Ed Bates	Ashland Resident	The supply of fuel in the future will dramatically affect auto travel and the location of population and employment. Develop transit so that the land use structure can change accordingly. MPO principles and policies should reflect that future transit expenditures should influence more concentrated smart growth. The MPO should study the impacts of major changes in the cost of fuel and should test new land use/transportation models	November TRANSREPORT Insert	11/28/05
Alice Boelter	Boelter & Associates	Water transportation should be considered a vital component of the MPO's transit system. MBTA should improve its service quality to increase ridership. MPO newsletters should be timely and candid.	November TRANSREPORT Insert	11/30/05
Ruth Bonsignore	Watertown Resident	The MPO should address a funding shortfall for delaying infrastructure.	November TRANSREPORT Insert	12/1/05
Marjorie Jeffries	Milton Resident	The MPO should consider bicycle access on all surface roads and public transit modes, and bicycle safety in its Universe of Projects. Cannot travel safely by bicycle.	December TRANSREPORT Insert	12/6/05
Andrew Lynch		Major Needs to Address: Gas prices will only rise in the future. To stay ahead, Mass. needs to start building smarter, more compact, walkable neighborhoods that rely on better public transportation. I feel that the MPO really needs to look at how to enable the growth of the state through public transportation. "I would like to recommend 5 projects out of the many on my web site (http://www.vanshnookenraggen.com/FutureT). 1) A subway or surface light rail (Green Line replacing Silver Line) through Dudley Sq into Dorchester to Mattapan. 2) A new light rail line from Newton Corner along the Mass Pike to South Station via Boylston Station and connecting to the Silver Line. 3) Though the Fairmount Improvments are good I think they should be taken a bit further and converted to Electrical Multiple Unit (EMU) cars and extended to Dedham and Route 128. 4) The idea for the Urban Ring needs to be expanded and not built for lowest price. It should serve the Airport, Harvard and Allston, the Longwood Medical Area, and Roxbury and Dorchester. 5) North South Rail Link, though it should be four tracks wide, not two. Overall it is much better than most other cities in America. I think Boston should work on expanding public transportation to some of its inner neighborhoods (Dorchester, Roxbury, etc). These areas hold the most potential for growth and renewal and are the most under-served."	E-mail	12/9/05
Gloria Ganno		Follow the original proposed plan (part of the Big Dig) to extend commuter rail service underground beneath downtown Boston to connect North and South Stations.	December TRANSREPORT Insert	12/19/05

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Theodore R. Ellis		Commuter rail service should be extended to Milford, southern New Hampshire, and Rhode Island. Conduct another feasibility study of a commuter rail extension to Springfield. Conduct surveys of the public through the mail, web, or newspapers.	November TRANSREPORT Insert	12/20/05
Unidentified	M&L Transit Systems, Inc.	The MPO should consider suburb-to-suburb transportation in its universe of projects, particulary in east-west routes. Mobility is great in the region if you live near public transit, but if you don't, it is difficult. Pedestrian issues are overlooked.	November TRANSREPORT Insert	12/23/05
Unidentified		The MPO should address a need for a circumferential light rail line at the Route 128 corridor, connecting bus and commuter rail lines (indicated route and potential station stops on a map). The radial system of transit is obsolete and the focus should be on suburban development. Getting where I need to go is difficult and time-consuming. Restructure all state transportation agencies to have a board of directors appointed by local representatives of the MPO. Convert transportation funds into block grants for cities and towns to determine how to spend the money. Decisions should be made locally. Meetings should be held on weekends and in the evenings to allow those who work to attend.	November and December TRANSREPORT Inserts	12/28/05
Russ Cohen	Arlington Resident	Suggested a new commuter rail station/parking facility on the Fitchburg Line at the "Mass. Broken Stone" property in Weston (an active quarry), near the intersection of Routes 20 and 128. The nearby defunct B&M Clinton Line could be developed as a bicycle trail to feed into the station. (Comment includes links to informational websites and a detailed description of the proposal.)	E-mail	12/29/05
Thomas Connors		Construct a new Green Line spur serving Needham Street in Newton and an office park in Needham along an existing right-of-way. This would serve new residential developments in Needham.	January TRANSREPORT Insert	12/30/05
Blossom Hoag		Supports expanded MBTA and commuter rail and better service. Supports North-South Rail Link.	January TRANSREPORT Insert	1/1/06
Charles E. Bohannon		The transportation system is "good enough." Announcements and system maps should be improved at Park Street Station. The availability of seating for the disabled should be improved. Access improvements should be made for the disabled throughout the transit system. "Keep up the good work."	January TRANSREPORT Insert	1/2/06
Ed Bates	Ashland Resident	Transportation agencies should address suburban sprawl. The MPO should develop a program to test travel demands, VMT growth, congestion, fuel consumption, etc. in the next 25 years and study new transit networks that might reverse automobile dependency.	E-mail	1/8/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Christi Apicella	Area Development, MASCO	Identified needs for full-time commuter rail service to Yawkey Station (including station improvements), full-time commuter rail service to Ruggles Station (including station improvements), operational improvements on the D and E Green Line branches (including increased AM service to better accommodate the 7:00 AM work shift, direct D Line service to North Station, improved schedule adherence, and 3-car trains to increase capacity), station improvements at Kenmore, Fenway, and Longwood stations on the Green Line, improvements to Green Line central subway operations, including crossover tracks at Park Street Station, transportation improvements in the Urban Ring corridor (specifically a transit tunnel connecting Ruggles and Yawkey stations, improvements to the Sears Rotary and other area roadways, signal improvements to roadways in the area, public bicycle parking, improved pedestrian connections, and CMAQ funding for Transportation Demand Management programs).	Invite Us Over	1/10/06
Unidentified		Something should be done to address the traffic problems at the four road-level railroad crossings in Framingham and Ashland, especially at Routes 126 and 135 in Framingham. Pedestrian access and amenities should be improved.	January TRANSREPORT	1/11/06
Unidentified		Set specific percentage targets to improve non-automobile mode shares	RTAC Meeting	1/11/06
Unidentified		Rail trail from Lower Falls to Riverside	RTAC Meeting	1/11/06
Unidentified		More park & ride in Peabody on the Danvers right-of-way	RTAC Meeting	1/11/06
Unidentified		Light rail on the Saugus Branch into Assembly Square using DMU or electric technology with a parallel bike trail (pilot project of rail with trail)	RTAC Meeting	1/11/06
Unidentified		Riverway bike trail from Back Bay to Ruggles	RTAC Meeting	1/11/06
Unidentified		Route 9 capacity improvements in Brookline and Newton	RTAC Meeting	1/11/06
Unidentified		North/South rail connection along Grand Junction	RTAC Meeting	1/11/06
Unidentified		Extend the Red Line north to Route 128. There should be more park-and-ride options in the Route 128 and I-495 corridors (underground parking facilities preferred). Build a monorail along Route 128 and I-495 with east-west connections. The current Plan policies are still relevant. The MPO should bring together state and transportation officials to accomplish the policies. JOURNEY TO 2030 outreach should include a regular newspaper column or newsletter to homes or on T vehicles.	November and December TRANSREPORT Inserts	1/12/06
Roger Thomas	Transportation Supervisor, Mass. Rehab. Commission	The MPO should support new suburban transit opportunities to employment centers that can be affordable and accessible for people with disabilities.	January TRANSREPORT	1/12/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Garrett Wollman	Unidentified	Increasing suburban and exurban development is placing an increasing strain on transportation facilities in the MetroWest area. It is important that this development be channeled into existing transportation corridors, given the infeasibility of new facility construction anywhere in the region. It is equally important that capacity on existing facilities be increased to levels consonant with current and future traffic/pax volumes. Improve sight lines and ramp geometry on Route 9 at Route 27, Route 126, Cedar Street (Needham), Centre Street (Newton). Replace Route 9/Oak Street rotary with interchange. Improve Route 30 at Turnpike interchange for two through lanes in each direction. Improve capacity, reduce travel times on Framingham/Worcester commuter rail line. Replacement/rehabilitation of Cottage Farm Bridge (Boston/Cambridge). Improve Memorial Drive; River St., Western Ave. bridges; and Turnpike interchange to reduce congestion and travel times for vehicles and buses from Cambridge. There should be a study of widening the Turnpike to four full lanes plus shoulder from I-495 to Route 128. Can usually get to where he needs to go, provided he doesn't travel during peak periods. Peak periods should include peak shopping hours on Saturdays.	E-mail	1/13/06
Fred Moore		Rails should take precedence over multi-use trails in rail rights-of-way. Build light rail to everywhere within Route 128. Transit expansion should be favored over highway expansion. Highway projects make sprawl worse. Current safety improvements do not improve safety for bicyclists or pedestrians. Also provided handouts regarding transportation issues on the North Shore.	January TRANSREPORT	1/17/06
Ellin Reisner	Somerville/ STEP	Improve bicycle access to commuter rail stations	January Open House (verbal comment)	1/17/06
Unidentified		Encourage transit-oriented development at Route 128 station in Westwood	January Open House (verbal comment)	1/17/06
Unidentified		Reduce auto-commuter rail collisions in Beverly by examining options for rerouting trains to non-urban areas	January Open House (verbal comment)	1/17/06
Barry M. Steinberg	Association for Public Transportation	Connect the Fairmount commuter rail line with Allston, Cambridge, Chelsea, and Logan Airport	January Open House (verbal comment)	1/17/06
Unidentified		Install bicycle racks on buses on the North Shore	January Open House (verbal comment)	1/17/06
Unidentified		Divert highway funds to mass transit projects	January Open House (verbal comment)	1/17/06
Unidentified		Align feeder bus schedules with corresponding commuter rail schedules	January Open House (verbal comment)	1/17/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Address the problem of trip linking with suburban transit solutions	January Open House (verbal comment)	1/17/06
Unidentified		The MPO website should be the hub of all transportation information for the region	January Open House (verbal comment)	1/17/06
Unidentified		Communities that pay MBTA assessments should receive adequate benefits of the system	January Open House (verbal comment)	1/17/06
Unidentified		Commuter rail schedules should be revised to accommodate reverse commuters	January Open House (verbal comment)	1/17/06
Unidentified		Create reliable seasonal bus service from the Red Line to South Shore beaches and other tourist destinations	January Open House (verbal comment)	1/17/06
Unidentified		The MPO should coordinate with neighboring MPOs and MPOs in other states on projects that affect more than one MPO region	January Open House (verbal comment)	1/17/06
Unidentified		The MBTA should consider hybrid diesel-electric buses for its fleet	January Open House (verbal and written comment)	1/17/06
Unidentified		Transit expansion must drive transit-oriented development, not the other way around	January Open House (verbal and written comment)	1/17/06
Unidentified		Prudential and Symphony stations on the Green Line E Branch should be staffed and have fare collection equipment	January Open House (verbal comment)	1/17/06
Unidentified		Make improvements to the current transportation system	January Open House (verbal comment)	1/17/06
Unidentified		Increase Green Line capacity by establishing 3-car trains	January Open House (verbal comment)	1/17/06
Unidentified		Provide workable detours during the reconstruction of the Longfellow Bridge and work on Storrow Drive	January Open House (verbal comment)	1/17/06
Unidentified		Connect the Back Bay to the Waterfront	January Open House (verbal comment)	1/17/06
Unidentified		Make service improvements to the Green Line E Branch	January Open House (verbal comment)	1/17/06
Doug Prentiss	JNEI	Route 16 Bypass Project in Milford should be included in universe of projects list	January Open House	1/17/06
Kristen Decas	Governor's Seaport Advisory Council	The land/water interface in terms of regional transportation should be an MPO priority. Investments should be made in Massachusetts' seaports for the state to serve as a major hub for coastal shipping.	Letter	

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Jeff Grace	Cambridge Bicyclist	The MPO should address connections of regional bicycle corridors. Make bike path segments into a regional network. See existing bicycle plans for input into the MPO policies. There are many benefits to bicycle transportation.	E-mail	1/19/06
Chris Porter	Chair, Metro Boston Chapter, Massachusetts Bicycle Coalition	There should be a dedicated funding source for: cities and towns to undertake bike/ped improvements; DCR for maintaining its bike/ped infrastructure; municipalities for planning for and implementing bike/ped projects to support "smart growth." There should be a greater commitment to accomodating bicyclists in transportation planning. Incentives should be given for communities to make their streets bicycle-friendly. There should be a commitment to roadway maintenance to improve bicycling conditions. The MPO policies should accomodate bicyclists as legitimate road users on all roadways. Project selection criteria should be consistent with existing bike plans for the region. Roadway projects should be evaluated for their level of bicycle accomodation.	Letter	1/25/06
Unidentified		Extend the Green Line to West Medford	Inner Core Subregion Outreach	2/1/06
Unidentified		Construct an Orange Line Station at Assembly Square in Somerville	Inner Core Subregion Outreach	2/1/06
Unidentified		Construct a bike path to connect the Minuteman Commuter Bike Path (at Alewife) with the Somerville Community Path	Inner Core Subregion Outreach	2/1/06
Unidentified		Roadway improvements on Route 139 west of Route 37 in Holbrook	Inner Core Subregion Outreach	2/1/06
Unidentified		Improve freight access to Fore River Shipyard	Inner Core Subregion Outreach	2/1/06
Unidentified		Extend the Blue Line to Salem	Inner Core Subregion Outreach	2/1/06
Unidentified		Reconstruct the I-93/Route 3 interchange (Braintree Split)	Inner Core Subregion Outreach	2/1/06
Unidentified		The Interstate 95/Interstate 93/Interchange study should consider broader impacts, especially to local roads. It should include almost all of Wakefield, the north half of Stoneham, eastern Woburn with Route 3 being the western border, eastern Burlington with Route 3A being the western border, southern Wilmington with Route 62 being the northern border, southwestern part of North Reading and all of Reading	North Suburban Subregion Outreach	2/8/06
Unidentified		Route 1/Route 128 Interchange area – include a wide area	North Suburban Subregion Outreach	2/8/06
Unidentified		Extend the Orange Line to Route 128	North Suburban Subregion Outreach	2/8/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Hanscom Field Expansion is being considered by FAA but the towns are not on board	North Suburban Subregion Outreach	2/8/06
Unidentified		A Foxborough connection should consider access to the Tweeter Center	North Suburban Subregion Outreach	2/8/06
	Association for Public Transportation	Extend the Blue Line to Lynn (but not beyond), using the narrow gauge option. Extend the Blue Line to Charles Street Station to connect with the Red Line and potential for further westward expansion. Extend the Orange Line to Readville. Restore Green Line service on the Arborway to Forest Hills. Institute light rail on Washington Street to Dudley Square utilizing the Tremont Street Subway, continuing through downtown Boston to Somerville. Extend the Green Line to Medford Hillside with a spur to Union Square in Somerville. An additional spur to Assembly Square and beyond should be considered. Construct an Orange Line station at Assembly Square in Somerville. Rebuild Government Center Station to have two inbound tracks and two outbound tracks to avoid Green Line congestion. Extend the Red Line northwest to Hanscom Airport/Air Force Base. Extend commuter rail service from Needham Junction to Millis. Extend commuter rail service from Waltham to Hudson. Construct the North South Rail Link. Construct commuter rail spurs from Salem to Peabody Square, Route 128, the former Sylvania Plant, and Danvers Square. Construct a streetcar along the Rose Kennedy Greenway to connect North and South Stations. Add an extra track on the Haverhill commuter rail line between Boston and Reading. Add stations along the Fairmount commuter rail line, which should connect to South Station, Back Bay, Yawkey, Allston Landing, and further west. Construct the Urban Ring Phase 3. Extend the Somerville Community Bike Path to Lechmere Station. Decrease headways on commuter rail service to the North Shore. Extend the Stoughton commuter rail line to Easton. Institute trolley service between Saugus and Lynn and/or Salem and Saugus. Extend the destination envelope of the regional rail system to serve satellite urban areas (Lynn, Salem, Beverly, Malden, etc.). This should occur with or without the North South Rail Link. Commuter rail headways of 30 minutes or less encourage people to use the mode for trips other than for commuting to work, and therefore increase ridership. This has the potential of further changing land use patterns. Expanding the destination envelope for the commuter rail system should take priority over extending service to outlying areas. Light rail makes sense for some neighborhoods, as it is more flexible than heavy rail and is at a smaller scale, which fits better in some neighborhoods. Bus rapid transit (BRT) only works if the right-of-way is grade separated and riders prepay at stations. Flexibility, compatibility with the existing system, and expandability should be considered before transit projects are constructed. Create intermodal transit hubs to facilitate transferring between modes. Rail trails should be considered transportation facilities if they are plowed and are lit at night. Increase incentives for communities to build close to commuter rail stations. Increase opportunities for reverse-commuting on commuter rail lines. Institute a distance/time-based fare structure to increase equity in the transit system.	Invite Us Over	2/8/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Increase parking availability at commuter rail stations, especially Salem and Beverly stations	North Shore Sub-region Outreach	2/9/06
Unidentified		Increase commuter rail capacity – reverse commute and increased frequencies	North Shore Sub-region Outreach	2/9/06
Unidentified		Extend Route 128 north corridor to Gloucester	North Shore Sub-region Outreach	2/9/06
Unidentified		Transit options for Route 1/114 area	North Shore Sub-region Outreach	2/9/06
Unidentified		Salem/Beverly/Peabody inter-suburban bus connection for off-peak (hospital)	North Shore Sub-region Outreach	2/9/06
Unidentified		Ferry service from Gloucester to Salem	North Shore Sub-region Outreach	2/9/06
Unidentified		Lynn to Rockport to Gloucester – State Scenic Byway – funding for planning study	North Shore Sub-region Outreach	2/9/06
Unidentified		State Scenic Byway from Gloucester north to Rowley (Route 133). Pedestrian bridge over Route 128 between Red Rocks and Cape Ann.	North Shore Sub-region Outreach	2/9/06
Unidentified		Pedestrian trails in Gloucester – connection into Bay Circuit Trail	North Shore Sub-region Outreach	2/9/06
Unidentified		Border to Boston bike trail	North Shore Sub-region Outreach	2/9/06
Unidentified		Upgrade security cameras in Gloucester	North Shore Sub-region Outreach	2/9/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Sidewalks along Essex Avenue in Gloucester	North Shore Sub-region Outreach	2/9/06
Unidentified		Pedestrian bridge over Route 128 between Red Rocks and Cape Ann	North Shore Sub-region Outreach	2/9/06
Unidentified		Construct HOV lanes on Route 128, I-495, and I-90 which are regulated electronically without physical barriers (but high fines)	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Route 20 between Watertown and Marlborough	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements along Route 85 between I-90 in Southborough and I-495 in Milford	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Route 126 between Route 9 in Natick and Route 16 in Holliston	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Speen Street between I-90 and Route 135 in Natick	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Route 135 between Route 126 and Speen Street in Natick	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Route 30 between Route 126 in Framingham and Speen Street in Natick	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Nobscot Road/Edgell Road between Route 20 in Sudbury and I-90 in Framingham	MetroWest Sub-region Transportation Task Force Outreach	2/9/06
Unidentified		Transportation improvements on Route 27 between I-90 and Route 135 in Natick	MetroWest Sub-region Transportation Task Force Outreach	2/9/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified	City of Somerville	Increase service on Crosstown bus routes, specifically to Union Square. Utilize the Grand Junction line right-of-way for the Urban Ring. This will serve underutilized land and spur economic development. Extend the Green Line through Somerville (no endpoint specified) with a spur to Union Square. Conduct corridor studies in conjunction with the Green Line extension to ensure safe and efficient access to and travel around the proposed stations. Transportation improvements in Magoun Square. Transportation improvements in the Route 28 corridor in Somerville. Transportation improvements at the I-93/Mystic Avenue interchange. Transportation improvements on Rutherford Avenue that follow the design guidelines in MassHighway's Project Design and Development Guidebook. Lower McGrath Highway to be at grade with surrounding neighborhood. Construct an Orange Line Station at Assembly Square to serve a planned high-density, mixed-use, transit-oriented neighborhood. Improve access to the inner belt from Washington Street in Somerville. Infrastructure and traffic design improvements at Union Square in Somerville. Streetscape improvements in the lower Broadway corridor in East Somerville. Conduct a multimodal access study for Assembly Square. Extend the Somerville Community Path from Cedar Street to Central Street and beyond. This extension should occur in conjunction with the Green Line extension. Improve bicycle access to and from the proposed Green Line. Construct a bicycle/pedestrian path over the Mystic River to Everett and to Charlestown, using a DCR Mystic River dam right-of-way.	Invite Us Over	2/13/06
Charles E. Bohannon		Parking issues at Riverside Station. Comments have been forwarded to the MBTA.	February TRANSREPORT Insert	2/13/06
Unidentified		Improvements to Route 1/Everett Street/University Avenue in Norwood/Westwood (Analog Devices might do a "friendly taking" for a new turning lane)	TRIC Subregion Outreach	2/15/06
Unidentified		Improvements to the Morse Street Bridge and the Morse Street/ Pleasant Street intersection in Norwood	TRIC Subregion Outreach	2/15/06
Unidentified		Route 1 signalization improvements from Westwood to Sharon	TRIC Subregion Outreach	2/15/06
Unidentified		Route 1A/Route 27 congestion mitigation in Walpole	TRIC Subregion Outreach	2/15/06
Unidentified		Reconstruct North Street in Foxborough between Route 1 and Route 140	TRIC Subregion Outreach	2/15/06
Unidentified		Construct a southbound slipramp on I-495 to provide better access to the Wrentham Village Outlets	TRIC Subregion Outreach	2/15/06
Unidentified		I-95 South corridor partnership (95 SCOPE) has six interchange improvements. Three congressmen are helping to secure funding. A scope of work is at FHWA.	TRIC Subregion Outreach	2/15/06
Unidentified		Improvements to Route 27 near Island Street in Stoughton	TRIC Subregion Outreach	2/15/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Improvements to Turnpike Street in Stoughton	TRIC Subregion Outreach	2/15/06
Unidentified		New interchange on Route 24 to service industrial park in Stoughton	TRIC Subregion Outreach	2/15/06
Syvalia Hyman III	UDC	Promote light rail to improve the region's air quality	February TRANSREPORT Insert	2/15/06
Unidentified		Increase commuter rail platform capacity at South Station	SWAP Subregion Outreach	2/16/06
Unidentified		Construct a circumferential commuter rail line along the Framingham-Lowell rail right-of-way from Foxborough to Lowell	SWAP Subregion Outreach	2/16/06
Unidentified		Logan Express bus service from SWAP subregion to Logan Airport	SWAP Subregion Outreach	2/16/06
Unidentified		Construct a commuter rail station near the I-495/I-90 interchange along the Worcester commuter rail line	SWAP Subregion Outreach	2/16/06
Unidentified		Construct park-and-ride facilities at major interchanges along Route 128	SWAP Subregion Outreach	2/16/06
Unidentified		Construct intermodal transportation facilities (park-and-ride, buses, etc.) at the endpoints of all transit lines, especially those near major highways	SWAP Subregion Outreach	2/16/06
Unidentified		Coordination of traffic signs and signals, parking restrictions, and passing zones along the Route 16 corridor between Holliston and Watertown to better accommodate commuters	SWAP Subregion Outreach	2/16/06
Unidentified		Reserve right-of-way along I-495 for potential future transit opportunities	SWAP Subregion Outreach	2/16/06
Unidentified		"Capacity improvements along Route 139 in Marshfield"	South Shore Subregion Outreach	2/16/06
Unidentified		Widen Route 53 between Route 123 and Route 3A in Hanover	South Shore Subregion Outreach	2/16/06
Unidentified		Conduct a study of Route 3A between Hingham and Marshfield	South Shore Subregion Outreach	2/16/06
Unidentified		Improve access from Weymouth Naval Air Station to Route 3	South Shore Subregion Outreach	2/16/06
John Hendrickson	Fay, Spofford, & Thorndike	Construct the Border to Boston Rail Trail to connect people and communities in the region	February TRANSREPORT Insert	2/17/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Ryan Park	California Resident	The MPO should measure the equity of potential transportation projects by a thorough cost-benefit analysis that includes persons traveling by all modes to determine the maximum benefit at the least cost. The MPO should promote congestion pricing, parking subsidies (removing subsidies for free parking and promoting market-based policies), and transit expansion (especially with bus rapid transit).	February TRANSREPORT Insert	2/21/06
Mary Grant	State Representative, Beverly	There is an immediate need for parking garages at the rail stations in Beverly and Salem. Increase commuter rail frequency to accommodate trips outside the typical commuting periods. Consider light rail vehicles for less heavy travel times. Lower fares near Lynn to lure travelers who would prefer the Blue Line extension to Lynn. The North-South rail link should be included in our region's planning.	E-mail	2/21/06
Unidentified		Construct an intermodal transportation center in the South Weymouth Naval Station area	South of Boston Forum	2/22/06
Unidentified		Route 126/Route 135 grade separation project needs to be done. It should also address the left turns from Route 135 to Route 126.	South of Boston Forum	2/22/06
Barry M. Steinberg	Association for Public Transportation	Extend the Blue Line from Charles/MGH Station west to serve neighborhoods and future development in Allston. Pursue alternative financing (Harvard University) to fund the expansion.	E-mail	2/22/06
Unidentified		Implement E Line service improvements on the Green Line	Inner Core Forum	2/23/06
Unidentified		Transit service is needed along the Route 128 and Interstate 495 corridors	Inner Core Forum	2/23/06
Unidentified		Institute full-time commuter rail service to Ruggles Station	Inner Core Forum	2/23/06
Ray Jordan	MassBike	Work with human services agencies to provide a bicycle, training, and riding gear to low-income workers through a Welfare to Work program in place of motorized transportation	Inner Core Forum	2/23/06
Unidentified		"Route 2 corridor should be extended to the MPO boundary through Acton and Littleton"	MAGIC Subregion Outreach	2/23/06
Unidentified		Need for regional transit center and parking at the Route 2/Interstate 495/Interchange	MAGIC Subregion Outreach	2/23/06
Unidentified		Shuttle service to commuter rail for Stowe, Maynard, and Acton	MAGIC Subregion Outreach	2/23/06
Unidentified		It is important to keep the Concord Rotary and Crosby's Corner in the Plan	MAGIC Subregion Outreach	2/23/06
Unidentified		Bruce Freeman and Assabet Rail Trails are a high priority	MAGIC Subregion Outreach	2/23/06
Unidentified		Double track on Fitchburg Line, especially through Waltham	MAGIC Subregion Outreach	2/23/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Improve bicycle mobility in all corridors	North of Boston Forum	2/27/06
Unidentified		Improve bicycle access to transit	North of Boston Forum	2/27/06
Unidentified		Institute ferry service from Salem to Boston	North of Boston Forum	2/27/06
Unidentified		Canal Street improvements in Salem	North of Boston Forum	2/27/06
Unidentified		Make a commuter rail connection to the Blue Line	North of Boston Forum	2/27/06
Unidentified		Implementation of Salem citywide bike path design	North of Boston Forum	2/27/06
Unidentified		Implement Scenic Byway along Routes 129, 1A, 127 and 127A	North of Boston Forum	2/27/06
Unidentified		Integrate the recommendations from the MPO's Downtown Salem Traffic study with the Bypass Road project	North of Boston Forum	2/27/06
Unidentified		Commuter rail station improvements in Rockport	North of Boston Forum	2/27/06
Unidentified		Need for a North Shore TMA	North of Boston Forum	2/27/06
Unidentified		Construct the Border to Boston Bikeway	North of Boston Forum	2/27/06
Unidentified		Construct a Salem commuter rail station parking garage along with improved pedestrian connections	North of Boston Forum	2/27/06
Unidentified		Boston Street capacity improvements needed	North of Boston Forum	2/27/06
Unidentified		Public transit needed along Route 114/Route 1 corridor	North of Boston Forum	2/27/06
Unidentified		Improvements at North Wilmington commuter rail station, including additional parking capacity	North of Boston Forum	2/27/06
Unidentified		Reconstruct the Lowell Junction highway interchange in Andover, Wilmington, and Tewksbury	North of Boston Forum	2/27/06
Unidentified		Improve connector roads to Interstate 93 in Wilmington (Route 129 and Route 62)	North of Boston Forum	2/27/06
Unidentified		Extend Phase II of the Silver Line from the airport to Chelsea commuter rail station	North of Boston Forum	2/27/06
Unidentified		Need to acquire right-of-way sooner rather than later before it becomes more expensive	North of Boston Forum	2/27/06
Unidentified		Extend THE RIDE to door-to-door service in Acton	West of Boston Forum	2/28/06
Unidentified		Sudbury would like THE RIDE service (they pay into the MBTA but do not receive RIDE service)	West of Boston Forum	2/28/06
Unidentified		Study should be done for additional park-and-ride lots and capacity along major corridors, especially Interstate 495, Route 128, Route 2, and Route 3	West of Boston Forum	2/28/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		Park-and-ride should be added at the I-495/I-290/Route 85 interchange and the Route 110/119 interchange. Increase parking capacity at South Acton Station.	West of Boston Forum	2/28/06
Unidentified		Build a transportation hub in Littleton with park-and-ride using the Acton and Littleton stations	West of Boston Forum	2/28/06
Unidentified		Institute HOV lanes on major highways (especially Interstate 495) and arterials (especially Route 9)	West of Boston Forum	2/28/06
Unidentified		Need for a regional transit authority in MetroWest area	West of Boston Forum	2/28/06
Unidentified		The Bruce Freeman Rail Trail is important along the Framingham-Lowell right-of-way	West of Boston Forum	2/28/06
Unidentified		A grade-separated rail trail crossing needed on Route 2 at Crosby's Corner	West of Boston Forum	2/28/06
Unidentified		Build a rail trail connecting to the commuter rail station in West Concord	West of Boston Forum	2/28/06
Unidentified		Need bus and rail service to western Massachusetts	West of Boston Forum	2/28/06
Unidentified		Park-and-ride along with bus service from Acton and surrounding areas to Alewife along Route 2 corridor	West of Boston Forum	2/28/06
Unidentified		Need public transit to New Hampshire and Maine and the Cape from the western suburbs	West of Boston Forum	2/28/06
Unidentified		Use local daytime buses at night to bring partying teens around during all hours as well as disabled and elderly to meetings and fun	West of Boston Forum	2/28/06
Unidentified		Institute Logan Express service at I-495 to Logan and/or Manchester, NH	West of Boston Forum	2/28/06
Unidentified		Institute Logan Express service in Concord	West of Boston Forum	2/28/06
Unidentified		TDM needed in the Concord Rotary area	West of Boston Forum	2/28/06
Unidentified		Institute recreational shuttles in Concord to areas such as Walden Pond	West of Boston Forum	2/28/06
Unidentified		Routes 16 and 109 are congested during the AM peak period	West of Boston Forum	2/28/06
Unidentified		The MPO needs to address the aging of America and the transportation needs of the elderly.	West of Boston Forum	2/28/06
Kurt Marden		Institute commuter rail service along an existing right-of-way that connects outlying commuter rail stations (Newburyport, Lowell, Framingham, etc.)	West of Boston Forum	2/28/06
Beverly Strauss	Salem Resident	Decrease headways for Salem-to-Boston MBTA bus routes during the peak periods.	Phone	3/1/06
William Holland	Needham Resident	Complete the addition of a lane on Route 128 between Randolph and Wellesley immediately. The use of the breakdown lane as a travel lane is extremely dangerous.	E-mail	3/2/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Howard Stranger	President, Bike to the Sea Inc.	Construct the Bike to the Sea path (also known as the Northern Strand). It will extend from Everett to Lynn along the Saugus Branch rail corridor.	Letter	3/3/06
Robert Stevens	Senior Planner, City of Quincy	The MPO should consider two projects: improve access to the Fore River Shipyard in Quincy along Quincy Avenue (Route 53), East Howard Street, and Washington Street (Route 3A) in the Plan to accommodate mixed-use development; reconstruct the Squantum Bridge/Interchange in Quincy (at Quincy Shore Drive and Hancock Street [Route 3A]).	E-mail	3/8/06
Darren Shaffer		Investments should focus on improving the useability of the least expensive mode - bus service	January TRANSREPORT	3/9/06
Kurt Marden		My main concern is that abandoned rail corridors are being turned into trails with little in-depth study of the benefits they can provide for alternative commuting choices for workers and transportation choices for elderly or low-income individuals. It appears to me that MPO/CTPS is ignoring the fact that a large percentage of commuter traffic on secondary and tertiary roads does not originate in the towns in which it occurs. (Also included a newspaper article and map.)	e-mail	3/15/06
Paul Yorkis		Improve management of Route 16 capacity (particularly the use of parking spaces as lanes) between Milford and Wellesley	SWAP Subregion Outreach	3/16/06
Unidentified		Expand GATRA to include Franklin, Norfolk, and Wrentham	SWAP Subregion Outreach	3/16/06
Unidentified		Construct slip ramps at the I-495/Route 1A interchange in Wrentham	SWAP Subregion Outreach	3/16/06
Unidentified		Rename the “Route 16 Bypass” project in Milford as “Route 16 Alternate Route”	SWAP Subregion Outreach	3/16/06
Unidentified		Add intermodal centers at existing stations on rail lines	SWAP Subregion Outreach	3/16/06
Karen Wepsic	MBTA Rider Oversight Committee	Regarding the criteria used to determine whether a community is an environmental justice target community, communities that fall just short of one of the criteria should not be overlooked. Environmental justice communities do not receive amenity improvements at transit stations and stops as often as other communities. The MBTA should improve the on-time service for buses to meet the on-time record of its subway and commuter rail operations.	March Open House (verbal comment)	3/21/06
Unidentified		Gentrification is forcing low-income, transit-dependent residents from their neighborhoods. Remedying this should be addressed in the analysis for the Plan.	March Open House (verbal comment)	3/21/06
Wendy Landman	WalkBoston	The pedestrian network should be incorporated into the model in terms of safety and quality. It is often left out because it often does not involve large, expensive projects. Many transit stations and bus stops are not easily accessible to pedestrians.	March Open House (verbal comment)	3/21/06
Unidentified		Transit-oriented development (TOD) should be considered in planning efforts, especially due to the recently announced state funding for TOD projects	March Open House (verbal comment)	3/21/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Marilyn Wellons	Riverside Neighborhood Association	There is a need for north-south transit in the urban ring corridor	March Open House (verbal comment)	3/21/06
Michael Chong	FHWA	The MPO should tailor its certification documents to people with limited English proficiency	March Open House (verbal comment)	3/21/06
Wig Zamore	MVTF, STEP	MPO staff should plot changes anticipated in 2030 in absolute change in addition to percent change	March Open House (verbal comment)	3/21/06
Ellin Reisner	Somerville/ STEP	The MPO should conduct analysis on particulate matter and fine particulates in addition to its current air quality analysis. The MPO needs to account for the aging of the population in its model and other planning efforts.	March Open House (verbal comment)	3/21/06
F. Dore Hunter	Selectman, Town of Acton	Capacity should be increased on the Fitchburg commuter rail line to reduce congestion on Route 2. Parking capacity should be increased or shuttle services should be established at the stations.	March Open House (written comment)	3/21/06
Richard Andre	MBRRE	Institute doublestack rail clearance extending to Conley contain-erport to start serious development of the Port of Boston	E-mail	4/23/06
Karen Wepsic	MBTA Rider Oversight Committee	Environmental justice communities are primarily served by buses and receive less frequent service and fewer service hours (span of service) than communities served by rail transit. The MPO and the MBTA should be proactive and determine the needs of environmental justice communities and identify projects to serve those needs.	April Environmen-tal Justice Forum	4/27/06
Marilyn Wellons	Riverside Neighborhood Association	The focus on serving environmental justice communities with the Urban Ring seems to have disappeared. The MBTA should be planning for and construct Phase III with rail service to serve the environmental justice communities. There is less support for a bus version of the Urban Ring.	April Environmen-tal Justice Forum	4/27/06
Unidentified		Environmental justice communities do not have advocates	April Environmen-tal Justice Forum	4/27/06
Unidentified		Rail service reduces air pollution most effectively; the MBTA should look at the health effects of the Urban Ring	April Environmen-tal Justice Forum	4/27/06
Ellin Reisner	Somerville/ STEP	Given a financially constrained plan, environmental justice com-munities must compete against each other for limited funding, and this is not desirable. Communities should coordinate and support each other. There is no good funding mechanism to maintain and expand the transportation system.	April Environmen-tal Justice Forum	4/27/06
Wig Zamore	MVTF, STEP	Most people do not know about the quality of the air in their communities and whether it contains pollutants. The MPO should inform them about the quality of their air.	April Environmen-tal Justice Forum	4/27/06
John Mahoney	Southwest Boston CDC	There is full neighborhood support for the proposed improve-ments to the Fairmount Line. But the improvements will not be complete until 2011. The MBTA has to make a commitment to the project and complete it quickly.	April Environmen-tal Justice Forum	4/27/06

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Barry Steinberg	Association for Public Transportation	The current stations along the Fairmount Line are "overbuilt." They should be smaller and provide more frequent service with smaller vehicles. Smaller stations may allow the stations to be closer to the neighborhood trip generators.	April Environmental Justice Forum	4/27/06
Unidentified		There is not equal transportation service/infrastructure among all communities in the region	April Environmental Justice Forum	4/27/06
Unidentified		There are very high asthma rates in the Egleston Square area. Rail should be a long-term solution to transit in urban neighborhoods.	April Environmental Justice Forum	4/27/06
Unidentified		Want to see results in terms of transportation improvements. The MPO should be clear about its investments in environmental justice communities.	April Environmental Justice Forum	4/27/06
Unidentified		Restore trolley service (Green Line E Branch) along the Arborway	April Environmental Justice Forum	4/27/06
Richard Andre	MBRRE	Freight improvements for increased capacity to and from Conley Terminal along existing rail lines	April Environmental Justice Forum	4/27/06
David Knudsen		All north side commuter trains spend between five and ten minutes both entering and leaving the North Station train yard (which covers at most 1.5 linear miles). There should be a study of operational and physical changes that could be made to achieve a significant reduction (50%?) in travel times through the yard. The number of minutes may seem small, but they would be multiplied by the total number of trips into and out of North Station. Furthermore, that excruciating, creeping portion of the rail trips has a disproportionate psychological effect on the impressions commuters form of the speed and efficiency of travel by public transit. Finally, if the throughput of the yard could be increased, it would ease service increases and adjustments.	E-mail	5/12/06
David Knudsen		Transit service planning and capital improvement projects in general should place greater emphasis on speed and travel time in an effort to attract increased ridership. Commuters weigh trip times more heavily than public transit officials believe in making their travel mode choices; they realize very quickly (and with dismay) that there are very few transit-based trips that can be made in the region in less than twice the amount of time of an auto-based trip.	E-mail	5/12/06
Wig Zamore	MVTF, STEP	MPO should conduct a study to determine carbon monoxide burdens on populations within the region and look at variations among TAZs	January Open House	1/11/07
Wig Zamore	MVTF, STEP	Regarding the Assembly Square project, vehicle trips per day are higher than 156,000. When conducting analyses in the future, staff should identify shopping trips from the model since these trips constitute a large portion of travel trips and warrant a closer look.	January Open House	1/11/07

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Elliott Laffer	Neighborhood Association of Back Bay	DCR needs to rebuild most of the roadway capacity in Boston along and over the Charles River including the Storrow Drive underpass, BU and Longfellow Bridges and Craigie Dam and Bridge. This will substantially impact vehicle capacity, especially between I-93 and Route 1 from the north and Back Bay and Longwood. This is the time for a better connection. One possibility is to add Turnpike westbound off and east-bound on ramps in the Kenmore area. This is difficult because of the adjacent rail line. One possibility would be an off ramp to Brookline Ave. and an on ramp from [Bowker?] overpass, which might need a shift of the Pike slightly north.	January Open House	1/11/07
Kristina Johnson	City of Quincy	MPO should address language barriers in Quincy, which has a large Asian population. Quincy also has an isolated environmental justice area with few transit connections. Would like to have more buses to downtown.	January Open House	1/11/07
Diane Brown	Mission Hill	There are problems for pedestrians along Huntington Avenue, and public transportation is not adequate for the area. Exhaust fumes affect pedestrians, and the roadway is congested. The congestion causes problems for ambulances traveling on the roadway, as there is not enough space for cars to pull over to let ambulances pass. The MBTA's double-length buses cause backups and block intersections. She would like the MPO to consider her comments when selecting projects in that area. She also remarked that the institutions in the Fenway area are expanding and contributing to air pollution with their own private buses.	January Open House	1/11/07
Ellin Reisner	Somerville/ STEP	Keep in mind that emissions from the transportation system affect the health of both environmental justice and non-environmental justice populations	January Open House	1/11/07
Ted Funst	Beacon Hill Civic Association	Consider extending rapid transit to include the Route 128 belt; for example, running in a loop (both directions) up Route 93 North to Woburn, and Route 128 South to 93 North in Quincy with a spur down MassPike to downtown. Possibly similar to Chicago's L from downtown to O'Hare, where the train runs between traffic lanes where possible and underground in other areas. This project would allow people to get to businesses without using the highways.	January Open House	1/11/07
Wig Zamore	MVTF, STEP	The MPO should conduct an analysis that looks at emission levels in environmental justice areas. Areas such as North Station and Sullivan Square have high levels of emissions from the transportation system. This is a concern for residents and a factor that should be considered when planning to build housing in these areas.	Environmental Justice Forum	1/16/07
Wig Zamore	MVTF, STEP	Supports Green Line Extension	January Open House	1/11/07
Wig Zamore	MVTF, STEP	Land use corridor planning should be done in Somerville	Environmental Justice Forum	1/16/07
Wig Zamore	MVTF, STEP	There are concerns about the future Green Line route to Union Square, especially depending on how Lechmere Station is moved. Potential routes should be carefully studied. The community is not in favor of moving Lechmere Station a further distance from development in the area, and residents would not want to have the Green Line run on elevated tracks.	Environmental Justice Forum	1/16/07

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Wig Zamore	MVTF, STEP	Some agencies like DCR have transportation infrastructure needs that are not being addressed	Environmental Justice Forum	1/16/07
Wig Zamore	MVTF, STEP	When planning projects in environmental justice areas, the MPO should pay attention to pedestrian service and emphasize outreach	Environmental Justice Forum	1/16/07
Wig Zamore	MVTF, STEP	When conducting analyses in the future, consider using car-pooling data as an indicator of where transportation needs are not being met	Environmental Justice Forum	1/16/07
Rep. Denise Provost	MA House of Representa-tives	Land use corridor planning is needed in Somerville. Twenty-nine percent of Somerville residents are immigrants and more than 60% of public school children speak a language other than English at home. The city could use help from the MPO to engage these populations and build a better community process around planning.	Environmental Justice Forum	1/16/07
Ellin Reisner	Somerville/ STEP	The Green Line Extension should not be delayed. Many people are not using the buses in Somerville due to infrequent and unreliable service. The bus service needs to be improved.	Environmental Justice Forum	1/16/07
Karen Wepsic	MBTA Rider Oversight Committee	Expressed concern that areas such as Roxbury, Dorchester, and Jamaica Plain may not receive bus service improvements even as progress is made in some other environmental justice areas. Concerned that the Fairmount Line and Silver Line will not help the broader Roxbury and Dorchester areas. Improving bus service and reducing headways should be a priority. Sup-ports purchasing more buses and 100 Additional Buses project. Concerned about Lovejoy Wharf. Concerned that non-environ-mental justice areas seem to still be getting better service and that while transportation projects may not burden environmental justice communities, they may not benefit them either. Also voiced concern about the MBTA's finances.	Environmental Justice Forum	1/16/07
Janet Curtis	Executive Office of Environmental Affairs	The MPO should consider ways to provide pedestrian access to connect the North Point area to Cambridge	Environmental Justice Forum	1/16/07
Jeff Rosenblum	Livable Streets Alliance	The MPO should engage more civic leaders and the grassroots in the public process around environmental justice issues. He also suggested the MPO conduct a study to see if past model-ing predictions were on target.	Environmental Justice Forum	1/16/07
Meredith Levy	Somerville Community Corp.	The Plan or an executive summary of the Plan should be avail-able in other languages. The MPO should consider expanding the scope of the I-93/Mystic Avenue project to address prob-lems for pedestrians; Route 28 in East Somerville is a pedestrian barrier.	Environmental Justice Forum	1/16/07
Unidentified		The MPO should serve as the clearinghouse for public/agency interactions; the public can be confused about which agencies are accountable for projects and planning	Environmental Justice Forum	1/16/07
Unidentified		Projects should be prioritzed in a way that allows environmental justice areas to catch up to non-environmental justice areas and reach a better balance of service	Environmental Justice Forum	1/16/07

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Unidentified		By substituting projects for the SIP commitments, the MPO appears to be trying to get out of the current SIP commitments. Support for Arborway project expressed. Concern expressed that Arborway will not get done and suburban parking projects will be funded instead.	Environmental Justice Forum	1/16/07
Unidentified		MBTA must have resources for maintaining its equipment and rights-of-ways. Broken buses on the streets impair traffic. MBTA must know where its vehicles are and whether they are moving. The biggest complaints in the intensively bused neighborhoods relate to defective headway management.	Environmental Justice Forum	1/16/07
Unidentified		Supports additional stop on Fairmount Line at Columbia/Quincy Street	Environmental Justice Forum	1/16/07
Karen Wepsic	MBTA Rider Oversight Committee	Span of bus service should be included in the Plan. The MPO should consider holding meetings in the evening to engage residents of environmental justice areas who may not be able to attend meetings during the day.	MPO Open House	2/22/07
Karen Wepsic	MBTA Rider Oversight Committee	Concerned that location for 1,000 new parking spaces has not been identified and that new spaces in urban areas would be used by those traveling from the suburbs	MPO Open House	2/22/07
Karen Wepsic	MBTA Rider Oversight Committee	Opposed to Urban Ring. Concerned that the Commonwealth will not be willing to fund operating costs in long run. Believes Urban Ring should not be an environmental justice project as most of the benefits will go to residents of non-environmental justice areas and mostly serve commuter rail users.	MPO Open House	2/22/07
Ellin Reisner	Somerville Transporta-tion Equity Partnership	Raised concern about limited bus service in off-peak hours and on weekends. Noted that 30% of Somerville households do not have cars. Somerville residents can not access jobs in areas such as Logan Airport early in the early hours since there are no buses running then.	MPO Open House	2/22/07
Robert Haas	Dudley Street Neighborhood Initiative	Concerned that the MPO did not factor into the Plan the growth and development happening around the Dudley Street area. Currently there are long waits for buses and he anticipates future gridlock in area as population increases following building boom. Believes that there should be better transit service to this environmental justice area. Residents of this area are unable to access jobs in the Longwood Medical Area.	MPO Open House	2/22/07
Jeff Ferris	Ferris Wheels Bike Shop	Suggests turning Arborway E Line into a Silver Line-like route, possibly with a tie-in to the Silver Line. Suggests consider-ing other bus routes from Forest Hills Station and researching where users would like to travel.	MPO Open House	2/22/07

NAME	AFFILIATION	COMMENT	MEDIUM	DATE RECEIVED
Steve Olanoff	Chairman, Regional Transportation Advisory Council	RTAC offered the following recommendations/questions: 1) eliminate the Weymouth to Duxbury – Route 3 project; 2) eliminate the $150 million Lynnfield to Woburn – Route 128 project; 3) the Beverly to Peabody – Route 128 project's capacity-adding component should be scaled down by adding lanes only as far as Route 114 or Endicott Street; 4) safety improvements of the Malden and Revere – Route 1 project should be implemented before capacity adding is considered; 5) should the Canton – I-95N/Dedham Street Ramp be moved forward to the 2010 time period since a local developer will be paying for the ramp construction?; 6) requested an itemized list of improvements planned for the Braintree Split project; 7) for Silver Line Phase III, RTAC recommends a $100 million proposal for a surface route and entrance adjacent to South Station rather than the $1 billion project; cost savings would be enough to pay for Red/Blue Line Connector; and 8) recommends that the Blue Line Extension to Lynn be built in the 2015 time frame and that the Red/Blue Line Connector be built at the same time.	E-mail	1/14/2007
Frank S. DeMasi	Vice Chairman, Regional Transportation Advisory Council	The MPO should illuminate the need for public policy to provide incentives for a more balanced intermodal freight system. Rail and coastal shipping components of the transportation system have open capacity for bulk commodities and intermodal freight. The continual erosion of existing trans-load facilities and port lands in urban centers exacerbates a dependence on overly congested roadways to carry freight; demand is projected to increase over the next 10 years. Status quo will constrain the state's future growth and competitive advantage. Suggests that the Regional Freight Study be completed and released for public comment. Believes the draft study is needed to publicly raise the issues of the importance of freight planning and the needs of the Intermodal Transportation System, and to show freight mobility as a significant component of Massachusetts' transportation system.	E-mail	1/26/2007

Table A-2
Comments Received During Official Public Comment Period
(February 26, 2007 – March 27, 2007)

NAME	AFFILIATION	COMMENT	MPO ACTION
Donald K. Milton, M.D., DrPH	Professor, University of Massachusetts at Lowell / Lexington resident	In this era of global warming, promotion of the maximum possible use of bicycles and mass transportation should be a top priority. However, the Plan does not show specific commitments to the development of a network of bicycle paths and routes. He noted that the Plan only includes two bicycle-related projects and vague statements about plans to build bicycle paths, and that it shows no funding committed to bicycle projects. The term "bicycle" is rarely mentioned in Chapter 13, although bicycle/pedestrian facilities are cited among eligibility categories for transportation funding. Chapter 5 states that "improvements for bicyclists and pedestrians are a routine aspect of roadway reconstruction projects and are usually funded under roadway maintenance," but there is little mention of bicycles or bikeways among the infrastructure expansion projects. Chapter 6 fails to discuss a key aspect of bicycle parking at MBTA stations: security. Many cyclists are reluctant to leave a bicycle in an unsecured location for the duration of a workday.	Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan. Therefore new bicycle projects are not specifically listed for funding in the Plan. Different aspects of the MPO's bicycle-planning activities are discussed in Chapters 2, 4, 5, 6, and 7. The MPO funded a Regional Bicycle Plan recently completed by the Metropolitan Area Planning Council. This will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs.
		Two major components should be added to the Plan: 1) There should be specific requirements that roadway expansions include bicycle accommodations. The Plan should require that all road-widening projects (such as the plan to widen the Middlesex Turnpike to four lanes) specifically state that the project will include the addition of bicycle paths separated from motor vehicular and pedestrian traffic by curbs and concrete barriers. 2) The Plan should include specific plans to build a network of bicycle trails that are included as line items in the "Universe of Projects" and in Chapter 13 with estimates of costs as a commitment of funds.	
Unidentified		The Plan does not include enough transit projects. Only two projects (#34 and #35) are actually rapid transit projects. The Silver Line is a bus. The North-South Station Rail Link is needed. The MPO should follow the recommendation of the Citizens' Advisory Committee on the North-South Station Rail Link.	The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation. The North-South Rail Link is included in the MPO's Universe of Projects list but not included in the recommended Plan.
Unidentified		The Silver Line III should not be pursued because Silver Line I and II are so inadequate. Instead, the MPO should work toward a real replacement of the El and quality transport along the much used Washington Street route.	The Silver Line III project currently has a recommended rating in Federal Transit's New Starts Program. With current daily ridership numbers of 14,700 for Silver Line I and 11,000 for Silver Line II, the MPO thinks that the Silver Line III project should be included in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
Stephen H. Kaiser		Does not approve of the proposed set of projects in the Plan. He believes there is too much waste in transportation projects, especially highway reconstruction, and estimates that 50% or more of highway funds are wasted on projects that are bigger than they need to be. The MPO should consider efficiency of the program. During public outreach, the MPO should ask for suggestions for money-saving, efficient projects. Supports including the Green Line Extension to Medford as a transit project.	Plan-process comments will be considered in the development of the next Plan and its revisions to the public involvement program. The Extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments.
Paul J. Leary	Weymouth resident	Would like an explanation of how the proposed East-West Parkway at the former South Weymouth Naval Air Station will address or improve the long-range transportation needs of the Boston region, or any other region.	The Plan addresses mobility issues over a 23-year period. The proposed land use in 2030 in the South Weymouth area is expected to increase vehicle miles of travel along highways in the area (Route 18, 53, 139, and 228). This project will help to alleviate congestion and improve mobility along those roadways.
Domenic E. D'Eramo	Millis resident	Approves of the projects identified for highways and transit in the Plan. Would like to see a list of freight-related projects. Other MPOs in Massachusetts have lists of freight projects. Should stop treating freight as the forgotten transportation element in the Boston Region MPO.	The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region.
Unidentified	Winthrop resident	Requests consideration of an additional (Paul Revere–contracted) bus route out of Winthrop via the Revere Street exit to Beachmont MBTA station. (Currently there is only one route out of Winthrop to the Orient Heights Blue Line station.) A new route would shorten commutes for Winthrop residents who take the bus to work and alleviate rush-hour congestion in East Boston.	This comment will be forwarded to the MBTA Service Planning Department which continuously reviews bus routings and determines changes based on needs and ridership data.
Unidentified		Somerville needs the Green Line. Please seriously consider having stops in East Somerville for better access to Boston. We have so many rails crossing one part of the city but none of the benefit.	The Extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. This comment will be forwarded to the MBTA and the Executive Office of Transportation which are currently developing an environmental impact report that will consider station locations.

NAME	AFFILIATION	COMMENT	MPO ACTION
Robert D'Amico	East Boston resident	Completely agrees with the MPO's set of projects. Suggests that light rail would work well in the Revere/Malden/Saugus area where there is an abandoned railroad right-of-way. Suggests that the MPO extend its public outreach.	Plan-process comments will be considered in the development of the next Plan and its revisions to the public involvement program. The light rail comment will be forwarded to the MBTA which is in the process of updating its Program for Mass Transportation.
Deborah Lockett	Belmont resident	Transportation is the largest contributor of greenhouse gas emissions, and significant reductions in GHG emissions can be made if ways are found to reduce single-trip driving. She wants to better understand why people cut through Belmont. She made several suggestions and posed several questions: 1) Extend transportation services from Arlington/Lexington to Waltham/Watertown or other towns that border Belmont. How might this be easily accomplished? How might our local businesses benefit from this traffic? 2) The hours that commuter rail serves Belmont must be extended. 3) The existing bus routes connecting Belmont to Cambridge do not provide riders a way to get around Belmont. Can a shuttle be started to provide regular service within Belmont?	This comment will be considered as part of the Unified Planning Work Program process and forwarded to the MBTA's Service Planning Department, which continuously reviews bus routings and determines changes based on needs and ridership data. It will also be forwarded to the MBTA for its development of the Program for Mass Transportation.
Katharine Dreier	Belmont resident	Belmont needs a bus service that connects the three town centers. It also needs a branch going to the Alewife MBTA station.	This idea will be forwarded to the MBTA Service Planning Department, which continuously reviews bus routings and determines changes based on needs and ridership data.
Michelle Ciccolo	Assistant Administrator, Town of Hudson	Pleased that Route 85/Washington Street project is listed as stand-alone project in the draft Plan. Due to complexity and costs associated with the interchange project, Route 85 project should be done separately. To expedite the project, the Town of Hudson has committed to accepting the roadway back from the State and maintaining it in perpetuity after construction, eliminating maintenance cost to MassHighway. The project should be listed in the 2007-2010 time frame in the Plan. The 25% design is expected to be complete by June 2007 and 100% design during FY 2008. The Town received $40K in Supplemental Budget funding for design, and a local developer will provide preliminary design funds. The project is needed to address safety and congestion issues. Safety problems are evidenced by recent pedestrian fatality at crossing of Route 85 and Assabet River Rail Trail (project would include traffic light at this crossing). Area is hazardous; it has limited sidewalks, excessively wide retail drive openings, insufficient roadway capacity. Town is experiencing commercial and residential growth in this area.	The Route 85 project is included in the Plan in the 2011 to 2020 time frame. Projects that are included in the 2007-2010 time frame are those that are programmed for construction in the current Transportation Improvement Program. The project rating was reviewed and revised based on updated information.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Project rating should be updated to reflect that the project area is bordered by an environmental justice area. TAZ data shows that many of these EJ households have one or no vehicles; addition of sidewalks will improve mobility for these residents. Rating should also be adjusted to reflect that the roadway is the only north-south route connecting areas of Hudson, Bolton, Berlin and other points north to Marlborough, and that roadway is used by town's senior transportation shuttle bus and other shuttles. Eliminating congestion will improve air quality. Also, project will improve drainage and have water quality benefits to streams that feed into the Assabet River.	
Donna Jacobs	Director, MetroWest Growth Management Committee	MWGMC is disappointed at the lack of mention of MetroWest in the draft Plan given that the area has major interchanges in need of improvement and local roads and bridges that are almost at failure. Collector roads are experiencing significant congestion all week. Interchanges of major arterials and I-495 are failing to support traffic, and this results in both safety and air quality issues. MWGMC's priorities are to improve three major interchanges: I-90/I-495, I-495/9, and I-290/I-495. The I-495 flyover for EMC should be included in the Plan. Reference to the Worcester commuter rail expansion is missing as is a reference to the fact that the Routes 135/126 grade separation project is mitigation tied to the rail improvements.	I-90/I-495 and the I-495/Route 9 projects are included and funded in the Central Massachusetts MPO long-range plan. The I-290/I-495 interchange is included in JOURNEY TO 2030 and has been moved into the 2011 to 2020 time frame. The Worcester rail expansion is included in the Universe of Projects list but not in the recommended plan at this time.
		MWGMC is pleased that the MPO is committed to future funding for the Suburban Mobility/TDM, Bicycle, Pedestrian, and Freight Programs, but concerned that there is no commitment to a minimum level of funding. The MPO should commit a minimum level of funding for each program. MWGMC is concerned that the Suburban Mobility Program is limited by CMAQ funding and urges the MPO to find a way to separate the program from CMAQ and establish a consistent funding level. MWGMC urges the MPO to recognize the newly established MetroWest RTA as contributing to solving congestion. It would like to see more opportunities for transit and commuter rail parking, commuter rail frequency improvements, park & ride or park & drive, shuttles, and expanded bicycling and walking facilities.	The MPO discussed a minimum level of funding for the programs but decided not to include it at this time. CMAQ is the only federal funding category that allows operational funding. The MetroWest RTA will be considered as part of the next Plan. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation.

NAME	AFFILIATION	COMMENT	MPO ACTION
		It is imperative that the MPO begin planning for and identifying funding mechanisms for new transit expansion projects in the 2021-2030 time frame. The Plan must include comprehensive regional freight planning, including: 1) a complete and timely descriptive narrative of the current rail freight delivery system beyond the regional Pan Am and Class I CSX main lines; 2) recommendations for all modes of freight specific and prioritized capital projects, policies, and programs; 3) suggestions for further freight transportation planning; and 4) a catalogue of freight transportation characteristics and issues from the point of view of shippers, carriers, and other affected stakeholders.	The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region. The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year.
		MWGMC commends the MPO for including the "Smart Growth Plus" in its model runs and draft Plan. An additional model run on the preferred MetroFuture scenario would be helpful to inform the MetroWest subregion, MAPC, and the MPO; MWGMC hopes the MPO will run this in the near future. MWGMC strongly believes that the proposed allocation of funds in the draft Plan is insufficient to meet the region's transportation maintenance and operations needs, and suggests the MPO have a Plan more solidly based in the reality of an aging and inadequate transportation infrastructure. It urges the MPO to place more emphasis on transit and on suburban, bicycle, and pedestrian mobility.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process.
Peter G. Furth	Professor and Chair, Department of Civil and Environmental Engineering, Northeastern University	In the past 30 years, the U.S. has been trying to promote bicycling and bicycle safety, but we are losing ground, and bicycling for transportation has become a niche activity unappealing to many due to safety concerns associated with driving in traffic. Increases in traffic and roadway widenings make streets even more inhospitable to cyclists. State and regional bicycle policies have two fundamental shortcomings: 1) design standards for bicycle facilities are based on guiding cyclists through traffic, rather than separating cyclists from traffic; and 2) lack of attention to city- and town-owned streets, where most bicycling takes place. The majority of the population considers cycling safe if the rider is separated from traffic. Examples of facilities that poorly serve this mainstream population are roads with wide outside lanes (which promote faster car speeds), bicycle lanes that merge into traffic at intersections, and bicycle lanes positioned between lanes of moving traffic.	MassHighway's Project Development and Design Guidebook places emphasis on bicyclists and pedestrians as equal users of the road with needs that must be considered in every project. The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. This will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan, JOURNEY TO 2030.

NAME	AFFILIATION	COMMENT	MPO ACTION
		The state should look to the example of several northern European nations that have bicycle facilities that separate cyclists from traffic and where bicycle use is 20 to 60 times greater than in the U.S. These nations invest in bicycle tunnels, overpasses, off-road shortcuts, and roadside cycle tracks (separated from traffic), and they slow traffic on important bicycling routes. The Commonwealth's requirements for bicycle accommodation need to be changed to extend to state-funded improvements of local streets, not just to highways. The state has to take the lead in funding bicycling improvements, as municipalities do not have the funding to realize the vision of a bicycle-friendly infrastructure. Road-user fees, such as fuel taxes, should fund bicycle infrastructure improvements.	The Plan does reference the MPO's continuing commitment to bicyclist and pedestrian programs. Your design and funding comments will be considered in the development of the next Plan and other studies conducted by the MPO as well as forwarded to the Executive Office of Transportation.
Deborah Lockett and Ian Todreas	Belmont residents	Belmont must establish a formal network of bicycle lanes that can connect with existing networks. The town needs a dedicated Bike Walk resource (or similar entity) to work with the town to ensure that bicycle paths are considered in planning for the construction of new streets. Belmont would like the MPO's help to understand the flow, direction, and motives of pass-through commuters. This would help the town determine which towns and employers it must contact to reach these commuters and solve pass-through traffic issues.	This comment will be considered as part of the Unified Planning Work Program process, which considers studies to be done by the MPO. MassHighway's Project Development and Design Guidebook places emphasis on bicyclists and pedestrians as equal users of the road with needs that must be considered in every project.
Sharon Santillo	Malden resident	In every one of your projects, please think about cyclists and pedestrians.	MassHighway's Project Development and Design Guidebook places emphasis on bicyclists and pedestrians as equal users of the road with needs that must be considered in every project. The MPO considers bicycle and pedestrian improvements as one of the evaluation criteria in its selection of projects for the Transportation Improvement Program.
Jack Heinzmann	Rockport resident	Three dollar/gallon gasoline started the U.S. thinking about energy, but $2/gallon made us forget. Any attempt to reduce highway congestion will only postpone the inevitable gridlock. Any money spent on new or expanded highway construction is wasted money. Highway dollars should only go to increasing safety. Improved transit is the only hope for reducing congestion.	Seventy percent of the funding in this Plan is spent on maintenance and safety projects. Many of the expansion and major infrastructure projects listed in the Plan include safety improvements. Many of the projects listed in the Plan are at sites included in the top-1000 crash locations in Massachusetts.
Joe Bausk	Sudbury resident	Supports the widening of Route 85 in Hudson. This is a much needed project. Public transportation in the suburbs needs to be updated – trains, buses, and rail trails.	The Route 85 project is included in the Plan. The MPO provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. As discussed in Chapter 13, the MPO is committed to the continued funding of this program in the region.

NAME	AFFILIATION	COMMENT	MPO ACTION
Kathleen B. Bartolini	Director, Planning and Economic Development, Town of Framingham	The Framingham – Route 126/135 Grade Separation project should be moved from the outer years of the Plan to the 2011-2020 time frame due to recent developments that make the earlier time frame more appropriate. The project is regionally significant as Route 126 includes the Framingham Central Business District and provides the most direct access to Route 9 and the MassPike for commuters to the south of Framingham. As much as 50% of traffic entering downtown Framingham from the east, west, and south heads towards Route 9 or the MassPike. Congestion in the corridor keeps public buses chronically off schedule. Lengthy gate closings at the rail crossing at the intersection of Routes 126 and 135 disrupt traffic flow. In keeping with the inter-municipal agreement between Worcester, Framingham, and Ashland, commuter rail expansion to Worcester can not move forward without mitigating impacts at at-grade crossings.	The MPO discussed moving this project into an earlier time frame but due to project design issues decided to keep it in the 2021-2030 time frame.
		A Framingham task force and its consultants have been developing mitigation plans for reducing congestion when train service increases. Further delays to the project will require redoing planning work and data collection.	
Terry Fancher	Executive Director, South Shore Tri-Town Development Corporation	SSTTDC believes the redevelopment of the South Weymouth Naval Air Station should be a high priority. The project is an important economic and environmental priority for the South Shore. The Commonwealth awarded a 2006 Smart Growth Award for the planning of SouthField, an environmentally sensitive mixed-use community zoned for 2,855 residential units and 2 million square feet of commercial space. The redevelopment is projected to create 3,000 new permanent jobs at the former base and 2,000 new jobs in the region.	The South Weymouth Naval Air Station Access Improvements and the Route 18 Capacity Improvements are included in the Plan. The funding in the Plan for Route 18 has been increased to $24,000,000.
		The widening of Route 18 and the East-West Parkway connector (connecting Route 3 to Route 18 and the South Weymouth commuter rail station) are necessary for the successful redevelopment of the base. Redevelopment cannot legally proceed beyond the initial partial-development phase (500 residential units and 150,000 square feet of commercial space) without these two projects. The project's DEIR certificate and community agreements make construction of the Parkway a requirement to go beyond the first full phase of development (1,000 residential units). A commitment of funding from the Commonwealth is necessary to keep the redevelopment from stalling.	The MPO has committed to include only the federal and state funds earmarked for the South Weymouth Naval Air Station Access Improvements in the recommended Plan. A total of $45,000,000 for the project has been indicated in the footnote in Table 13-3, with the remaining funds to be provided by non-MPO revenues, including funds from the state, local entities, and the developer.

NAME	AFFILIATION	COMMENT	MPO ACTION
		SSTTRDC is concerned that both project's costs are under-estimated in the draft Plan. The South Weymouth Naval Air Station Access Improvements project is programmed too late in the Plan to enable the redevelopment. The footnote to this project, on Table 13-3, is incorrect, as the SSTTRDC and developer, though committed to contribute to the cost of the Parkway, have not agreed on specific financial arrangements.	
		SSTTRDC requests that Table 13-3 be amended as follows: 1) increase the current cost of the South Weymouth Naval Air Station Access Improvements from $23 million to $45 million and move the project from the 2011-2020 time frame into the 2007-2010 time frame; 2) increase the current cost of the Route 18 Capacity Improvements from $14 million to $24 million and keep the project in the 2007-2010 time frame; and 3) remove footnote #3 or amend it to read: "The total project cost of $45 million will be funded through a combination of federal and state funds currently earmarked for the project and other funds to be secured by local and developer contributions."	
Thomas J. Kinton, Jr.	CEO and Executive Director, Massport	Massport requests that the grade separation of the Silver Line under D Street in South Boston (T Under D project) be added to the 2011-2020 time frame of the Plan. The burgeoning development in the Waterfront District and the potential addition of millions of square feet of new residential and commercial development over the next decade will bring additional traffic to the district. All four lines of Silver Line traverse D Street – the only north-south connector in the district – and there is limited queuing space between the seven intersections between Northern Avenue and Fargo Street. Increased traffic could produce congestion on surface streets and the transit and highway systems. Gridlock on surface streets could close down the Silver Line, block access to I-90, and affect the I-90 mainline.	The MPO discussed including this project in the recommended Plan but decided against it at this time. It will be considered during the next amendment of the Plan, anticipated to begin within the current federal fiscal year.
		The South Boston Transportation Summit, sponsored by EOEA in 2000, recommended the grade separation of the Silver Line under D Street. Massport performed a preliminary assessment of the project (project summary and map enclosed). There is interest among Massport, City of Boston, BCEC, A Better City, and MBTA in pursuing an earmark or SEMAC funding for the project.	
Michelle Ciccolo	Assistant Administrator, Town of Hudson	Requests that the MPO use the state's designated environmental justice neighborhoods for its EJ zones to promote consistency and fairness across the board. Hudson has an EJ neighborhood, and several TIP projects are either in this zone or adjacent to it. The rating for the Route 85/Washington Street project should be updated to reflect that the project area is in an environmental justice zone.	This comment will be considered as part of the MPO's Regional Equity Program and in the development of the next Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
Ed Bates		The draft Plan explains well the work that will be done or is planned for 2030, but is lacking in addressing the overall needs and deficiencies that will exist in 2030. The Plan should estimate the shortfall in funding and discuss options for solving the shortfall. There is no discussion of increasing Chapter 90 funds. The Plan does not address the need for expanded parking at transit stops. The Urban Ring will generate a number of new intermodal transit projects that will dramatically increase transit ridership. Regarding the MPO structure, he states that the MPO is non-representative of local elected officials and implies that the state's votes should not so greatly outweigh MAPC's vote.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation. The MPO's structure was developed through a Memorandum of Understanding developed by the MPO in 2001.
Mary E. Grant	State Representative, Sixth Essex District, Beverly	Providing adequate parking for the Beverly Depot commuter rail station is of primary importance. The station is highly used, including by riders from other communities, and a garage is needed. Fares are a concern. The threshold is being reached where driving makes more economic sense than taking the train. To encourage more ridership, off-peak services must be increased. Light rail vehicles should be considered. Preserving a right-of-way for a North-South rail link is a priority. This project would enhance transportation options in the Northeast, allow for convenient and efficient service along the entire East Coast, and resolve the growing constraints at North and South stations.	As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation. The North-South Rail Link is included in the MPO's Universe of Projects list but not in the recommended Plan. Service improvement comments will be forwarded to the MBTA's Service Planning Department. They will also be forwarded to the MBTA for consideration in the Program for Mass Transportation.

NAME	AFFILIATION	COMMENT	MPO ACTION
Virginia McIntyre	Chair, Board of Selectmen, Town of Concord	The Town of Concord urges the MPO to maintain the funding and construction schedule for the Route 2 Crosby's Corner project and program the project for 2009-2011, rather than, as it is listed in the Plan, in the 2011-2020 time frame. Route 2 is a major regional transportation corridor. Recent serious accidents and a fatality on Route 2 in Concord highlight the need for long-term solutions in the corridor. Traffic is projected to increase in the area, and projects along Route 128 will make the area more congested and dangerous. Funding for Crosby's Corner has been shifted from 2004 to 2009 and should not be further delayed. Due to escalating construction costs, any further delay will put this project in jeopardy. The project has been a top priority of the Route 2 Corridor Advisory Committee. The 25% design was complete in 2003, and the 75% design will be complete in early 2007. MassHighway has the project scheduled for bidding in 2008.	The Plan includes $12.45 million of funding for the Route 2 Crosby's Corner project in the 2007-2010 time frame, corresponding to the amount currently programed in the 2007-2010 Transportation Improvement Program. The remaining funding is programmed in the 2011-2020 time frame, indicating completion of the project in that time frame.
Sarah Cannon-Holden	Chair, Board of Selectmen, Town of Lincoln	The Town of Lincoln urges the MPO to maintain the funding and construction schedule for the Route 2 Crosby's Corner project and program the project for 2009-2011, rather than, as it is listed in the Plan, in the 2011-2020 time frame. Each year the number and intensity of accidents increase in the area. A recent fatality on Route 2 in Concord and two recent high-profile accidents at Crosby's Corner have raised the stakes for long-term solutions in the corridor. Traffic is projected to increase in the area, and projects along Route 128 will make the area more congested and dangerous. Funding for Crosby's Corner has been shifted from 2004 to 2009 and should not be further delayed. Due to escalating construction costs, any further delay will put this project in jeopardy. The project has been a top priority of the Route 2 Corridor Advisory Committee. The 25% design was complete in 2003, and the 75% design will be complete in early 2007. MassHighway has the project scheduled for bidding in 2008.	The Plan includes $12.45 million of funding for the Route 2 Crosby's Corner project in the 2007-2010 time frame, corresponding to the amount currently programed in the 2007-2010 Transportation Improvement Program. The remaining funding is programmed in the 2011-2020 time frame, indicating completion of the project in that time frame.
		In addition to traffic and safety concerns, many Lincoln and Concord residents are held in limbo regarding the impact on their homes and property as right-of-way issues are debated. Further delays will adversely impact their lives. Delays will also have a significant impact on the recent approval of the New England Deaconess project at Crosby's Corner. (Service roads are part of the proposal for this 197-unit senior living project.) Safety will be an issue with the prolonged use of the existing roadway as a temporary entrance. Further delay will also impact Battle Road, a Scenic Byway which is already experiencing increasing pressure from Crosby's Corner traffic.	

NAME	AFFILIATION	COMMENT	MPO ACTION
Richard Canale	Chair, Minuteman Advisory Group on Interlocal Coordination	It is important to provide public transportation and supportive feeder service from the densely populated urban core to suburban jobs given the increase in job opportunities in the MAGIC subregion. Reducing congestion by offering more commuter rail parking contributes to the region's attractiveness as a locus for economic development and enables Boston-bound commuters increased access to shared transportation opportunities. This perspective should be included in the environmental justice discussion and analysis. MAGIC wishes to see increasing opportunities for transit, paratransit, and other alternatives to single-occupant-vehicle travel, including transit and commuter rail parking, commuter rail frequency improvements, park & ride or park & drive, shuttles, and expanded bicycle and pedestrian facilities.	As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation. The MPO provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. As discussed in Chapter 13, the MPO is committed to the continued funding of this program in the region.
		MAGIC supports the four major projects listed in the draft Plan for this subregion. It supports the decision to separate the Route 85 improvements from the I-495 Connector/Interchange project. Safety, bicycle and pedestrian mobility, and congestion issues on Route 85 warrant immediate attention, especially in light of private funding opportunities. The Concord Rotary and Route 2/Crosby's Corner projects are the most significant of safety and mobility projects. Crosby's Corner should be moved forward to the 2009-2011 time frame. Supports Middlesex Turnpike project as it is part of a plan that will facilitate economic development and incorporates mixed-use. Supports adding the Red Line extension to Route 128/I-95. The Fitchburg commuter rail project would include improvements in MAGIC communities. The improvements, new MBTA parking in the Route 2/I-495 area, and a Red Line extension would ease traffic congestion along Route 2 and into Boston.	The four projects are included in the Plan. The Red Line Extension to Route 128 and a new station in the Route 2/I-495 area are in the Universe of Projects but not included as a recommended project in the Plan. The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year.
		Commends MPO for using "Smart Growth Plus" in its model runs and in the Plan. An additional model run, in the near future, using the MetroFuture scenario would be informative. The projected future State transportation funding is insufficient to meet maintenance and operation needs of the current infrastructure. The proposed allocation for increasing highway capacity is too much. More emphasis should be placed on transit and on suburban, bicycle, and pedestrian mobility.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. 70% of the funding in this Plan is spent on maintenance and safety projects. Many of the expansion and major infrastructure projects listed in the Plan include maintenance and safety improvements.

NAME	AFFILIATION	COMMENT	MPO ACTION
Karen Wepsic	Jamaica Plain resident	Suggests an origin to destination study that looks at whether people are making longer commutes to the inner core or driving more, whether the number of cars per household is increasing, whether there are increases in the amount of land being paved, and what can be done to slow these trends. The study should go beyond 2030. Objects to the use of the word "need" in the Plan as she believes that transportation is not a basic need for most people (only disabled and elderly), and that people make choices about whether to live close to or far away from their work and activities. It is not the responsibility of the government to support long-distance travel choices.	This comment will be considered as part of the Unified Planning Work Program process and forwarded to the MBTA's Service Planning Department, which continuously reviews bus routings and determines changes based on demands and ridership data. It will also be forwarded to the MBTA for development of the Program for Mass Transportation.
		Recommends the following changes/clarifications to the Plan: Page 2-9: Table 2-4 should include weekend boardings by mode. Page 3-2: MPO should have an environmental justice committee. Page 3-8: Questioned whether private shuttles are included in the term "private express-bus carriers." Page 3-9: Weekend travel should be included in 2030 forecasts. Page 4-2: MPO should focus on improving current transportation system and suggest projects, not wait for a proponent. Page 4-4: Quality of transportation, not just mobility, should be included in judging equity. Benefits and burdens to environmental justice areas should be examined. Burdens should be catalogued and if unequally shared, the burdens should be addressed with mitigation or new project's burdens should go to neighborhoods not previously impacted. Page 4-11: Objects to use of the word "need." (See above.)	The use of the word "need" will be considered in the development of the next Plan. The MPO will take your suggestion of weekend boardings under consideration in the development of the next Plan since automated fare collection will make this data more readily available. The EJ committee, EJ outreach, and quality-of-transportation comments and changes to the EJ analysis will be considered as part of the MPO's Regional Equity Program and in the development of the next Plan. The MPO's travel demand model is representative of an average spring weekday and does not include weekend travel.
		Page 5-2: Text regarding the MPO's goal to meet customer expectations is a poor choice of words. MPO should not be in business of meeting customer expectations. Page 5-8: The term "bus transfer station" makes bus stations appear to have no significant importance in their own right. Bus stations should have amenities. Page 6-1: The primary goal should be to make public transportation reliable, not only more reliable. Examples should be given to support the text that reads, "consider how an improvement in a single mode can make the entire system work better." It should also be considered that improvement in a single mode could make the system work more poorly. Page 6-3: The MPO states it supports alternatives to single-occupant vehicles, but it is not willing to flex highway funds to transit. Page 6-5: Quoting the percentage of job increase is misleading. Should look at jobs per unit area and define suburbs. Little in this document will counter the trend to have continual increase in VMT.	All comments on text changes will be considered in the development of the next Plan. This comment will also be forwarded to the MBTA for use in the development of the Program for Mass Transportation. During the development of this Plan, there was no flexing of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Page 6-7: Need more detailed information on how the MBTA will monitor bus operations using GPS. Contrary to the text, kiosks on Washington Street offer no information about Silver Line arrivals. Page 6-14: Should have a more detailed listing of parking facilities, including analysis of lots that fill up early and at the end of peak, and lots that do not fill. Page 6-17: Include figures for people age 65+. Page 7-4: Incidences of pedestrian injury should be studied to correct unsafe intersections and conditions. Page 8-2: Should read auto, bus, and bus rapid transit. The importance of BRT is overemphasized in the text. Page 9-1: The MPO should establish an environmental justice committee to identify transportation priorities for communities of concern. Page 9-7: Environmental justice outreach went primarily to organizations. An EJ committee would identify more inclusive ways to seek input. Chapter 10: The MPO should develop a graph showing annual increases/decreases in road surface and parking areas in the region. This could be used to project future amount of paved space.	The inclusion of more detailed information and additional figures and graphs will be considered in the development of the next Plan. The MPO will be conducting a study on the top-35 bicycle/pedestrian crash locations.
		Page 10-6: The MPO should require that carbon dioxide emission levels be calculated for each project. Page 13-3: Text states that one basis of selection for projects is "MPO member's personal knowledge of proposed projects." Unless the MPO can show a broad representation (including environmental justice advocates) and a professional view, this basis for selection appears political. Page 13-5: The MPO emphasizes decreasing single-occupant-vehicle travel, but does not flex highway funds to transit. Page 13-7: The rationale for the Russia Wharf project should be included. Regarding SIP projects: the Route 39 bus on the Arborway has resulted in a serious decline in ridership with no increase in ridership on the Orange Line, and the substitution of 1,000 new parking spaces project has no environmental justice component and does not identify the location of the new spaces. The environmental justice analysis is unclear.	The calculation of carbon dioxide emissions will be considered in the development of the next Plan. The text on page 13-3 has been revised. Russia Wharf is a SIP commitment of the Central Artery project and must be included in the Plan. The current SIP commitments are included in this Plan. When revisions to these SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. See the description of SIP projects in Chapter 13.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Page 14-8: Environmental justice benefits of the Silver Line Phase III are over-emphasized. Adding another route from Dudley to downtown creates a dilemma for riders trying to determine how best to get downtown. The amount of investment required for the Urban Ring 2 project is not justified when other maintenance projects would better serve the transit infrastructure. Page C-15: Questions the air quality rating given the decrease in ridership on the Route #39 bus route. The rating given to the Urban Ring 2 project is questionable given that a full analysis of cost-effectiveness and service quality has not been done. Does not believe this will be an environmental justice project. Page D-4: It should be pointed out that the current Urban Ring buses, CT1, CT2, and CT3, do not run early in the morning, late at night, or on weekends. Page D-8: There is no longer Inner Harbor commuter boat service from Lovejoy Wharf.	The EJ results indicate that these projects will improve accessibility and mobility for environmental justice areas. The MBTA is in the process of updating its Program for Mass Transportation. The AQ ratings can be reviewed as part of that process. The Inner Harbor service from Lovejoy Wharf has been corrected.
Sherry Alpert	Canton resident	The I-95/I-93/Route 128 interchange project must be a high priority. Regarding the Route 95 Westwood-Attleboro Corridor Study, adding a diamond interchange at Exit 10-Coney Street is critical to keep traffic from jamming Exit 11A-Norwood to access Route 1.	The I-95/I-93/128 project is included in the Plan. The second comment will be forwarded to the Study Advisory Group.
Unidentified		Supports development of bicycle trails in any part of the state.	The Plan references the MPO's continuing commitment to bicyclist and pedestrian programs.
Rhoda B. Kanet	Hull resident	Two extremely dangerous intersections need to be addressed: Route 3 South/Route 30 and Route 128 North/Route 30. Vehicles on Route 3 heading toward the Washington Street exit in Braintree must cross two lanes of traffic and then cross a major line of incoming traffic from Route 128 South. Vehicles exiting Route 128 North onto Route 30 must cross high-speed traffic exiting Route 90 onto 95. There is about one block for traffic exiting 128 to cross traffic exiting 90.	The MPO conducted a study at the I-93/Route 3 interchange (Braintree Split) and in the surrounding area. The recommendations from this study are included in the recommended Plan to improve traffic operations in this area.
		Increased water transportation is needed to and from Hull DCR Beach on weekends, daytime and evening. Now there is no water transportation on weekends and limited bus service. Tourists can only reach Hull beaches by car, which is highly polluting. Trolley service is needed between the new train and boat for commuters to minimize the use of vehicles. There needs to be one bus trip between Hull and Quincy.	The MBTA is in the process of updating its Program for Mass Transportation; this comment will be forwarded for PMT consideration as well as to the the MBTA Service Planning Department, which continuously reviews routings and determines changes based on needs and ridership data. The MPO also provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. The Town of Hull can apply for funding under this program for trolley service in this area.

NAME	AFFILIATION	COMMENT	MPO ACTION
Alex Pirie	Somerville resident	Supports Green Line extension to Medford Hillside and spur to Union Square, Orange Line station at Assembly Square, and redesign of the I-93/Route 28 interchange. Urges the MPO to encourage the passage of a state bond bill with transit project funding as soon as possible. The MPO should use its data on population, travel intensity, and air pollution to reveal and more aggressively suggest mitigation for local disparities in environmental exposures that cause serious health effects. He notes that Somerville bears the burden of several heavily used rail and transit lines, bus routes, and MBTA storage/repair facilities that contribute to air pollution in East Somerville. Also concerned that the MBTA uses toxic herbicides on rail lines. Somerville bears these environmental burdens so the MBTA can provide transit services to other communities.	The Green Line extension to Ball Square and the Orange Line station at Assembly Square are included in the Plan. This comment will be considered as part of the Unified Planning Work Program process, which considers studies to be done by the MPO. The MPO is currently developing a work scope to study population densities in relation to carbon monoxide emissions.
Erika Tarlin	Somerville resident	Supports the Green Line extension to Union Square and Medford, Orange Line station at Assembly Square, and improvements to the Orange Line Sullivan Square station. The Winter Hill area of Somerville is under-served by public transportation. There is no north-south transportation in Somerville, and east-west buses have limited service in the evening. Better transit in this area would alleviate road congestion and bring economic growth to neighborhoods. Supports adding a bicycle path to downtown.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The Orange Line station at Assembly Square is included in the Plan. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program. This comment will also be forwarded to the MBTA Service Planning Department.
Gino Carlucci	Chair, SouthWest Advisory Planning Committee	SWAP communities are concerned about the financing of transportation projects and that the Plan may include unrealistic assumptions. The proportion of total transportation funds available for expansion or major infrastructure projects may be lower than stated in the Plan due to maintenance needs of existing roadways. SWAP is concerned about the inequitable allocations of funds, as none of the expansion or major infrastructure projects are located within SWAP communities. Also concerned that TIP projects might not be funded due to constraints posed by funding expansion or major infrastructure projects.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. In addition to projects that add capacity to the system, the Plan lists projects that cost over $25 million. Many of these projects address the existing maintenance needs and safety issues of the transportation system.

NAME	AFFILIATION	COMMENT	MPO ACTION
		SWAP would like its priority projects to move ahead in the TIP: Bellingham—Pulaski Blvd.; Foxborough, Norfolk, Wrentham—Route 115, Pond/Pine Street; Holliston—Norfolk Street; Medway—Route 109; Milford—Upper Charles Trail, Phase 2; Franklin—Lincoln and Main Street; Milford—Veterans Memorial Drive/Alternate Route; Wrentham—Route 1A/I-495 Slip Ramps; and Holliston—Upper Charles Trail. Most of these projects do not fit the expansion or major infrastructure definitions, but SWAP would like clarification regarding the Wrentham—Route 1A/I-495 Slip Ramps and the Milford—Veterans Memorial Drive/Alternate Route projects.	The MPO is in the process of developing its 2008-2011 TIP. All of the listed projects will be included in the Universe of Projects list for consideration in the TIP. The Route 1A/I-495 slip ramp will only have to be included in the Plan if it adds capacity. It does not have to be included if it is only an interchange reconfiguration. The Milford Alternate Route project would have to be included because it adds a new road connection.
		The MPO should commit to providing significant funding for programs such as suburban mobility, bicycle and pedestrian efforts, and an expansion of its commitment to ride-share/park-and-ride. To fund these projects, the MPO should consider removing or delaying some projects currently in the Plan. Route 3 Add-a-Lane project, for instance, should be put on hold until impacts of Greenbush commuter rail line can be determined. Use of private buses, TMA shuttles, and carpooling, supported by park-and-ride/rideshare facilities, should be supported. Safety issues should be addressed in the short term by establishing breakdown pull-offs and by reconstruction of some off- and on-ramps.	The MPO discussed a minimum level of funding for the programs you listed but decided not to include it at this time. As stated in Chapter 13, the MPO is committed to continued funding of these programs. The MPO discussed the Route 3 project and thinks it should be included in the Plan because analysis shows that congestion on the road is severe now and will increase significantly in the future.
		The Plan should include a system-wide commitment to park-and-ride and ride-share lots as an inexpensive means of promoting alternatives to single-occupant-vehicle use. Collectively, these facility projects could be a major infrastructure project. A park-and-ride/ride-share facility should be included in the design of the I-290/Route 85/I-495 interchange project.	As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation.
		Additional transit should be planned for the region, particularly for those areas not currently served. The communities of SWAP have no bus service. If transit is not improved, additional communities are likely to join other RTAs to obtain bus service, further increasing costs for other MBTA communities.	The MPO provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. As discussed in Chapter 13, the MPO is committed to the continued funding of this program in the region.

NAME	AFFILIATION	COMMENT	MPO ACTION
Brian Watson	Chair, North Shore Task Force	NSTF registered its disappointment with the title of the Plan, stating that "JOURNEY TO 2030" suggests an ambitious, long-range vision but the title is not supported by the projects included. NSTF would like a greater emphasis on non-automotive approaches to transportation problems. It is disappointed that flex funding across transit and highway projects is not being considered to support North Shore projects. Given funding constraints, the MPO should plan more comprehensively and should forcefully discuss and identify need for additional funding and possible sources. NSTF agrees with the Fix-It-First policy and feels it is time to focus on maintaining and improving existing transit and highway systems. It supports the fulfillment of all SIP commitments.	The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation.
		NSTF is pleased that the MPO has incorporated Smart Growth land use practices in planning efforts. It recognizes the MPO's adoption of the MetroFuture Smart Growth Plus land use scenario and states that consistency with MetroFuture can help the region incorporate development practices that will translate into better use of limited infrastructure dollars, higher quality of life, and economic competitiveness.	During the development of this Plan, there was no flexing of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.
		Supports the following transit projects: Blue Line to Lynn; Urban Ring, Phase 2 (connecting the project to existing North Shore bus routes or creating routes where they do not exist); adding 100 new buses to existing routes; adding 1,000 new park & ride spaces; and ferry expansion to Russia Wharf/South Station (several North Shore communities have explored ferry service to Boston).	The SIP commitments are included in the Plan. The Smart Growth land use will continued to be used until the MPO adopts a new land use.
		Supports the following highway projects: Route 128 safety improvements and addition of travel lanes between Beverly and Peabody; Route 1/Route 114 Corridor Improvements; Salem – Bridge Street (widening Washington Street from Flint Street to the Washington Street Rotary); and Salem – Boston Street (widening to three lanes between Route 107 and Peabody line). Regarding the Boston Street project, the city is working with a consultant to explore how road/lane changes on Main Street could improve pedestrian experience and economic success of downtown Peabody. Initial recommendations have been developed.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year. All of the listed projects are included in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
John D. Keenan	State Representative, 7th Essex District, Salem	Supports new MBTA commuter rail parking garage and platform in Salem. Commuter rail is critical to Salem, which lacks direct highway access, and a key commuting option for thousands of residents. Existing parking facilities are insufficient to meet demand. The station lot fills by 7:30 AM, and overflow parking on city streets creates safety and traffic hazards. Revival of downtown is occurring with completion of major bypass road project, a redesigned intersection at the heart of downtown, and a new courthouse complex forthcoming. Safe and accessible public transit is required.	This project is included in the universe list of parking projects. There is some design work completed with a federal earmark associated with this project. It will be considered as one of the locations for the 1000-space park-and-ride SIP commitment projects.
John K. Hendrickson, P.E.	Vice President, Fay, Spofford & Thorndike, LLC, and North Shore Representative, East Coast Greenway	The North Suburban Bike Paths in Wakefield and Lynnfield will eventually connect to the Border to Boston Trail via Peabody. This connection should be shown in the Plan to emphasize that this is a regional trail system, not an isolated trail. The East Coast Greenway is the most important regional trail in Massachusetts and should be included in the Plan with a map of the 3,000-mile route from Maine to Florida and the routes used by the East Coast Greenway outlined.	The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. As part of that plan, this bike project has been listed as a long-term priority. The communities have obtained funding to conduct a recreational trail feasibility study. Once more information is available, this project can be included in the Universe of Projects list for the TIP. It does not specifically have to be included in the Plan before it is eligible for funding.
Edward Starr	Chair, Arlington Transportation Advisory Committee	The Transportation Advisory Committee is interested in seeing a reduction in the number of people who drive to work (67% of Arlington's workforce). It supports the Green Line extension from Lechmere to Medford. In order for Arlington residents to use this line, the terminus must be extended to the Mystic Valley Parkway (Route 16) and Boston Avenue. This location is preferable to the Medford Hillside terminus as it can be accessed by bus, walking, and bicycling, which is important because there is no parking at either location. Supports the suggestion of the Medford Green Line Neighborhood Alliance to put a station near the Mystic Valley Parkway (Route 16) between Boston Avenue and the Wild Oats grocery store.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. This comment will be forwarded to the MBTA and the Executive Office of Transportation, which are currently developing an environmental impact report for the Green Line extension that will consider station locations.
Lisa E. Lepore, P.E.	Chair, Inner Core Committee	The ICC is concerned about the financial feasibility of the draft Plan and questions whether the funding split between maintenance and new projects is realistic. It suggests an elaboration on the Plan's assumption that past funding trends will not hold true in the future. The Transportation Finance Commission report should inform the Plan. The MPO should commit to funding alternative transportation, including bicycle and pedestrian programs and TDM. ICC is concerned that there are no transit projects after 2020. ICC is pleased to see a reference to the connection between land use and transportation, and the impact of land use on congestion, but it is concerned that projects are the same as in last Plan. The Plan is unclear about how land use and economic development visions and policies have influenced projects listed in Plan.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process.

NAME	AFFILIATION	COMMENT	MPO ACTION
		A plan to move freight more efficiently is lacking. Two key issues should be addressed: 1) the region is likely to lose existing capacity to move freight by rail, and 2) the Plan precludes the expansion of capacity to move freight by rail. It is likely the Harvard University-owned rail terminus in Allston will be converted to "higher use" and freight will have to be trucked into region from west. The vulnerability of this piece of rail system should be addressed in Plan. The Plan should have a policy of preserving existing rail capacity and should discuss EOT's proposed Harvard-funded study of this area. The Plan does not discuss importance of double-stacking and need to ensure bridges meet minimum vertical clearances for double-stacking. Air rights projects along Mass. Turnpike could preclude double-stacking. State policy should state that any development over freight lines must meet elevation requirements for double-stacking, and this policy should be reflected in the Plan.	In addition to projects that add capacity to the system, the Plan lists projects that cost over $25 million. Many of these projects address the existing maintenance needs and safety issues of the transportation system. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation.
		Plan should include an explanation of rating factors in Appendix C and a summary of what ratings mean for each project. The 2004 Plan projects table should indicate which ones are not recommended in this Plan and include an explanation of changes. MPO should continue to expand its environmental justice indicators, such as transportation spending in EJ communities and evaluation of impact. MPO and communities should work together to ensure beneficial projects move forward while minimizing displacement. The land use and regional equity policies should reflect this. Revise the first sentence of land use vision to read, "Multi-modal transportation will serve business, civic and residential centers." Under Environment Policies, first bullet should refer to walking and bicycle infrastructure as means to reduce auto reliance.	As stated in Chapter 13, the MPO is committed to continued funding of bicycle and pedestrian projects. The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region.
			As discussed in Chapter 6, it is the state's policy that new bridges over rail lines, and those scheduled for reconstruction, are built with a vertical clearance to accommodate double-stack rail cars. The EJ comment will be considered as part of the MPO's Regional Equity Program and in the development of the next Plan. The policies and visions comments will be considered in the development of the next Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
Chris Porter	Chair, MassBike, Metro Boston Chapter	MassBike supports the continuation of the Bicycle and Pedestrian Programs, Regional Bike Parking Program, expansion of bicycle access on MBTA buses and additional bicycle parking at T stations, the Regional and Statewide Bicycle Plans, Walkable Community Workshops, and the Safe Routes to School Program. Suggests including in Chapter 5, page 11, a statement to the effect, "Consider maintenance commitments as a criterion for funding new bicycle and pedestrian trail projects." MassBike supports constructing new bicycle and pedestrian projects, but believes it is important to have a mechanism for funding ongoing maintenance of projects. Suggests adding the italicized text to Chapter 6, page 15: "The MPO is committed to increasing the available parking capacity, including bicycle parking, at various commuter rail and transit stations throughout the region."	The listed programs are all included in the Plan. Comments on text changes will be considered in the development of the next Plan. The MPO is in the process of finalizing a bike parking inventory at all commuter rail, rapid transit, and ferry lots and some express bus lots as part of its Mobility Management System. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs.
		Recommends eliminating the Weymouth to Duxbury—Route 3 South Additional Lanes project and instead funding transit, bicycle, and pedestrian improvements. The project would support urban sprawl and decrease ridership and fare revenue on the Greenbush commuter rail line. Projects that add significant highway capacity should be contingent on improved land use regulation to prevent sprawl. Beverly to Peabody—Route 128 Capacity Improvements will promote sprawl. Asks whether safety problems could be addressed without adding lane. Recommends that the Bedford, Burlington, Billerica—Middlesex Turnpike Improvements project not be funded unless it includes adequate bicycle accommodation (12-foot-wide or less travel lanes and 4-foot bike lane), at minimum complying with requirements in MassHighway's Design Manual. Recommends giving a higher priority to the Woburn—New Boston Street Bridge project as it will provide a north-south bicycle route linkage.	The MPO discussed the Route 3 Additional Lanes project, the Route 128 Beverly to Peabody project, and the Middlesex Turnpike project and decided they should be included in the Plan. The MPO discussed moving the New Boston Street Bridge project into an earlier time frame and decided to keep it in the 2021-2030 time frame.
Edward King	Vice President of Government and Community Affairs, Boston University	BU is concerned with the area at the nexus of the BU Bridge, Commonwealth Avenue, Carleton Street, and Mountfort Street in Boston and Brookline, and requests that the MPO acknowledge in the Plan the need to identify a multi-modal transportation strategy to improve mobility and safety for pedestrians and vehicles. The area has significant traffic congestion and safety problems, and it is the only area along the Charles River without public access. It is also relevant to Urban Ring planning.	This comment will be considered as part of the Unified Planning Work Program process, which considers studies to be done by the MPO.

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		Along with its comment, BU submitted its proposed "River Station concept" and requested a meeting with CTPS to discuss the proposal. BU's vision includes: the creation of a new multi-modal transportation hub (linking to Urban Ring BRTs, Green Line, and commuter rail); redesign of roadways; a new center for commercial, retail, academic, and research activity; development of air parcels to prevent University intrusion into nearby neighborhoods; restoration of a recreational connection to the Charles River; and aesthetic improvements to Commonwealth Avenue.	
Joe Beckmann	Somerville Transportation Equity Partnership/ Progressive Democrats of Somerville/Mystic View Task Force	Advises that, in the transition between administrations, agency managers know and fulfill their responsibilities to meet federal guidelines and requirements regarding funding and planning documentation for projects such as the Green Line Extension. The current bond bill funds the feasibility study, but this does not meet the federal requirement and exposes the state and EOT to judicial and political liabilities involving the health and welfare of thousands of citizens. Failure to meet specific terms endangers the larger project and jeopardizes the state's liability and citizens' health. Timely and adequate funding should be committed to meet federal requirements.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments.
Robert W. Healy	City Manager, City of Cambridge	Congratulates the MPO's commitment to build general-purpose lanes only when no other options exist. Will this requirement be retroactive for projects already permitted and not yet funded by the MPO? What policies will the MPO use to judge whether the transportation demand measures in the project are adequate? Please clarify that the policy on page 4-3 is about managing vehicle demand. The MPO should give details about how it will work with agencies and communities to develop a greater number of, and more effective, TDM programs. The MPO should set goals or specific measure for reducing transportation-related carbon dioxide, which is a major contributor to climate change.	The policy comments will be considered in the development of the next Plan. TDM projects do not have to be listed in the Plan before being funded in the TIP. The MPO has a process for evaluating projects using the MPO policies for the selection of projects, including TDM projects, to be funded in the TIP.
		The description of Transportation Enhancements (TE) does not acknowledge that many of these projects form a vital part of the transportation system by providing needed connections to transit and employment centers and help reduce demand for vehicle miles traveled. It also does not address that TE spending in the state still lags behind many others and that additional resources should be allocated toward encouraging and developing these projects.	Comments on text changes will be considered in the development of the next Plan. The MPO is in the process of finalizing a bike parking inventory at all commuter rail, rapid transit, and ferry lots and some express bus lots as part of its Mobility Management System.

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		The newly implemented Regional Bicycle Parking program is a good example of a creative way to promote bicycle mobility. The MBTA should have programs to provide bicycle parking at all facilities. Is the Regional Bicycle Plan being implemented through JOURNEY TO 2030? If so, please provide details. The plan does not mention that state law requires all projects to accommodate bicyclists and pedestrians. Projects that do not have such facilities and do not specifically have a waiver should not be programmed by the MPO. The plan does not give any statistics on bicycle/pedestrian safety, nor does it discuss any efforts to improve safety for these modes with specific programs, trials, or research by the MPO or agencies in these areas.	The Regional Bicycle Plan, recently completed will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs. Chapter 7 discusses the Massachusetts Highway Department's Design Guide, which states that the roadway system should safely accommodate all users. The inclusion of statistics on bike/ped safety will be considered in the development of the next Plan. The MPO will be conducting a study on the top-35 bicycle/pedestrian crash locations.
		Is concerned that the costs of maintaining the existing transportation system will actually be higher than anticipated in the draft plan and that the split between maintenance and new projects should be re-considered. The Transportation Finance Commission's study on the gap between the needs for maintenance and operation compared to funding should inform the plan. Would like to see a commitment to funding more fuel-efficient and non-motorized transportation programs. Is concerned that there are no transit projects discussed after 2020. Pleased to see the continual reference to the connection between land use and transportation. Concerned that there is not a clear connection between policies in the Plan and projects in the Plan, which are largely the same as in the last Plan. It is unclear how the land use and economic development visions and policies have influenced the projects listed in the Plan.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. In addition to projects that add capacity to the system, the Plan lists projects that cost over $25 million. Many of these projects address the existing maintenance needs and safety issues of the transportation system. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of

NAME	AFFILIATION	COMMENT	MPO ACTION
		Would like to see detail on how the overall scores of projects were used to decide whether to include a project or not. Concerned that the Route 3 South project is included prior to the Greenbush commuter rail line opening when the effects of the new line on vehicle travel are unknown. Happy to see the inclusion of Urban Ring 2 and Central Artery transit commitments but is concerned that no firm financing sources have been identified by the state for these projects.	Transportation. The land use policies were one of the six policy topics that were used in reviewing and rating the projects. The ratings are shown in Appendix C. As discussed in Chapter 13, the ratings were one of a number of inputs used in the selection of projects, including travel model results, information from studies, and feedback from outreach. The MPO discussed the Route 3 Additional Lanes project and decided it should be included in the Plan because analysis shows tha congestion on the road is severe now and will increase significantly in the future. The Urban Ring and SIP projects are included in the Plan with a commitment for funding from the Commonwealth.
Roland J. Herbert	Deputy Director, Southeastern Regional Planning & Economic Development District	(Comment addressed to Barbara G. Lucas, MAPC) Route 24 should be designated an interstate highway. The Boston MPO Regional Transportation Plan should recommend that MassHighway conduct engineering, traffic, and environmental studies for the roadway to meet modern federal design standards. SRPEDD has endorsed making it an Interstate Highway since 1993. The road serves as an interstate facility, connecting Rhode Island to I-195, I-495, and I-93 (Route 128). It is not as safe as it should be because it does not meet modern standards, and as an interstate it would have to be brought up to modern standards. There are inadequate acceleration/deceleration lanes, road and shoulder widths, and vertical clearance. There is sufficient justification for MassHighway to begin these studies. The cost of implementing the improvements (involving interchange upgrades, bridge reconstructions, drainage, signage, and right-of-way) was formerly estimated at $20,681,000 in the MAPC region and could be spread out over 12 years.	The MPO discussed the process of designating Route 24 as an interstate highway. The MPO supports the request for MassHighway to conduct a study; however, it is not included in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
Ann Burbine	Chair, South Shore Coalition	Inclusion of the Braintree Split project in the Plan is an important step in resolving this regional bottleneck, though it is not clear that the improvements will completely solve the problem or that the proposed funding is adequate. The South Shore Coalition does not at this time support the Route 3 Widening, Weymouth to Duxbury, project and recommends it be replaced with other mobility and congestion-reduction programs in the area. It is extremely expensive, yet has the lowest overall ranking for Land Use and Economic Development impacts of any project in the Plan. It will create environmental impacts (wetlands and watershed resources) and not generate air quality or congestion (no change indicated between build and no-build) improvements. Has the Route 3 North project resulted in improved safety, better levels of service, or reduced delays; or has the widening simply attracted more traffic? Other strategies (cited) to improve mobility and reduce congestion should be evaluated and implemented before committing to a widening, which would be consistent with the MPO's policies.	The Braintree Split project is included in the Plan. The MPO discussed the Route 3 Additional Lanes project and decided it should be included in the Plan because analysis shows that congestion on the road is severe now and will increase significantly in the future. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years.
		The fiscal constraints in the Plan may be unrealistic, considering recent spending and assumptions about future funding. The Coalition understands that the proportion of spending on new projects versus maintenance and operations projects is double, and this may be too optimistic. It is also concerned that the expansion and major infrastructure program in the Plan may be funded at the expense of numerous smaller projects normally funded through the TIP. Would also like to see more emphasis (perhaps using the $210 million not allocated to Route 3 South) on suburban mobility/transit, bicycle/pedestrian, and TDM programs; this would result in more mobility and less environmental impact. The Plan should commit to innovative suburban transit programs. The project rankings do not explain project selection; policies are not tied closely enough to criteria. The metrics and scoring are unclear and inconsistent.	The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. In addition to projects that add capacity to the system, the Plan lists projects that cost over $25 million. Many of these projects address the existing maintenance needs and safety issues of the transportation system. The MPO discussed a minimum level of funding for the programs but decided not to include it at this time. As discussed in Chapter 13, the ratings were one of a number of inputs used in the selection of projects, including travel model results, information from studies, and feedback from outreach.

NAME	AFFILIATION	COMMENT	MPO ACTION
Deborah Kuhn	Director, Allston Special Projects, Harvard University	Harvard urges EOT to post an addendum with the 2030 Plan when adopted that acknowledges the MPO's awareness of the following issues and commits the MPO to publish an updated demographic and economic trends analysis after public review and comment within the next six months: Certain population and employment centers assumed for various TAZs utilized in the development of the Plan are underestimated; the model does not adequately represent "non-home-based" trips. Wants to ensure that the model accounts for the numerous transit trips taken on shuttles currently funded by various educational institutions within the study corridor. Requests that at least with regard to the Urban Ring project, EOT perform a sensitivity analysis of the effects on travel demand of a range of employment and population growth projections including those submitted by MASCO, Harvard, BU, and MAPC.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years.
		Is concerned that the Plan understates the transportation infrastructure needs of the region; specifically: turnpike repairs and/or relocation, and critical repairs to DCR infrastructure are not included in the Plan; the adequacy of funding for MBTA capital and operating requirements is not critically examined; and Phase 3 of the Urban Ring has been eliminated from the 23-year time frame covered by the Plan. Requests that the Plan be re-examined upon the conclusion of the MAPC MetroFuture effort to ensure that the plan for making transportation infrastructure improvements is in sync with the needs to achieve that vision.	The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation.
Lawrence Paolella and Margaret A. Ryan	Somerville residents	Strongly recommends the incorporation of the Green Line extensions recommended in the substitution upon approval by EPA. Would like the MPO to urge that Massachusetts pass a bond bill with real transit project funding as soon as possible. The Orange Line station at Assembly Square deserves the MPO's support. Would like the Community Path to be included with the Green Line extensions in the RTP as it will improve access for pedestrians and bicyclists to the Green Line stations.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The Orange Line station at Assembly Square is included in the Plan. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program.

NAME	AFFILIATION	COMMENT	MPO ACTION
Stephen Winslow	President, Bike to the Sea/Member, East Coast Greenway	Believes that the development of the plan is skewed away from walking and bicycling. There are regionally significant bicycle projects that should be discussed in this plan, including the MA Central Rail Trail, the Northern Strand Trail (aka Bike to the Sea), and the Border-to-Boston Trail.	The listed bike projects are included in Chapter 2 of the Plan. Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed for funding in the Plan. Therefore new bicycle projects are not specifically listed for funding in the Plan. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs.
Kelly Brilliant	Executive Director, The Fenway Alliance, Inc.	Urges the MPO to consider amending the Plan within one year (by July 1, 2008) with incorporation of the following concepts: make proper reference to the Urban Ring in general; identify the Longwood transit tunnel as an important element of the Urban Ring project – the Plan should specifically identify the Longwood tunnel as an early action item to provide bus service; incorporate key upgrades for all E Line service to accommodate full-time commuter rail service and facilitate Green Line improvements in order to improve access to the Fenway and LMA areas within the MPO region – full-time commuter rail service is needed at both Ruggles and Yawkey stations; and include the area known as the "Sears Rotary" for study and transportation overhaul.	Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan. The description of the Urban Ring has been revised to include the Longwood Tunnel as one of the alternatives that is being reviewed. The other improvements are listed as part of the Economic Stimulus Plan in Chapter 123 of the Acts of 2006 describing economic investments in the Commonwealth to promote job creation, economic stability, and competitiveness in the Massachusetts economy. These projects do not have to be listed in the Plan to be funded in the TIP.
Sen. Pamela P. Resor	State Senator, Middlesex and Worcester District	Stresses the urgent and dramatic need for additional funds for transportation infrastructure in Massachusetts. Crosby's Corner and the realignment of Route 2 are an urgent priority and should be moved into the 2007-2010 list. Concord Rotary on Route 2 should be expedited as quickly as possible and moved up from the 2021-2030 list. Route 85 widening in Hudson should be moved into the 2007-2010 time period. The I-495/I-290/Route 85 Connector Interchange should be moved into the early part of the 2011-2020 list. Supports the Fitchburg Commuter Rail project and believes it should proceed as soon as possible.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. Crosby's Corner, Concord Rotary, and Route 85 are all included in the Plan. The I-495/I-290 interchange has been moved into the 2011-2020 time frame. The Fitchburg Commuter Rail project is specifically funded in the Montachusett MPO Transportation Plan, but the Boston Region MPO has endorsed that project.

NAME	AFFILIATION	COMMENT	MPO ACTION
Mimi Graney	Executive Director, Union Square Main Streets	Union Square Main Streets strongly supports the Green Line Extension project. They urge the incorporation of the Green Line extension to Union Square and through Somerville to Tufts University in the Plan as substituted SIP commitments. They ask for help in passing a bond bill with transit project funding to enable the construction of the Green Line and to effectively study and plan the entire Green Line extension corridor. Additionally, McGrath Highway between the Fitchburg line and Washington St. should be evaluated since the elevated section of this highway is deteriorated. Green Line Extension planning should be coordinated with this project. With regard to the redesign of Lechmere Station, they are concerned that there has not been adequate consideration of the coordinated alignment and integration with Route 28/McGrath Highway. They would like the Green Line extension to be integrated with the Community Path.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The elevated section of McGrath Highway is included in the Universe of Projects list but not included in the recommended list of projects in the Plan. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program.
Richard R. MacDonald	Town Manager, Town of Duxbury	Regional equity does not seem to apply since only a few projects are located south of Boston. Data collection on transit riders' origination and destination is lacking for South Shore communities. Duxbury would like to see the MBTA provide more data as to the service evaluation process to help communities identify ridership and transit needs in reaching commuter rail stations, through town-wide surveys and/or station surveys of current riders. Additional parking and/or local transportation to commuter rail stations is needed to better serve communities such as Duxbury, to help persuade the average driver to leave his or her vehicle.	Regional equity is a term used in the Plan to refer to providing equal benefits to low-income and minority populations. The MPO has included seven projects in the Plan to the south of Boston. The comment on data will be forwarded to the MBTA Service Planning Department, which continuously reviews bus routings and determines changes based on needs and ridership data. The MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation.
		The widening of Route 3 South will be deemed necessary given the projected regional growth in the Plymouth and Cape Cod areas. Duxbury would like to be an active participant in any initial design plans for improvements to the Exit 11/Route 14 interchange ramps. Consideration needs to be given to the influx of summer residents that seasonally increases the population of many coastal communities along the South Shore. Accessibility to regional commuter rail service is a consideration of many summer visitors and/or residents in locating a summer destination.	The MPO discussed the Route 3 project and decided it should be included in the Plan because analysis shows that congestion on the road is severe now and will increase significantly in the future. The MPO also provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. The Town of Duxbury can apply for funding under this program to address the seasonal influx needs.

NAME	AFFILIATION	COMMENT	MPO ACTION
Kevin Lee Hepner	Vice President of Administration and Finance, Judge Baker Children's Center	Urges that the Plan be amended within one year (by July 1, 2008) to account for up-to-date land use data that is more consistent with actual demand for improved transit service. This data should be based on realistic housing and job growth projections, particularly within the Longwood Medical and Academic Area (LMA). Reference the Urban Ring in general in order to allow for the advancement of critical minimum operating segments, such as an LMA transit tunnel, which is currently under study. The Plan should specifically identify the Longwood tunnel as an early action item to provide BRT service, and as an important element of the conversion of the Urban Ring from bus to light rail service within the time frame covered by the Plan. They request that the Plan specifically incorporate key upgrades at Ruggles and Yawkey Stations to accommodate full-time commuter rail service and facilitate Green Line improvements in order to improve access to the LMA from areas within the MPO region. They request that the area known as the "Sears Rotary" in Boston be included in the Plan.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year.
Peter Forman	President and CEO, South Shore Chamber of Commerce	The South Weymouth Naval Air Station Access Improvement project should be viewed as a priority project for the South Shore region; the redevelopment at SouthField is a very important economic project for the entire South Shore region. A new East-West roadway must be identified, designed, and constructed in a time frame that is reasonable for the project. This "direct connect" from Route 3 will allow for greater accessibility and take pressure off other roadways; the project cost will need to be reexamined. A full transportation program including road, rail, water, and air modes is the cornerstone of economic growth that can provide improved quality of life for residents and businesses and will be a positive factor in the redevelopment at SouthField. The Chamber has advocated for transportation improvements in the region such as the Old Colony Railroad restoration and still has as a primary focus the Greenbush Line, the Quincy Center Concourse, and the Route 18 Corridor road improvements.	The South Weymouth Naval Air Station Access Improvement project is included in the Plan. The Old Colony Railroad Greenbush Line, the Quincy Center Concourse, and the Route 18 Corridor road improvements are also included in the Plan.
Joseph A. Curtatone	Mayor, City of Somerville	In order to be redeveloped, the Brick Bottom and Innerbelt areas of Somerville need improved public access and new infrastructure as well. Recommends that the RTP better address and/or propose plans to better serve environmental justice areas. East Somerville is an EJ area which needs improved bus service.	The first comment will be considered as part of the Unified Planning Work Program process, which considers studies to be done by the MPO. The second comment will be considered as part of the MPO's Regional Equity Program, and the third will be forwarded to the MBTA's Service Planning Department.

NAME	AFFILIATION	COMMENT	MPO ACTION
Sen. Karen E. Spilka	State Senator, 2nd Middlesex and Norfolk District	The Plan overlooks the needs of MetroWest. Is very apprehensive that MetroWest is responsible for 9% of the state's payroll, but is receiving only 6% of projected investment spending in the Plan. If existing businesses are to be retained or grown, and new businesses are to be established, additional resources must be made available to provide for increased public transit and the remediation of critical interchanges. Transportation planning for the near future must address both existing congestion and the congestion that is to come at key interchanges in MetroWest. The at-grade separation at the Route 135/Route 126 intersection should be moved up from the 2021-2030 time frame. The I-495/I-290 interchange should be moved up, and efforts should be coordinated with adjoining MPOs. The following projects were included in previous plans and should be included in this Plan: the I-495/I-90/Route 9 area, the at-grade separation in downtown Ashland at Route 135, improvements at the Framingham intersection of Routes 126 and 9, the Hopkinton intersection at I-495 and South St., and the Sherborn intersection of Routes 16 and 27.	The MPO discussed moving the Route 135/Route 126 project into an earlier time frame but due to project design issues decided to keep it in the 2021-2030 time frame. The I-495/I-290 project was moved into the 2011-2020 time frame. The I-495/I-90/Route 9 area, the at-grade separation in downtown Ashland at Route 135, the Hopkinton intersection at I-495 and South St., and the Sherborn intersection of Routes 16 and 27 are included in the Universe of Projects list but not included in the recommended list of projects in this Plan. Improvements at the Framingham intersection of Routes 126 and 9 were included in the last Plan but were taken out of this Plan because work has already been done at that location.
		The following projects should be contemplated: the Route 119 exit of I-495 in Littleton, widening of Route 20, portions of Route 9, and maintenance of the I-495 corridor. Given recent developments in the region's potential to establish a public transit system, it is disheartening that the Plan provides for North Shore transit improvements and 100 additional buses for existing MBTA routes but makes no provision for the public transit needs in MetroWest. While the Plan places great emphasis on the MPO's need for increased mobility, regional equity, land use and economic development, and smart growth development, it overlooks these policy objectives in MetroWest. In particular, the Plan fails to fund the Suburban Mobility/Transportation Demand Management program that has been so important to the region in recent years.	The listed projects are included in the Universe of Projects list but not included in the recommended projects in this Plan. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation. The MPO continues to provide funding in its Transportation Improvement Program for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. The program is discussed in the Plan. The MPO discussed a minimum level of funding for the suburban mobility program but decided not to include it at this time.
Carrie Russell	Conservation Law Foundation	The MPO should modify the Plan: 1) Highway dollars should be flexed for transit projects to promote environmental and smart growth goals; funds should be available to meet mobility needs. 2) The Red/Blue Connector and Urban Ring Phase 3 projects should be included; the Red/Blue Connector will greatly increase the attractiveness, utility, and capacity of the MBTA system, and the MPO should commit to construction even after the SIP amendment; Urban Ring Phase 3 will have the most positive impact on transit ridership; it has enormous benefits.	The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation. During the development of this Plan, there was no flexing of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.

NAME	AFFILIATION	COMMENT	MPO ACTION
		3) All of the Central Artery transit commitments should be included; these are the other commitments listed in the Tunnel Ventilation Certification documents and in the Administrative Consent Order and amendments; CLF is concerned that identifying a transit project for the Arborway corridor in 2007 and implementing it in the Plan is not reflected. 4) The Plan should be amended with updated population and employment projections when MAPC's ongoing work is completed, to better reflect growth in urban areas; the Plan may underestimate jobs and housing in the urban core (MAPC and the MPO are commended for work in this area); accurate information is needed to support economic development, environmental justice, and smart growth as well as to improve the federal funding competitiveness of key transit projects.	The MPO discussed the Urban Ring 3 and decided that it should not be included in the Plan at this time. The current SIP commitments are included in the Plan, including the Red Line/Blue Line Connector and the Green Line Arborway Restoration. They are currently being reevaluated by the environmental agencies. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year.
			The Arborway transit project is an agreement between CLF and the EOT as part of negotiations between the two agencies. The MPO is working on a study in the Arborway corridor which can be used as input into this process. Other projects are included in Appendix D's listing of MBTA capital investments in the system. EOT is working with Rhode Island officials regarding rail to T.F. Green. An agreement has not been finalized on this project. The MPO will monitor these projects and include all updated information in the next amendment to the Plan, anticipated to begin within the current federal fiscal year.
Ellin Reisner	President, Somerville Transportation Equity Partnership	There is a critical need to fund coordinated corridor planning for the Northwest Corridor. An example of why this corridor planning is critical is that the reconstruction/redesign of McGrath-O'Brien (Route 28) currently under study by the MPO should be tied into the design and planning for the Green Line extensions from Lechmere, Rutherford Avenue (Route 99) in Charlestown, and the redesign of the I-93/Route 28 interchange. Is fully supportive of the Green Line extension substitutions. Strongly urges the MPO to commit to the statement in Chapter 13 of the RTP that notes that the MPO will revise the plan to include the Green Line extensions recommended in the substitution upon approval by EPA. Lechmere Station design should NOT proceed until the Green Line routes and a Route 28 re-design have been fully considered.	The corridor planning comment and the use of data for EJ mitigation comment will be considered as part of the Unified Planning Work Program process and forwarded to the MBTA's Service Planning Department who continuously reviews bus routings and determines changes based on needs and ridership data. They will also be forwarded to the MBTA for consideration in the development of the Program for Mass Transportation. The Green Line extension is included in the Plan. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Strongly recommends that the Community Path extension which is in the scope of the MEPA environmental review be included as part of the Green Line project in the RTP. The state must demonstrate that there is real project funding for the Green Line extensions in the RTP, so strongly urges the MPO to ensure that a bond bill with real transit project funding is carried out as soon as possible. Strongly supports inclusion of the new Orange Line station at Assembly Square in the RTP. Recommends that the MPO broaden its outreach in the EJ community to educate people about what the MPO does, how transportation decisions are made, how to request that studies be initiated, and how the public can be involved in the MPO planning process.	The MBTA and the Executive Office of Transportation are currently developing an environmental impact report for the Green Line extension, which will consider station locations and schedules. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program. The Orange Line station at Assembly Square is included in the Plan. The EJ comments will be considered as part of the MPO's Regional Equity Program and in the development of the next Plan and revisions to the public involvement program.
		The current methodology of averaging air quality effects for EJ areas across the region misses the unequal distribution of pollution and enables decision-making that does not meet the need for air quality improvements in EJ communities. Somerville is a burdened community. As such, the MPO can and should use its data on population, transportation volume and air pollution to fully reveal and more aggressively address mitigation for the local disparities in environmental exposures causing serious health effects to Somerville residents and residents of other burdened communities.	The MPO is currently developing a work scope to study population densities in relation to carbon monoxide emissions.
Tony Fields	Chairman, North Suburban Planning Council	Would like to see better integration of the PMT and JOURNEY TO 2030 so that the regional transportation plan has more transit-oriented content as opposed to references to the PMT. The trails and routes section (on page 2-17) does not include a definition of a regional trail. From the list of trails that are included, it appears that trails within one community qualify as regional trails. The Burlington Multi-Community Bicycle/ Pedestrian/Greenway Development Initiative should therefore be included. Another project in Wakefield and Lynnfield should be added to the list. The inventory of bicycle parking should be included in the plan. The vision for Land Use and Economic Development should explicitly state that public benefits of transportation rights-of-way include the use of surplus or abandoned rights-of-way for multi-use paths.	This Plan is thoroughly integrated with the PMT. The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. As part of that plan the Wakefield and Lynnfield bike project has been listed as a long-term priority. The communities have obtained funding to conduct a recreational trail feasibility study. The Burlington Multi-Community project is listed as in the conceptual phase. Once more information is available, the projects can be included in the Universe of Projects list for the TIP. They do not specifically have to be included in the Plan before they are eligible for funding. The Bike Plan also discusses bicycle parking. The MPO is in the process of finalizing a bike parking inventory at all commuter rail, rapid transit, and ferry lots and some express bus lots as part of its Mobility Management System.

NAME	AFFILIATION	COMMENT	MPO ACTION
		NSPC believes the plan understates the impact that one spill resulting in contamination of a water source can have on a community. The plan must address the potential impacts of transportation projects and facilities on water quality. Two critical issues have been identified for the subregion and should be reflected in the plan: 1) The need to examine and revise the policies and procedures for using salt on highways within sensitive watershed areas. 2) The need to construct drainage systems with impoundment areas to contain spills of hazardous materials, to prevent them from polluting water supplies. NSPC supports the inclusion of the sub-region's roadway projects in the plan. It would be helpful to add information to all project descriptions concerning the status of the project, including next steps and a proposed timeline for completion. Route 1/Route 129/Route 95 (Lynnfield Square Project) should be included in the plan. NSPC would like to see a feasibility study done for the Route 128 Circumferential Bus Service.	Revisions of policies will be considered in the development of the next Plan. Environmental issues are identified in Chapter 10 as well as a discussion of the environmental process used during project development. Specific mitigation for projects and operations is provided in environmental and permitting documentation for a project. Information on the time frame for funding the project is included in the Plan. Next-step information in the descriptions will be considered in the development of the next Plan. The Route 1/129/I-95 project is part of the Route 128 Capacity Improvements from Lynnfield to Reading project and is in the Universe of Projects list but not included in the recommended Plan at this time. The feasibility comment will be considered as part of the Unified Planning Work Program process.
Srdjan S. Nedeljkovic, M.D.	Newton resident	Comments are directed to Chapter 13 of the Plan. The MPO should consider reallocating funding from the Urban Ring 2 and the Silver Line III projects to a more diverse set of less expensive projects that serve a larger section of the MPO region. These two projects will not provide benefits commensurate with their cost. The Silver Line III project should be converted to a light rail that extends the Washington Street line from Dudley to Park Street via Boylston Station. Funds diverted from the currently proposed Silver Line III project could fund the following projects: restoring rail in the Arborway corridor, extending light rail between Newton and Needham using an existing unused rail corridor, building an Allston-Brighton station on the Worcester commuter rail line, and making Riverside an intermodal station with more frequent service to South Station.	The Silver Line III project currently has a recommended rating in Federal Transit's New Starts Program. With current daily ridership numbers of 14,700 for Silver Line I and 11,000 for Silver Line II, the MPO thinks that the Silver Line III project should be included in the Plan. The MPO also thinks that the Urban Ring 2 should be included in the Plan. The other projects are included in the Universe of Projects list but not included in the recommended Plan at this time.
		Other suggestions include extending Silver Line light rail from Dudley to Mattapan and Dorchester; more frequent service on the Fairmount Line; extending route 71 trackless trolley to Newton Corner with a station at Newton Corner. The Blue Line should be extended to Lynn and an Orange Line station at Assembly Square should be constructed. These projects would have a greater benefit on transit accessibility. The Plan should provide new transit in densely populated areas where high ridership will offset reliance on automobiles. The needs of the inner communities should be met before commuter rail is expanded.	The Blue Line to Lynn and the Orange Line station at Assembly Square are included in the Plan. All of the transit projects in the recommended Plan are located in densely populated regions of the MPO. The only commuter rail extension is the Greenbush Line, which is already under construction.

NAME	AFFILIATION	COMMENT	MPO ACTION
Avi Green	Cambridge resident	Please add the following in the short to medium time frames: 1) link planning for Lechmere MBTA station with the Green Line Extension and Route 28 reconstruction; 2) construct the Lechmere station underground in the center of the street equidistant from East Cambridge neighborhood and the planned neighborhood; 3) extend the Green Line towards Union Square (straight up McGrath, then Somerville Ave.) and Medford; 4) Green Line should be below ground and constructed with cut-and-cover method; 5) Route 28 should be an urban boulevard for all modes; 6) construct the Orange Line station at Assembly Square; 7) include the Community Path in the descriptions of the Green Line extensions (provides a direct and safe off-street route to Boston). Consider adding the following to long-term time frames: 1) Red/Blue Connector; 2) Urban Ring with rail; 3) Silver Line with light rail; 4) Red Line from Porter to Lexington Center via Mass. Ave. and Arlington; 5) extend the Union Square Green Line branch in a circle.	The MBTA and the Executive Office of Transportation are currently developing an environmental impact report for the Green Line Extension, which will consider station locations and schedules. The MPO is finalizing a study of the Route 28 corridor in Somerville. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program. The Orange Line station at Assembly Square is included in the Plan. The Red Line/Blue Line Connector is in the Plan. It is currently being reevaluated by the environmental agencies. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The remaining projects are included in the Universe of Projects list but not in the recommended Plan.
Rep. Denise Provost	State Representative, 27th Middlesex District	Funding for the Green Line extension and Union Square spur should be in the next Transportation Bond Bill. There also should be speedy implementation of the Orange Line station at Assembly Square (there are $15M in developers' funds and a $25M earmark). The siting of the Lechmere station should not be finalized until the Union Square alignment has been set. Bicyclists and pedestrian services should be included in environmental justice evaluations. Thank you for reaching out to Spanish-language populations; in Somerville, the largest linguistic minority speaks Portuguese. Please conduct more analysis of different levels of exposure to transportation-related air pollution and related health effects. This information will help develop an understanding of the transportation burdens borne by Somerville.	The Green Line Extension and the Orange Line station at Assembly Square are included in the recommended Plan. The MBTA and the Executive Office of Transportation are currently developing an environmental impact report for the Green Line Extension, which will consider station locations and schedules. The EJ comments will be considered as part of the MPO's Regional Equity Program and in the development of the next Plan.
Glenn R. Clancy, P.E. and Jay Szklut	Director and Planning and Economic Development Manager, Town of Belmont	Pleased to know that the Boston MPO will remain committed to projects such as the Trapelo Road/Belmont Street corridor project under the maintenance program. This project is part of an urban principal arterial from Route 128/I-95 in Waltham to Harvard Square in Cambridge and provides vehicle, bus, and bicycle access the Boston core from the western suburbs. There are many benefits that would result from the project, including improvements to three intersections that are in the Top 1000 High-Crash Locations Report, promoting alternative modes, and improving safety, mobility, and accessibility in the corridor for motorists, pedestrians, and bicyclists, including persons who are transit-dependent and/or elderly. There is an Economic Development Plan for the corridor consistent with EO 418 and smart growth principles.	The MPO is committed to the maintenance of the existing transportation system. This comment will be considered as part of the Unified Planning Work Program, which considers studies to be done by the MPO, and forwarded to the MBTA's Service Planning Department, which continuously reviews bus routings and determines changes based on needs and ridership data. It will also be forwarded to the MBTA for consideration in development of the Program for Mass Transportation.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Land use decisions and community redevelopment are often constrained by commuter rail station locations, and the MBTA should examine and consider relocating some stations in older suburbs such as Belmont. Few resources are targeted to implementing suburban mobility plans; addressing suburb-to-suburb public transit needs should be undertaken on a region-wide basis. Expansion projects should include suburb-to-suburb connections on existing roadways and studies of possible light rail connections. The criteria for projects to be included in the Plan should be expanded: the definition for major projects should include impact/level of benefit (smaller investments in inner core suburbs could have a much larger beneficial impact on the regional system).	The criteria for project selection will be considered in the development of the next Plan.
Richard A. Dimino	President and CEO, A Better City	Urges the Boston Region MPO to consider amending this plan within the next year to incorporate the analysis and findings of the following related plans: 1. The chosen scenario from MAPC's MetroFuture planning process 2. The MBTA's new Program for Mass Transportation 3. The impending changes to the State Implementation Plan 4. The Patrick administration's five-year capital plan due in July Using already disputed and arguably obsolete data as the basis for analysis of projects seeking federal New Starts and Small Starts funding is not advisable when other regions across the country are seeking to make the most convincing case for their projects with current and accurate data.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to those commitments. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation. During the development of this Plan, there was no flexing of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.
		Additionally, if policy and resource allocation decisions are made, then the plan should be modified in a manner that may lead to a revised selection of expansion projects or a revised timetable for implementation of projects. The MPO should consider flexing funds when priorities are reassessed in the future amendment to this Plan. It would be beneficial to reallocate funds to transit if these projects demonstrate a greater financial requirement.	

NAME	AFFILIATION	COMMENT	MPO ACTION
		The "high priority" ratings for the Urban Ring Phase 2 and 3 strongly suggest that implementation of the Urban Ring projects should advance to the head of the queue for future funding, support, and implementation. They suggest that since both phases score at the same level of priority, they should be considered under the combined title of Circumferential Transit Improvements in the Urban Ring Corridor. Because they can be designed to accommodate dedicated bus lanes for the bus rapid transit service contemplated for Phase 2, the following project descriptions should include reference to the Urban Ring service, as it is already in the Rutherford Avenue and East Boston Haul Road projects, and the descriptions should cite the need for coordination with emerging plans for the Urban Ring: Telecom City Boulevard; Route 16, Revere Beach Parkway; and I-93/Mystic Ave. Interchange. Ridership increase on the following should be anticipated with the Urban Ring in operation: Fairmount Line, Green Line extension, North Shore Transit Improvements Blue Line project, and the Orange Line station at Assembly Square.	The Urban Ring 2 project is in the Plan. The MPO discussed the Urban Ring 3 and decided that it should not be included in the Plan at this time. The project description changes will be considered in the development of the next Plan.
		The transportation plan should also include, as an enhancement to the Silver Line project, the proposed "T under D" underpass.	The MPO discussed including the "T Under D" project in the recommended Plan but decided against it at this time. It will be considered during the next amendment of the Plan, anticipated to begin witin the current federal fiscal year.
Marilyn Swartz-Lloyd	President and CEO, Medical Academic and Scientific Community Organization, Inc.	Urges the Plan be amended during the next year (by July 1, 2008) as follows: 1) The Plan did not evaluate the most current land use and employment data during the modeling phase. Requests that the MPO recalibrate the model to account for the significantly greater projections for growth in the Longwood Medical Area (LMA). 2) Reference the Urban Ring in general in order to allow for the advancement of critical minimum operating segments, such as an LMA transit tunnel, which is currently under study. The Plan should specifically identify the Longwood tunnel as an early-action item to provide BRT service, and as an important element of the conversion of the Urban Ring from bus to light rail service within the time frame covered by the Plan.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year. Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
		3) Approximately 65% of the LMA employees commute to the area from outside the City of Boston; however, the LMA is underserved by commuter rail service and Green Line service. Requests that the Plan specifically incorporate key upgrades at Ruggles and Yawkey Stations to accommodate full-time commuter rail service and facilitate Green Line improvements in order to improve access to the LMA from areas within the MPO region. 4) Requests that the area known as the "Sears Rotary" in Boston (intersection of Park Dr., the Fenway, Boylston St., Brookline Ave., and the Riverway) be included in the Plan. The project was recognized as regionally significant by the Legislature through the inclusion of funds in the June 2006 Economic Stimulus Bill, and is currently under study by the City of Boston.	The description of the Urban Ring has been revised to include the Longwood Tunnel as one of the alternatives that is being reviewed. The other improvements, including Ruggles and Yawkey Stations and the Sears Rotary, do not have to be listed in the Plan to be funded in the TIP.
Jeffrey R. Levine	Director, Department of Planning and Community Development, Town of Brookline	Brookline is very concerned about the level of service on the Green Line and bus lines. Any future investment in the Green Line should be seen as an opportunity to address existing service deficiencies across the entire Green Line. Transit has benefits other than mobility for the transit dependent; there are air quality and land use benefits, as well. The MPO should adopt this belief and work to keep MBTA fares low and competitive with driving. The MPO should examine providing three-car trains on the Green Line C branch as well as comfort and reliability of the 66 bus. The town supports the concept of the Urban Ring and the alternatives (i.e., the tunnel elements) that move the project towards true "rapid transit" as quickly as possible; it is concerned about the impacts of bus rapid transit in mixed traffic. The Regional Transportation Plan should outline the future repair and maintenance strategy for the MDC roadways, including future funding.	This comment will be forwarded to the MBTA Service Planning Department, which continuously reviews level-of-service data and bus routings and determines changes based on needs and ridership data. It will also be forwarded to the MBTA for consideration in development of the Program for Mass Transportation. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process.
Denise Begley	Director, Neponset Valley Transportation Management Association	(Comment addressed to Barbara G. Lucas, MAPC) The TMA appreciates the work to develop the Plan; it includes many needed highway and transit projects. However, money is needed to support transportation-demand-management (TDM) efforts; funding to support TDM and suburban mobility should be specified. They are a vital way to address congestion and air quality. The TMA's service connects Royall Street in Canton to the Route 128 commuter rail station and the Quincy Center and Ashmont Red Line stations. It is important that funding be available for these suburban projects; they allow more people to use transit.	The MPO continues to provide funding in its Transportation Improvement Program for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. The program is discussed in the Plan. The MPO discussed a minimum level of funding for the suburban mobility program but decided not to include it at this time; however it is committed to continuing funding for this program in the future.

NAME	AFFILIATION	COMMENT	MPO ACTION
Dennis E. Harrington	Planning Director, City of Quincy	The City appreciates the MPO's recognition of the transportation issues affecting Quincy and the South Shore. Quincy is a significant component of the Boston region's economy, and the transportation network in Quincy is crucial to the economic vitality and sustainability of the city and the South Shore. The City appreciates the inclusion of the Quincy Concourse Phase II in the Plan and hopes it will be included in the TIP. It will improve traffic flow and support development. The Plan does not address the DCR roadways (in Quincy, Quincy Shore Drive, Furnace Brook Parkway, and Chickatawbit Road) and their maintenance; the MPO should work with DCR on this topic. These roadways are important connections to natural, recreational, and historic resources.	The Quincy Center Concourse II, the Route 3 Add-a-Lane, and the Braintree Split improvement projects are included in the Plan. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years including DCR roadways.
		The MPO should work with EOT and the MBTA to address the long-term viability of the existing transit system. (Though expanding the public transit system is commendable and the Greenbush Line will reduce congestion in the city.) The City supports keeping the Route 3 Add-a-Lane and the Braintree Split improvement projects in the Plan, as they will improve access to Quincy Center, the area's businesses, and the Red Line stations.	The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process.
Lisa E. Lepore	Chair, Freight Committee, Regional Transportation Advisory Council	It is increasingly important that the Commonwealth join forces with neighboring states to develop a work plan to address the problem of freight rail's diminishing role in cargo and trade. Freight rail is the only mode of transportation capable of providing relief to the impacts of the growing truck traffic. Recently there has been strong growth in the "multi-modal" freight arena, which includes rail. If our planning model remains in a status quo position, logistic experts predict exponential growth in intra- and interstate truck traffic; this will require more maintenance funding and will exacerbate air quality problems. A multi-modal freight planning study is needed to support a Multi-Modal Freight Policy. Freight rail port access and landside trans-loading improvements are needed to support the region's port facilities' ability to capture growth in imports and commodities. Underutilization of key rail corridors, existing facilities, and freight terminals in Metropolitan Boston and seaport docks (Massport) is a major problem.	The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region.

NAME	AFFILIATION	COMMENT	MPO ACTION
		The Commonwealth will not be able to take advantage of its own port investments and the increasing Atlantic seaport trade due to limited freight facilities at ports and other related issues such as encroaching commercial development and channel depths. The Plan is missing the following elements: a Regional Freight Plan describing the existing system and current and future needs; recommendations for policies and capital projects and programs; a suggestion for freight planning; public education of freight transportation characteristics and issues from stakeholders; a program to solicit public and industry input on defining regional freight needs, solutions, and strategies. The MPO could adopt practices used in other MPOs.	The solicitation-of-input comment will be considered in the MPO's revisions to the public involvement program.
Joanne Marqusee	Senior Vice President of Facilities and Operations, Beth Israel Deaconess Medical Center	Beth Israel Deaconess Medical Center is one of the major academic medical centers of Boston and is renowned nationally and internationally for excellence in patient care, biomedical research, teaching, and community service. BIDMC provides significant economic benefits to the City of Boston and the Commonwealth and is one of the area's most significant employers. Employees, patients, and students rely on public transportation to access the LMA. Infrastructure funding is key to growth and maintaining competitiveness. BIDMC highly supports transportation improvements that enhance accessibility and economic vitality of the LMA. BIDMC asks the MPO to consider: 1) Amending the Plan within one year to account for up-to-date land use data more consistent with actual demand for improved transit service. (The current projections underestimate the economic and regional transportation benefits of MBTA and roadway improvements to LMA.)	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin within the current federal fiscal year. Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan.
		2) Identifying the Longwood transit tunnel as an important element of the Urban Ring project, as an early-action item to provide bus service and as supporting conversion from bus to light rail in the Plan's time frame. 3) Incorporating key upgrades at Ruggles and Yawkey Stations for full-time commuter rail service and Green Line improvements. These improvements would improve access to the LMA and have a measurable impact for employment and service improvements. 4) Including the "Sears Rotary" in Boston in the Plan. It is regionally significant and has funds included in the June 2006 Economic Stimulus Bill.	The description of the Urban Ring has been revised to include the Longwood Tunnel as one of the alternatives that is being reviewed. The other improvements, including Ruggles and Yawkey Stations and the Sears Rotary, do not have to be listed in the Plan to be funded in the TIP.

NAME	AFFILIATION	COMMENT	MPO ACTION
Charles J. Cristello	Town Administrator, Town of Hingham	Hingham is very concerned about the impact that traffic from the redevelopment of the Naval Air Station will have on Abington Street, Gardner Street, and Exit 15 at Route 3 and Derby Street. The current project scope and funding are not adequate to provide the needed mitigation. Projected traffic volumes and analysis are presented. Specific needs for impacted streets are discussed: Abington Street would need rebuilding, and Abington and Gardner Streets would need sidewalks and traffic calming; the developer should consider Hingham's design for the Derby Street interchange. Require the proponent to review alternate transportation corridors and designs regarding the Parkway and the Hingham Street/Route 3 interchange.	The South Weymouth Naval Air Station Access Improvements and the Route 18 Improvements are included in the Plan. This comment will be forwarded to MassHighway for its review during the design of the project.
Anne Hawley	Isabella Stewart Gardner Museum	Urges the MPO to include the following concepts in an updated Plan: Make proper reference to the Urban Ring in general. Identify the Longwood transit tunnel as an important element of the Urban Ring project; the Plan should specifically identify the Longwood tunnel as an early-action item to provide bus service. Incorporate key upgrades for all E Line service to accommodate full-time commuter rail service and facilitate Green Line improvements in order to improve access to the Fenway and LMA areas within the MPO region. Full-time commuter rail service is needed at both Ruggles and Yawkey Stations. Include the area known as the "Sears Rotary" for study and transportation overhaul.	Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan. The description of the Urban Ring has been revised to include the Longwood Tunnel as one of the alternatives that is being reviewed. The other improvements, including Ruggles and Yawkey Stations and the Sears Rotary, do not have to be listed in the Plan to be funded in the TIP.
Karen Molloy	Somerville resident	Strongly recommends the incorporation of the SIP substitutions, with the two Green Line branches in Somerville. Please ensure that the Somerville Community Path is included in the description of the Green Line extensions in the RTP. Please ensure that Massachusetts passes a bond bill with real transit project funding as soon as possible. Strongly recommends construction of the new Orange Line Assembly Square MBTA stop. Strongly recommends the redesign of the I-93 Route 28 interchange. Consider coupling the reconstruction/redesign of McGrath-O'Brien (Route 28) to the design and plans for the Green Line. Strongly recommends that design and siting for the new Lechmere Station not proceed until the Green Line Extension routes and a Route 28 redesign have been fully considered.	The extension of the Green Line to Ball Square is included in the Plan. When the SIP substitutes are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. Funding for the Somerville Community Bike Path is included in the MPO's 2007 Transportation Improvement Program. The Orange Line Assembly Square station is included in the Plan. The I-93/Mystic Avenue Interchange is included in the Plan. This comment will be forwarded to the MBTA and the Executive Office of Transportation, which are currently developing an environmental impact report which will consider station locations and scheduling.

NAME	AFFILIATION	COMMENT	MPO ACTION
Ken Krause	Medford resident	The Plan should be revised as soon as the substitution projects are approved by the EPA, and the scope of the Green Line extension should be described as it appears in the December 2006 MEPA Certificate. Station Landing should be mentioned under Route 16's (Revere Beach Parkway) context/land use description. There should be pedestrian-bicycle access improvements planned for the Wellington Circle area. The Telecom City Boulevard project should be expanded to include pedestrian and bicycle improvements at Santilli Circle and to Wellington Station in conjunction with the Route 16 project. The name of this project should be changed to River's Edge Boulevard. The Urban Ring should be evaluated and planned in coordination with the previously mentioned Route 16 project. The description of the Assembly Square Orange Line station should include the obligations to build and/or study additional bicycle/pedestrian accomodations to the Assembly Square development. I-93/Mystic Avenue interchange should be coordinated with the planning for the Urban Ring and Assembly Square Orange Line station.	When the SIP substitutes are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The Telecom City Boulevard project name has been changed to the River's Edge Boulevard project. Other project description changes will be considered during project design and in the development of the next Plan.
Richard J. Arena	President, Association for Public Transportation, Inc.	It is imperative that the North/South Rail Link (NSRL) be included in the Plan and the ROW be preserved immediately. BRT is not an effective means of transporting commuters quickly, effectively, and reliably in the congestion prevalent in the Greater Boston area. APT supports a light rail solution to the problems along the Silver Line on Washington Street that would utilize the existing Green Line portal near Boylston Street. APT is against the $700 million tunnel to connect the Silver Line. APT has very serious reservations about the current alternatives for the Urban Ring. First, the four alternatives should be given budget numbers. Second, while the project does have merit, APT is of the opinion that only a light or heavy rail solution in a dedicated ROW will offer the performance and utilization that is touted in the justification for the project.	The North/South Rail Link and light rail on Washington Street are included in the Universe of Projects list but not included in the recommended Plan. The Silver Line III project currently has a recommended rating in Federal Transit's New Starts Program. With current daily ridership numbers of 14,700 for Silver Line I and 11,000 for Silver Line II, the MPO thinks that the Silver Line III project should be included in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
		APT recommends that the Boston region look to other regions which have evaluated BRT and decided that it is not a viable solution for their region. The Boston region should remove BRT as a local preferred alternative and substitute light rail. For this reason, APT strongly recommends that the Urban Ring Phase 2 be removed from the Transportation Plan. It submits that the NSRL would be a far better choice. APT supports the completion of the transit mitigation commitments for the Big Dig, the Blue Line extension to Lynn, and the commuter rail project to the South Coast (Fall River/New Bedford) through the Stoughton branch. APT considers it vitally important that rail freight operations remain a viable option in the Commonwealth, and that whatever measures are necessary be taken to ensure that the only Class I freight railroad in Massachusetts, CSX, maintains its presence. Critical projects here are double-stacking initiatives and ensuring that the only multi-modal rail yard in Boston, the Beacon Yard in Allston, remain operational.	The MPO thinks that the Urban Ring should be included in the Plan. The various alternatives are being reviewed as part of the environmental impact report currently being done by the Executive Office of Transportation. The SIP commitments and the Blue Line Extension to Lynn are included in the Plan. The Fall River/New Bedford is funded in the Southeastern MA. MPO's Plan and endorsed in the Boston Region MPO's Plan. The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region. This comment will be forwarded to the Executive Office of Transportation and the MBTA.
		The Port of Boston should be given more prevalence and be discussed in more detail. There are initiatives ongoing to utilize the sea as another highway for freight with a program known as Short Sea Shipping. To fund the operating costs of the area's expensive road network, there needs to be some outside-the-box thinking with respect to securing more transportation project funding. Other regions are using HOV/HOT (high occupancy toll) with success. APT would like to see the EOT and MBTA explore areas where development of valuable T properties can result in a predictable revenue stream for the MBTA. The proposed NSRL is a project that is especially well suited for such an initiative, with two (or three) magnet rail stations.	
Alan Moore	Somerville resident	Thanks the MPO and MAPC for all their hard work in preparing this document. More "creativity" is needed in raising funds. A method used elsewhere is statewide or regional referendums for tax increases for transportation. The construction schedule for the Green Line must be shortened to be closer to the original. Since the terminus has not been determined and it is inconsistently referenced in the Plan, all references should be simply generalized to "Green Line branch to Medford." Park-and-Ride at stations should also address bicycle parking and improved bicycle access. With regard to pedestrian and bicyclist issues, the policies and goals listed are very good but there is no implementation plan.	This comment will be forwarded to the MBTA and the Executive Office of Transportation, which are currently developing an environmental impact report for the Green Line Extension which will consider station locations and schedule. The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. This will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Bicycle Plan also discusses bicycle parking. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs.

NAME	AFFILIATION	COMMENT	MPO ACTION
		There is too little discussion of funding bicycle and pedestrian improvements and how to implement such facilities. Bicycle and pedestrian improvements should be consolidated into one or more "major projects" in order to acquire funding and prioritize this need. There should be more reminders that increased walking and bicycling help solve many of the problems listed in the plan for a fraction of the cost of increasing the capacities for auto travel. Arborway Restoration, Red-Blue connector, Fairmont Line, and Blue Line to Lynn should be described more concretely and get higher priority.	The MPO discussed a minimum level of funding for pedestrian and bicycle programs but decided not to include it at this time. The MPO is also in the process of finalizing a bike parking inventory at all commuter rail, rapid transit, and ferry lots and some express bus lots as part of its Mobility Management System. The MPO also completed a study in 2005, Improving Pedestrian and Bicycle Access to Selected Transit Stations. The SIP transit commitments are currently being reevaluated by the environmental agencies. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments and provide more information.
Alan Moore	Chair, Somerville Bicycle Committee	Park-and-ride at stations should also address bicycle parking and improved bicycle access. With regard to pedestrian and bicyclist issues, the policies and goals listed are very good but there is no implementation plan. There is too little discussion of funding bicycle and pedestrian improvements and how to implement such facilities. Bicycle and pedestrian improvements should be consolidated into one or more "major projects" in order to acquire funding and prioritize this need. There should be more reminders that increased walking and bicycling help solve many of the problems listed in the plan for a fraction of the cost of increasing the capacities for auto travel.	The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. This will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Bicycle Plan also discusses bicycle parking. The MPO is also in the process of finalizing a bike parking inventory at all commuter rail, rapid transit, and ferry lots and some express bus lots as part of its Mobility Management System. The MPO also completed a study in 2005, Improving Pedestrian and Bicycle Access to Selected Transit Stations. The MPO discussed a minimum level of funding for pedestrian and bicycle programs but decided not to include it at this time; however, the MPO is committed to continuing funding these programs.
Karen Wepsic	Jamaica Plain resident	Instead of pouring a vast amount of money into building and running the Urban Ring, improve the service on the following bus routes: 47, 66, 91, 16, 94, 96, 1, CT1, CT2, CT3, 86, 112, 8, 19.	The MPO thinks that the Urban Ring should be included in the Plan. This comment will also be forwarded to the MBTA Service Planning Department, which continuously reviews bus routings and determines changes based on demand and ridership data.

NAME	AFFILIATION	COMMENT	MPO ACTION
Jerry Van Hook	Lexington resident	Bicycles must replace cars for many local transportation needs in the future. Bicycle racks and lockers are needed in town centers, and bicycle carriers on buses and commuter rail trains are needed to encourage more use. Each town should have the facilities to support bicycling and mass transit, to give people alternatives to SOV travel. The MPO should look for ways to create a bicycling network – off-road and on-road bike lanes – where possible. Regarding the MPO's public involvement program, the MPO should encourage bike rental operations to give tourists and businessmen alternatives to SOVs.	The MPO funded a Regional Bicycle Plan, recently completed by the Metropolitan Area Planning Council. This will be used by the MPO in its bicycle-planning work in the future. Bicycle projects can continue to be funded by the MPO in its Transportation Improvement Program in the future without specifically being listed in the MPO's long-range transportation plan. The Transportation Plan references the MPO's continuing commitment to bicyclist and pedestrian programs. The public-involvement comment will be considered in the MPO's revisions to the public-involvement program.
Charles Kilmer	Transportation Program Manager, Old Colony Planning Council	(Comment addressed to Barbara G. Lucas, MAPC) Route 24 should be designated an interstate highway. The Boston MPO Regional Transportation Plan should recommend that MassHighway conduct engineering, traffic, and environmental studies for the roadway to meet modern federal design standards. OCPC has endorsed making it an interstate highway since 1993. The road serves as an interstate facility, connecting Rhode Island to I-195, I-495, and I-93 (Route 128). It is not as safe as it should be because it does not meet modern standards, and as an interstate it would have to be brought up to modern standards. There are inadequate acceleration/deceleration lanes, road and shoulder widths, and vertical clearance. There is sufficient justification for MassHighway to begin these studies. The cost of implementing the improvements (involving interchange upgrades, bridge reconstructions, drainage, signage, and right-of-way) was formerly estimated at $20,681,000 in the MAPC region and could be spread out over 12 years.	The MPO discussed the process of designating Route 24 as an interstate highway. The MPO supports the request for MassHighway to conduct a study; however, it is not included in the Plan.

NAME	AFFILIATION	COMMENT	MPO ACTION
Kevin Chase	LNR Property Corporation	As the master developer for the redevelopment of the former South Weymouth Naval Air Station, LNR requests several changes to the Plan that will support benefits (economic, environmental, and other) of the redevelopment. SouthField, the new community (mixed use, transit-oriented) to be created by the redevelopment, is a winner of a Massachusetts Smart Growth Award. It will have extensive pedestrian and bicycle networks and a clean-fuel shuttle system linking to the South Weymouth commuter rail station. Three other infrastructure investments (a multi-modal center at the station, widening Route 18, and a new East-West Parkway linking Route 18 and Route 3) are critical and will require cooperation from the transportation agencies. There are both state and federal earmarks for these projects. The Parkway needs a clear timetable and financing plan, or the first phase of development will be at risk.	The South Weymouth Naval Air Station Access Improvements and the Route 18 Improvements are included in the Plan. The funding in the Plan for Route 18 has been increased to $24,000,000. The MPO has committed to include only the federal and state funds earmarked for the South Weymouth Naval Air Station Access Improvements in the recommended Plan. A total of $45,000,000 for the project has been indicated in the footnote in Table 13-3, with the remaining funds to be provided by non-MPO revenues, including funds from the state, local entities, and the developer.
		Changes to Table 13-3 should be made. The current costs for the Route 18 Capacity Improvements (Weymouth) project should be increased to $24 million, the most current cost estimate. Funding for the Base Access Improvements (Weymouth, Hingham, and Rockland) project should be increased to $45 million, its full cost. Program both projects in the 2007–2010 time frame. For the Base Access project, there is no specific agreement in place for potential private and local contributions. LNR is willing to engage in negotiations about the appropriate mix of sources for the $45 million total cost of improvements; however, footnote 3 is premature and should either be deleted or amended to read, "The total project cost of $45 million will be funded through a combination of federal and state funds currently earmarked for the project and other funds to be secured by local and developer contributions." LNR is ready to work with the MPO to move forward with the Base redevelopment.	
Steven H. Olanoff	Chair, Regional Transportation Advisory Council	The Advisory Council is reiterating its positions on several important topics. The Advisory Council has a strong commitment to transit expansion, both in urban and suburban areas, and objects to highway capacity increases. Freight considerations are not rising to the level of concern that is needed for the vitality of our transportation system and the economy; there are no freight projects in the Plan. Policies and plans of the MBTA, MassHighway, Massport, and the Seaport Advisory Council must be coordinated so that critical freight corridors and freight infrastructure are preserved and expanded to serve the economic needs of the state.	The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region.

NAME	AFFILIATION	COMMENT	MPO ACTION
		The Advisory Council is concerned that the proportion of funding for state-of-good-repair and local projects is not adequate; opposes the capacity expansion of Route 3 from Weymouth to Duxbury; supports the Green Line extension to Somerville, Medford, and Union Square; opposes the excessive funding for Silver Line Phase III and supports reducing the project to portals at South Station; supports the design and construction of the Red Line/Blue Line Connector, the Blue Line extension to Lynn, and the inclusion of the North-South Rail Link as an illustrative project.	The MPO discussed the Route 3 project and thinks that it should be included in the Plan because analysis shows that congestion on the road is severe now and will increase significantly in the future. With current daily ridership numbers of 14,700 for Silver Line I and 11,000 for Silver Line II, the MPO thinks that the Silver Line III project should be included in the Plan. The North-South Rail Link is included in the MPO's Universe of Projects list but not included in the recommended Plan or as an illustrative project. Illustrative projects will be considered as part of the next Plan amendment, anticipated to begin within the current federal fiscal year. The other projects are included in the recommended Plan.
Fred Salvucci		Objects to the substantial inaccuracies and inappropriate policy constraints in the Plan. The Plan should be revised and a commitment made to submit a revised Plan in 18 months; it should anticipate the challenge of climate change and prepare the economy for a more sustainable future with more walking and transit and less VMT, VHT, and petroleum consumption. Recommendations: 1) Reverse the policy not to flex funds. 2) Include all the ACO 2000, the DCR network, and the Urban Ring 3, Congressionally identified priorities (Blue Line to Lynn, Fitchburg commuter rail, Worcester commuter rail, Longwood Tunnel, Fall River/New Bedford projects should be included). 3) Include ranges of developments (to support projects' environmental documents) with a range of alternative land use projections. 4) Aggressively seek federal discretionary funds. 5) Suspend many highway projects for a review of the report of the finance commission while accelerating the Fix It First program for highways. 6) Commit to preparing a revised Plan (based on the new administration's review of the finance report and on operating budget reforms) in 18 months.	The MPO received a number of comments regarding the socioeconomic forecasts used in the development of the Plan. The MPO will review these forecasts and will make appropriate changes during the next amendment of the Plan, anticipated to begin in the fall of 2007. In this amendment the MPO will look at the socioeconomic forecasts, the SIP commitments and the inclusion of illustrative projects. The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation.

NAME	AFFILIATION	COMMENT	MPO ACTION
		All corridor planning studies and environmental impact statements now underway, particularly the Urban Ring, use a range of values for urban densities that include more realistic (higher) projections; corrections are needed so that the entire planning process won't be flawed. Regarding the projections: 1) Employment projections in the urban area (and the Urban Ring corridor) are below the actual number for 2005, thereby understating the importance of urban transit projects and travel demand in areas of EJ populations (this could delay the Urban Ring and job growth, impacting EJ communities) and overstating travel demand in suburban areas. 2) University students are not adequately accounted for in the population numbers, resulting in an understatement of demand for public transportation; conversion of student housing to non-student will further increase demand. The model will only be accurate for a typical day in early August when school is out.	During the development of this Plan, there was no flexing of funds from one mode to another. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.
		3) Special attention is needed so that employment and land use and the transit mode share are accurately projected. There will be a greater increase in public transit use in the Urban Ring alignment because of institutions' policies to promote it. Caps on parking growth will support this trend throughout the urban core. The CTPS model does not deal well with parking limits. Regarding policies: 1) The policy not to flex funds to public transportation is wrong and should be reversed. This creates destructive competition among transit initiatives, not the cooperation that is needed; it also jeopardizes timely processing of federal funding. 2) Forward Funding is a no-growth statute that has not worked; it doesn't provide even a sustainable base for current levels of service, let alone the operating costs of the many proposed expansions of service.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years including DCR roadways.
		3) The policy prioritizing Fix It First projects diverts capital funds to pay for deferred maintenance and is not investment; it facilitates continuation of the under-funding of maintenance by committing resources to complex suburban highway capacity expansions. 4) The Plan should highlight the need for MBTA debt relief (to allow for progress on state of good repair and operating funds for expanded services) and for adequate funding of maintenance by MassHighway. 5) There is no information that might facilitate a discussion of a pattern break or aggressive policy to encourage a more sustainable future (reduced VMT and VHT and increased transit mode share); comparison of alternative scenarios that are more transit intensive, evaluation of larger evaluation criteria such as climate change, land use strategies, or development investments would support this.	The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process and incorporate new information into future Plan amendments. The MPO discussed the Urban Ring 3 and decided that it should not be included in the Plan at this time.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Regarding projects: 1) Urban Ring Phase 3 and DCR bridges over the Charles and roadways along it should be included in the Plan to support possible access to federal funding. 2) Many projects seem to come from a wish list of spot improvements, not corridor planning: a) Route 2 and Route 9 corridors; b) Route 128 – Peabody to Beverly, Route 1 and 114 in Danvers, I-95 and I-93 in Woburn, I-93/Mystic Ave., Route 3 South, Middlesex Turnpike, and Logan car rental facility have the potential to encourage and exacerbate the next bottleneck and stimulate more auto-oriented development; c) the Framingham Center/Route 126 project is not evaluated in context of commuter rail to the downtown; d) a corridor plan for the Chelsea corridor is needed (a plan is needed for Tobin Bridge replacement).	The description of the Urban Ring has been revised to include the Longwood Tunnel as one of the alternatives that is being reviewed. ACO projects are included in Appendix D's listing of MBTA capital investments in the system. EOT is working with Rhode Island officials regarding rail to T.F. Green. An agreement has not been finalized on this project. The MPO will monitor these projects and include all updated information in the next amendment to the Plan, anticipated to begin within the current federal fiscal year.
		3) Delay in implementing the remaining SIP transit commitments undermines the credibility that planning will result in action. The inaccurate rationale for evading the SIP commitments should be deleted and replaced with a retrospective of the projection of the Big Dig 1990 EIS. 4) The Plan does not report on the overall review of the Big Dig and resulting insights into the level of maintenance required for Boston-area infrastructure. Regarding planning issues: 1) The symbiotic role of transit in offsetting the congestion from the increasing role of trucks in freight is not adequately discussed. There is also no analysis of the impact of rail access to Allston. 2) The discussion of safety and high-accident locations does not identify the role of excessive speed and the benefits of reducing speed.	The Blue Line to Lynn is included in the Plan. The Fall River/New Bedford and Fitchburg commuter rail projects are included in other MPOs' Plans for funding and listed in the Boston Plan as endorsed by the MPO. The current SIP commitments are included in the Plan. When the revisions to these SIP commitments being proposed by EOT and DEP are finalized by EPA, the MPO will amend the Plan to include any changes to the commitments.
		3) There is no mention of the Finance Commission report or of any process to consider its recommendations. There is not enough finance information to allow serious dialogue with the public or the federal government. There should be an array of project options presented. Fiscal constraint strategies ignore the inflation cost of delay, the economic cost of deferred project benefits, and the costs of added auto ownership due to lack of transit options. 4) Clarification of the new administration's flexibility is needed; this will require a combination of new funding, aggressive use of flexibility, and pursuit of new federal funds. 5) The Plan includes useful raw material for the new administration's use in discussions with the public and in setting priorities.	Reference to the Finance Commission's report has been included in the Plan. The MPO will consider these issues (a more sustainable future transportation system, corridor planning, freight's relationship with transit, and speed's relationship with safety) in future programs and plans and as topics for Unified Planning Work Program studies.

NAME	AFFILIATION	COMMENT	MPO ACTION
Paul F. Matthews	Executive Director, Arc of Innovation	More priority and more funding must be directed to infrastructure in the Arc of Innovation. Comprehensive action is needed to ensure that the ongoing congestion, safety, environmental, and economic issues are addressed. If these needs are not addressed now, the economy, environment, residents, and employers will pay a steep price. The 495/MetroWest Corridor Partnership is responsible for one out of every ten payroll dollars in the state economy and one out of every eleven jobs in the state; it is home to six of the top ten largest publicly held companies in Massachusetts and will be the region in which there is the highest growth in eastern Massachusetts (22,000 new jobs by 2030).	The MPO is currently completing an I-495 Transit Study.
		The Partnership is concerned about regional constraints and limitations and asks that constraints in the transportation infrastructure be aggressively addressed in order to maintain quality of life and economic competitiveness. This includes traffic congestion, increasing vehicle miles traveled, highway capacity, limited public transportation options, and failing, aged transportation infrastructure. A survey in the region has identified concerns: the region's lack of public transportation services; growing traffic congestion; the need for improved systemwide maintenance. The Partnership appreciates that the Transportation Planning and Programming Committee has listed some crucial projects; however, these projects should be addressed in a more aggressive time frame.	
		Two additional needs were not mentioned in the Plan: the I-495/I-90 Massachusetts Turnpike interchange in Hopkinton and Westborough (the intersection of two major freight corridors and significant commuter routes) and the I-495/Route 9 interchange (where there is significant traffic congestion, with planned development to exacerbate the problem) – both on the boundary with the Central Massachusetts MPO (which has listed the projects in their Plan). The Boston Region MPO is urged to develop coordinated responses to these needs and secure additional funding.	The I-495/I-90 and I-495/Route 9 projects are included and funded in the Central Massachusetts MPO's long-range plan. The MPO will work with CMRPC in the development of these projects.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Regarding projects in the Plan, the I-495/I-290 interchange in Hudson and Marlborough regularly experiences congestion and safety issues, and the need for improvements has been recognized in a number of planning documents and efforts. The MPO should monitor the ongoing work on this interchange and schedule funding as soon as possible. The Partnership is pleased that the Route 85/Washington Street in Hudson project is in the Plan. It is Hudson's #1 TIP priority and deserves funding from the MPO as soon as possible. The Route 135/Route 126 Interchange in Framingham is fourth in the Partnership's "Top Ten Transportation Nightmares," is a major traffic bottleneck, and includes two rotaries, three traffic signals, and two railroad tracks in active use by commuter and freight trains. Addressing the problems at this intersection is made more important in light of the expansion of commuter rail service under negotiation.	The I-495/I-290 Interchange is included in the recommended Plan and has been moved into the 2011-2020 time frame. The Route 126/135 Interchange and the Route 85 project are also included in the recommended Plan.
Taber Keally	Chair, Three Rivers Interlocal Council	The highest priority in the subregion is the completion of the improvements to I-93/I-95 in Canton. The Route 128 Add-a-Lane project will only speed traffic to a bottleneck intersection if this project is not completed. Development at Westwood Station and Legacy Place adds to the urgency of moving forward with this project. The Plan should not make recommendations for projects that have no visible funding; this would be a flawed process. The Plan should demonstrate a clear commitment to park-and-ride and ride-share lots as a means of promoting alternatives to single-occupant vehicles. Suburb-to-suburb transportation is an issue of growing importance. The system does not provide sufficient transit for communities between Route 128 and I-495. (If there is not a change, the number of communities switching to other RTAs will continue.)	The I-93/I-95 Interchange project in Canton is included in the Plan. The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In March, the Massachusetts Transportation Finance Commission issued a report, Transportation Finances in Massachusetts, that estimates a transportation-needs gap of $15 billion to $19 billion over the next 20 years. The Patrick-Murray administration has committed to work with the Legislature, the Transportation Finance Commission, and other stakeholders to develop a proposal to address these findings through comprehensive reform of the state's transportation-financing system. The MPO will participate in this process. As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region in conjunction with the MBTA's Program for Mass Transportation. The MPO provides funding for a suburban mobility program to address transportation needs in areas that are currently not served or underserved by transit. As discussed in Chapter 13, the MPO is committed to the continued funding of this program in the region.
		The MPO is urged to consider the recommendations of the Transportation Finance Commission and fix the funding gap to finance the long list of repairs and improvements to the state's highways. The MPO is also urged to listen to the perspectives and analysis of the Transportation Investment Coalition, a group of Massachusetts-based planning and community development organizations that is in the process of forming with a mission to advocate for investment in the transportation infrastructure. MAPC will be participating.	

NAME	AFFILIATION	COMMENT	MPO ACTION
Paul G. Yorkis	Medway SWAP representative	The Existing Conditions chapter should focus less on the system and more on the exploration of alternative transportation modes. [Eight specific comments for changes/edits are then listed for this chapter.] The MPO should adopt a policy of establishing rideshare lots to address the current un-served and under-served population that do not and will not have in the foreseeable future access to mass transit that would serve their commuting requirements. Concluding that ridesharing is not needed or valuable based upon the locations cited in the draft report does not recognize the need for ridesharing lots in the 495 and 128 corridors. There is a need to "look outside the box" in developing transportation and mass transit solutions for 2030, and the Plan "looks inside the box" for solutions. The stewardship of highway corridors like I-495 and Routes 126, 109, and 128 is not addressed.	The comments on the existing conditions chapter will be considered in the development of the next Plan. The regional equity chapter of this Plan is used to refer to providing equitable benefits to low-income and minority populations. Specific intersection projects do not have to be listed in the long-range Plan. Only regionally significant projects (projects that add capacity to the system) and major investment projects (projects that cost over $25 million) are specifically listed in the Plan. Chapter 5 discusses the intersection improvement program. The discussion of this program in the Plan allows all intersection projects to be funded in the Transportation Improvement Program without specifically being listed in the Plan. The MPO is currently completing the I-495 Transit Study. As noted in Chapter 6, the MPO is committed to increasing park-and-ride at locations throughout the region. The comment on ridesharing at the I-495/I-290 interchange project will be forwarded to MassHighway for consideration in the design of the project.
		The definition and implementation approach for regional equity supports continued inequity between the urban areas and the suburban areas in terms of service as it relates to mass transit and in terms of improvements and enhancements not related to mass transit. The regional equity section of the Plan is Bostoncentric and as a result does not provide and does not promote regional equity. Additional needs include intersection improvements in communities outside the 128 corridor to reduce congestion and the construction of rideshare lots at major interchanges of I-495. The projects recommended in the Plan reflect a Bostoncentric view within the MPO. This view will perpetuate the current inequities in transportation services between Boston and the rest of the MPO region. The I-495/I-290/Route 85 project should include a rideshare facility. There should be more improvements for I-495 in the Plan, and I-495 should be studied as a transit corridor.	
Carolyn Manson	Brookline resident	Would like to have streetcar service restored to the Arborway. The #39 bus is not a good substitute for the streetcars. The service should connect to Forest Hills, and parking and driving lanes for vehicles should be removed where necessary. Streetcars also have no emissions and do not contribute to global warming as much as buses.	The current SIP commitments are included in the Plan, including the Green Line Arborway Restoration. However, they are currently being reevaluated by the environmental agencies. When the SIP commitments are finalized by EPA and DEP, the MPO will amend the Plan to include any changes to the commitments. The restoration of streetcar service is not proposed in the reevaluation process.

NAME	AFFILIATION	COMMENT	MPO ACTION
Marc Draisen	Executive Director, Metropolitan Area Planning Council	This comment explains the reasons MAPC voted "no" on JOURNEY TO 2030 and suggests changes in the RTP that would allow the MPO to produce a fiscally responsible document. The RTP should be changed to: 1) recognize fiscal constraints by noting (using the Transportation Finance Commission findings) the critical under-funding of the existing transportation system; 2) increase funding for maintenance and operations of roads and bridges; this should be at least 85% of the highway funds and would leave funds for projects currently programmed in the 2007–2010 TIP and one or two large highway projects per decade (with I-93/95 North – Woburn and Reading and I-93/95 South – Canton and Westwood as the highest priorities); 3) flex highway funding to cover the SIP commitments; 4) specify ways to pay for critical expansion projects; the Plan should identify specific sources of funds that would enable these and critical highway projects (other than our priorities) to proceed.	The funding for this Plan includes a projection of revenues through 2030 based on current allocations and trends and an allocation of how those funds will be spent over the next 23 years. In addition to projects that add capacity to the system, the Plan lists projects that cost over $25 million. Many of these projects address the existing maintenance needs and safety issues of the transportation system.
		Transportation needs in the region are critically under-funded. The Transportation Finance Commission is expected to indicate a shortfall of $13 to $19 billion in funds needed just to maintain and operate our existing system. The bond bill provides only short-term relief and does not address larger, systemic problems in the transportation finance system. While the Plan may be technically "fiscally constrained," it does not recognize the real financial shortfalls. It assumes that state and federal transportation funds will increase by at least 3% per year for the next 23 years and that project costs will only increase at 4%. The RTP allocates 29% of available funds to new highway projects and assumes the Commonwealth will provide almost $4 billion for new transit projects, with no transit planned beyond 2020.	During the development of the Plan, the MPO determined that there would be no flexing of funds. The MPO is not opposed to the policy of flexing funds. However, given the funding levels for this Plan, the present allocation of funding is appropriate given the current financial conditions. Flexing of funds will be considered in the future.

NAME	AFFILIATION	COMMENT	MPO ACTION
		Regarding highway funding: Maintenance is not adequately funded in the RTP, providing 71% instead of the recommended 85% of state and federal funds; 15% would be more fiscally responsible. Regarding transit funding, funding is both too large and too small: the expansion project list is too large (assumptions on available funding are unrealistic); but there is no expansion in the 2021-2030 time-frame. MAPC supports transit expansion. Additional projects should be identified and planning should begin; the demand for new transit is strong. Needs should be identified in the Plan, and projects to meet those needs and revenue sources should be included. Realization of the MAPC MetroFuture Plan (based on mixed-use, TOD) will require additions to the transit network and funding for maintenance and operations. (MAPC is a member of the Transportation Investment Coalition, working to educate the public on unmet transportation needs and to seek adequate resources.)	The transit projects included in the Plan are those currently in the design or study phase by the MBTA and/or the Executive Office of Transportation. The MPO discussed a minimum level of funding for the listed programs but decided not to include it at this time. As discussed in Chapter 13, the MPO is committed to the funding of the listed projects in the region.
		There are not adequate funds for constructing, maintaining and operating the SIP commitments and the Blue Line to Lynn, Urban Ring Phase 2, and the New Bedford-Fall River project, and it is not fiscally responsible to assume that these funds will be provided by the legislature without additional sources of revenue. The RTP should include a minimum funding commitment to Suburban Mobility/TDM, bicycle mobility, and pedestrian access programs that have demonstrated benefits for congestion, safety, health, and air quality and that are necessary to support the sustainable land use patterns that are a part of the MetroFuture land use plan, and to a freight program ($15 million for all four). This would demonstrate commitment even in fiscally constrained times. There are no freight projects in the Plan and no specific program to preserve and improve the freight infrastructure. There is a need for a comprehensive plan for moving freight in our region and a way to pay for the improvements.	The MPO is in the process of completing a freight study for the region. This study will inform the MPO on its next steps to address future freight needs (projects or future studies required). This information can then be incorporated in the development of the next Plan and other studies conducted by the MPO. As discussed in Chapter 13, the MPO is committed to the funding of freight projects in the region.

APPENDIX B

UNIVERSE OF PROJECTS

One of the primary outcomes of the Regional Transportation Plan is the development of a list of major capital expansion projects for implementation over the next 23 years. For use in selecting these projects, the MPO created a Universe of Projects list identifying all possible projects. The list is in two parts, one for highway projects and the other for transit projects. Please note that the projects listed in this appendix include all projects that were considered for the recommended Plan. It is not a list of illustrative projects, as discussed in Chapter 13 on page 13-100.

The Highway Universe of Projects list comprises those projects included in a previously adopted Regional Transportation Plan, projects previously studied, projects now under study or in development, and projects included in comments received during the public outreach processes for the 2004–2025 Plan and this JOURNEY TO 2030 Plan. The Transit Universe of Projects list was derived from the MBTA's Program for Mass Transportation.

Universe of Highway Expansion Projects for the 2030 Build Scenario

COMMUNITY	PROJECT	CURRENT COST
RECOMMENDED HIGHWAY PROJECTS INCLUDED IN THE 2004 RTP		
BEDFORD, BURLINGTON AND BILLERICA	MIDDLESEX TURNPIKE IMPROVEMENTS	$14,400,000
BEVERLY TO PEABODY	ROUTE 128 CAPACITY IMPROVEMENTS	$145,000,000
BOSTON	EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE	$14,000,000
BOSTON	ROUTE 1A/BOARDMAN STREET GRADE SEPARATION	$10,000,000
BOSTON	RUTHERFORD AVENUE	$79,300,000
BOSTON TO NEWTON	DOUBLE-STACK INITIATIVE	$23,400,000
CANTON	I-93/I-95 INTERCHANGE	$120,000,000
CANTON	I-95 NORTHBOUND/DEDHAM STREET RAMP AND BRIDGE	$3,500,000
CONCORD	CONCORD ROTARY/ROUTE 2	$40,000,000
CONCORD AND LINCOLN	ROUTE 2/CROSBY'S CORNER GRADE SEPARATION	$31,500,000
DANVERS AND PEABODY	ROUTE 1/ROUTE 114 CORRIDOR IMPROVEMENTS	$46,800,000
EVERETT, MALDEN, AND MEDFORD	TELECOM CITY BOULEVARD	$15,200,000
EVERETT, MEDFORD, AND REVERE	ROUTE 16 (REVERE BEACH PARKWAY)	$93,600,000
FRAMINGHAM	ROUTE 126/ROUTE 135 GRADE SEPARATION	$50,000,000
FRAMINGHAM	ROUTE 9/ROUTE 126 INTERCHANGE	$17,500,000
FRAMINGHAM TO WORCESTER	DOUBLE-STACK INITIATIVE	$9,400,000
LYNNFIELD TO READING	ROUTE 128 CAPACITY IMPROVEMENTS	$150,000,000
MALDEN AND REVERE	ROUTE 1 IMPROVEMENTS	$65,000,000
MARLBOROUGH AND HUDSON	I-495/I-290/ROUTE 85 CONNECTOR INTERCHANGE	$32,800,000
NATICK TO WELLESLEY	DOUBLE-STACK INITIATIVE	$23,400,000
NEWTON AND NEEDHAM	NEEDHAM STREET/HIGHLAND AVENUE	$7,700,000
QUINCY	QUINCY CENTER CONCOURSE, PHASE 2	$7,000,000
READING AND WOBURN	I-93/I-95 INTERCHANGE	$171,000,000
REVERE	MAHONEY CIRCLE GRADE SEPARATION	$30,000,000
REVERE	ROUTE 1/ROUTE 16 INTERCHANGE	$4,600,000
REVERE	ROUTE 1A/ROUTE 16 CONNECTION	$46,300,000
SALEM	BOSTON STREET	$2,300,000
SALEM	BRIDGE STREET	$3,500,000
SOMERVILLE	I-93/MYSTIC AVENUE INTERCHANGE	$58,500,000
WEYMOUTH, HINGHAM, AND ROCKLAND	S. WEYMOUTH NAVAL AIR STATION ACCESS IMPROVEMENTS	$45,000,000
WEYMOUTH	ROUTE 18 CAPACITY IMPROVEMENTS PROJECT	$14,000,000
WEYMOUTH TO DUXBURY	ROUTE 3 SOUTH ADDITIONAL LANES	$210,600,000

COMMUNITY	PROJECT	CURRENT COST
WILMINGTON	I-93/BALLARDVALE STREET INTERCHANGE	$20,000,000
WILMINGTON AND READING	I-93/ROUTE 129 INTERCHANGE IMPROVEMENT PROJECT	$17,500,000
WOBURN	NEW BOSTON STREET BRIDGE	$2,400,000
ADDITIONAL HIGHWAY PROJECTS NOT INCLUDED IN THE 2004 REGIONAL TRANSPORTATION PLAN		
BOSTON	FENWAY PARK IMPROVEMENTS	$30,400,000
SALEM	COMMERCIAL STREET/TREMONT STREET	$700,000
SALEM	ESSEX STREET CONVERSION	$2,400,000
MARLBOROUGH AND NORTHBOROUGH	BOUNDARY STREET/GODDARD STREET	$2,900,000
WELLESLEY TO WOBURN	I-95/ROUTE 128 CAPACITY IMPROVEMENTS	TBD
BURLINGTON	ROUTE 3A	$3,500,000
WILMINGTON, TEWKSBURY, AND ANDOVER	LOWELL JUNCTION	$5,400,000 TO $10,700,000
PROJECTS IDENTIFIED IN COMMENTS ON THE 2000 RTP, 2001 RTP UPDATE, AND 2004 RTP		
ARLINGTON AND CAMBRIDGE	ROUTE 2/ROUTE 16 INTERCHANGE	TBD
ASHLAND	ROUTE 135 GRADE SEPARATIONS	TBD
BEDFORD	WIGGINS AVENUE EXTENSION	TBD
BOSTON	BACK BAY MASSACHUSETTS TURNPIKE EXIT	TBD
BRAINTREE	I-93/ROUTE 3 INTERCHANGE (BRAINTREE SPLIT)	$33,300,000
BRAINTREE	ROUTE 3/UNION STREET SAFETY IMPROVEMENTS	TBD
CANTON	EAST-WEST CONNECTOR ROAD	$8,400,000
GLOUCESTER	GLOUCESTER ROTARY	TBD
HOPKINTON	I-495/SOUTH STREET NEW INTERCHANGE	TBD
HUDSON	WASHINGTON STREET (ROUTE 85) WIDENING	$5,900,000
MEDFORD	ROUTE 16/I-93 CONNECTION	TBD
NEWTON	NEW RAMP FROM I-95/ROUTE 128 TO RIVERSIDE MBTA STATION	TBD
SHERBORN	ROUTE 16/27 IMPROVEMENTS	TBD
SOMERVILLE	DEPRESS INTERSTATE 93	TBD
SOMERVILLE	ROUTE 28 IMPROVEMENTS	TBD
SOMERVILLE AND DORCHESTER	EXTEND THE INTERSTATE 93 HOV LANE INTO THE CITY	TBD
WESTBOROUGH	ROUTE 9/INTERSTATE 495 INTERCHANGE	TBD
PROJECTS IDENTIFIED THROUGH PLANNING EFFORTS		
LYNNFIELD, PEABODY AND SAUGUS	ROUTE 1 CAPACITY IMPROVEMENTS	TBD
BOSTON TO REVERE	ROUTE 1A CAPACITY IMPROVEMENTS	TBD

COMMUNITY	PROJECT	CURRENT COST
ACTON TO LEXINGTON	ROUTE 2 CAPACITY IMPROVEMENTS	TBD
RAYNHAM TO RANDOLPH	ROUTE 24 CAPACITY IMPROVEMENTS	TBD
BOSTON TO BRAINTREE	INTERSTATE 93 (SOUTHEAST EXPRESSWAY) CAPACITY IMPROVEMENTS	TBD
SOMERVILLE TO WOBURN	INTERSTATE 93 CAPACITY IMPROVEMENTS	TBD
CANTON TO FOXBOROUGH	I-95 CAPACITY IMPROVEMENTS	TBD
LITTLETON TO WRENTHAM	I-495 CAPACITY IMPROVEMENTS	TBD
BOSTON	CONLEY TRUCK ROAD	$20,000,000
BOSTON	CONLEY RAIL SERVICE STUDY	$100,000
BOSTON	CHARLESTOWN HAUL ROAD	$8,000,000
BOSTON	PORT OF BOSTON INNER HARBOR MAINTENANCE DREDGING PROJECT	$50,500,000
BOSTON	BOSTON HARBOR DEEP DRAFT NAVIGATION IMPROVE-MENT PROJECT	$75,000,000
BOSTON	RAIL EXTENSION TO MASSPORT MARINE TERMINAL	$5,000,000
BOSTON	T UNDER D	$65,000,000
BOSTON	INNER HARBOR FERRY VESSELS	$2,000,000
BOSTON	SOUTH BOSTON WATER TRANSPORTATION TERMINAL	$3,000,000
BOSTON TO FITCHBURG	FITCHBURG LINE SERVICE EXPANSION	$172,000,000
PROJECTS FROM JOURNEY TO 2030 OUTREACH		
WESTON	ROUTE 30/INTERSTATE 90 INTERCHANGE IMPROVEMENTS	TBD
MILFORD	ROUTE 16 BYPASS ROAD	$5,000,000
REGIONWIDE	HOV LANES ON I-495, I-95, AND ROUTE 128	TBD
STOUGHTON	ROUTE 24 INTERCHANGE	TBD
MARSHFIELD	ROUTE 139 IMPROVEMENTS	$7,000,000
HANOVER	ROUTE 53 WIDENING	TBD
SOMERVILLE	MCGRATH HIGHWAY GRADE CHANGE	$2,000,000

Universe of Transit Expansion Projects for the 2030 Build Scenario

SERVICE	SCREENED BY PMT	PROJECT
BLUE LINE	X	BLUE–RED CONNECTOR
BLUE LINE	X	WONDERLAND BLUE LINE–COMMUTER RAIL CONNECTOR
BLUE LINE	X	EXTENSION TO LYNN
BLUE LINE		EXTEND FROM BOWDOIN TO COPLEY/BACK BAY AND THEN TO RIVERSIDE, REPLACING THE GREEN LINE D BRANCH
BLUE LINE		BUILD SPUR DIRECT TO AIRPORT
BLUE LINE		BUILD A SPUR TO WINTHROP
BLUE LINE	X	EXTEND TO SALEM
BLUE LINE	X	EXTENSION FROM BOWDOIN TO WEST MEDFORD VIA LECHMERE AND SOMERVILLE
ORANGE LINE	X	EXTENSION FROM OAK GROVE TO READING/ROUTE 128
ORANGE LINE	X	EXTENSION FROM FOREST HILLS TO WEST ROXBURY/NEEDHAM
ORANGE LINE		EXTEND TO I-95 AT BOTH ENDS
ORANGE LINE		EXTEND TO SAUGUS
ORANGE LINE		BUILD SPUR TO CHELSEA AND EVERETT
ORANGE LINE		BUILD A SPUR TO CHELSEA
ORANGE LINE	X	CONSTRUCT ASSEMBLY SQUARE STATION
RED LINE		EXTENSION BEYOND ASHMONT TO MATTAPAN IN PLACE OF PRESENT STREETCAR SERVICE
RED LINE		NORTHWEST EXTENSION: ALEWIFE--ARLINGTON HEIGHTS–LEXINGTON
RED LINE		RED LINE LOOP TO SERVE SOUTH BOSTON WATERFRONT
RED LINE	X	EXTENSION ALONG ROUTE 3
RED LINE	X	EXTEND FROM ALEWIFE TO ROUTE 128 VIA ROUTE 2
RED LINE		NEW VARIATION FROM CENTRAL SQ. CAMBRIDGE TO JFK/UMASS VIA MASS. AVE.
RED LINE		EXTEND FROM BRAINTREE TO RANDOLPH
RED LINE	X	REPLACE LIGHT RAIL SERVICE WITH BUSWAY ON MATTAPAN HIGH SPEED LINE
RED LINE	X	EXTEND TO WEYMOUTH VIA PLYMOUTH/KINGSTON LINE RIGHT-OF-WAY
GREEN LINE		REOPEN ARBORWAY–HEATH ST. SEGMENT
GREEN LINE		GREEN LINE TO BRIGHTON (WATERTOWN LINE)
GREEN LINE		BROOKLINE VILLAGE CONNECTOR (D LINE–E LINE)
GREEN LINE	X	GREEN LINE TO NEEDHAM (BRANCH FROM RIVERSIDE LINE AFTER NEWTON HIGHLANDS)
GREEN LINE	X	URBAN RING: CONSTRUCT A TRANSIT SYSTEM FOLLOWING A CIRCULAR ROUTE AROUND THE INNER CORE
GREEN LINE		EXTEND RIVERSIDE LINE TO WELLESLEY

SERVICE	SCREENED BY PMT	PROJECT
GREEN LINE		CONNECT RIVERSIDE GREEN LINE STATION TO FRAMINGHAM/WORCESTER COMMUTER RAIL
GREEN LINE		EXTEND GREEN LINE FROM LECHMERE TO HARVARD SQ. VIA UNION SQ. SOMERVILLE
GREEN LINE		EXTEND GREEN LINE FROM LECHMERE TO SAUGUS
GREEN LINE		CONVERT SILVER LINE BETWEEN WORLD TRADE CENTER AND SOUTH STATION TO LIGHT RAIL AND CONNECT TO GREEN LINE AT BOYLSTON
GREEN LINE		BUILD A NEW BRANCH FROM NORTH STATION TO BOYLSTON VIA THE WATERFRONT AND SOUTH STATION
GREEN LINE	X	EXTEND THE PROPOSED MEDFORD HILLSIDE EXTENSION FROM MEDFORD HILLSIDE TO DAVIS SQ. TO CONNECT WITH RED LINE
GREEN LINE		EXTENSION FROM LECHMERE TO WEST MEDFORD VIA SOMERVILLE
SILVER LINE	X	BUILD SOUTH STATION–BOYLSTON SECTION OF SILVER LINE
SILVER LINE	X	CONNECT WASHINGTON ST. SILVER LINE TO BOYLSTON–WORLD TRADE CENTER SILVER LINE AT BOYLSTON ST.
SILVER LINE		NEW CONNECTIONS TO LOGAN AIRPORT TERMINALS: PROVIDE NEW TRANSIT CONNECTIONS TO LOGAN AIRPORT
SILVER LINE	X	CONVERT WASHINGTON ST. SILVER LINE TO TRACKLESS TROLLEY OR LIGHT RAIL AND EXTEND TO MATTAPAN VIA GROVE HALL
SILVER LINE		BUILD NEW TRACKLESS TROLLEY TUNNEL UNDER STUART ST. CONVERT E LINE TO TRACKLESS TROLLEY AND CONNECT TO SILVER LINE TUNNEL VIA THIS NEW TUNNEL.
SILVER LINE		OPERATE BRANCH FROM FOREST HILLS TO DUDLEY VIA WASHINGTON ST.
COMMUTER RAIL		EXPAND REVERSE-COMMUTE OPTIONS
COMMUTER RAIL		BUILD NEW PARKING FACILITY AT INTERCHANGE OF ROUTE 2 AND I-495
COMMUTER RAIL	X	FAIRMOUNT LINE IMPROVEMENTS/INDIGO LINE
COMMUTER RAIL	X	EXTEND PROVIDENCE LINE TO T. F. GREEN AIRPORT (RI)
COMMUTER RAIL	X	RECONSTRUCT RIGHTS-OF-WAY AND EXTEND SERVICE FROM STOUGHTON TO NEW BEDFORD AND FALL RIVER VIA TAUNTON
COMMUTER RAIL	X	RECONSTRUCT TRACKS AND EXTEND SERVICE FROM NEEDHAM JUNCTION TO MILLIS
COMMUTER RAIL	X	EXTEND SERVICE FROM LOWELL TO NASHUA WITH STOP AT NORTH CHELMSFORD
COMMUTER RAIL	X	EXTEND SERVICE FROM MIDDLEBOROUGH TO WAREHAM
COMMUTER RAIL	X	EXTEND SERVICE FROM MIDDLEBOROUGH TO BUZZARDS BAY OR HYANNIS
COMMUTER RAIL	X	EXTEND SERVICE FROM FITCHBURG TO GARDNER
COMMUTER RAIL	X	EXTEND SERVICE FROM FORGE PARK TO MILFORD
COMMUTER RAIL	X	EXTEND SERVICE FROM SALEM TO PEABODY
COMMUTER RAIL		INSTITUTE A NEW LINE FROM WORCESTER TO PROVIDENCE

SERVICE	SCREENED BY PMT	PROJECT
COMMUTER RAIL		INSTITUTE A NEW LINE FROM WORCESTER TO HAVERHILL
COMMUTER RAIL		BUILD CENTRAL MASS. (WALTHAM TO BERLIN VIA WESTON, WAYLAND, SUDBURY, AND HUDSON) COMMUTER RAIL OR BUSWAY
COMMUTER RAIL	X	BUILD ALEWIFE COMMUTER RAIL STATION
COMMUTER RAIL	X	BUILD ALLSTON/BRIGHTON COMMUTER RAIL STATION
COMMUTER RAIL	X	BUILD COMMUTER RAIL STATION AT RIVERSIDE AND INTERMODAL TRANSFER FACILITY BETWEEN COMMUTER RAIL AND GREEN LINE
COMMUTER RAIL	X	BUILD REGIONAL COMMUTER RAIL STATION ON I-495 IN METROWEST AREA
COMMUTER RAIL	X	BUILD REGIONAL COMMUTER RAIL STATION ON I-495 IN LITTLETON AREA
COMMUTER RAIL		PURCHASE HYBRID BUS-TRAIN VEHICLES THAT WOULD HAVE BOTH STEEL AND RUBBER WHEELS TO OPERATE ON FRAMINGHAM-WORCESTER LINE
COMMUTER RAIL	X	MAKE IMPROVEMENTS TO THE FOXBOROUGH COMMUTER RAIL STATION TO ACCOMMODATE REGULAR COMMUTING TRIPS, AND OPEN STADIUM PARKING FACILITIES TO PARK-AND-RIDE CUSTOMERS
COMMUTER RAIL		CONNECT THE FAIRMOUNT LINE TO THE RED LINE AT MATTAPAN
COMMUTER RAIL	X	NORTH-SOUTH RAIL LINK: CONSTRUCT A COMMUTER RAIL TUNNEL CONNECTING THE NORTH SIDE AND SOUTH SIDE NETWORKS WITH STOPS AT NORTH STATION, SOUTH STATION, AND POSSIBLY AN INTERMEDIATE LOCATION
COMMUTER RAIL	X	BUILD A RAIL LINE FROM FRAMINGHAM TO LEOMINSTER VIA NORTHBOROUGH AND SOUTHBOROUGH
COMMUTER RAIL		OPERATE SERVICE FROM WORCESTER TO NORTH STATION VIA CAMBRIDGE OVER THE GRAND JUNCTION LINE, WITH STOPS AT BU, MIT, AND EAST CAMBRIDGE
COMMUTER RAIL		COMMUTER RAIL "INNER RING": MELROSE TO WINCHESTER
COMMUTER RAIL		EXTEND NEWBURYPORT TRAINS TO KITTERY, MAINE
COMMUTER RAIL	X	EXTEND COMMUTER RAIL FROM HAVERHILL TO PLAISTOW, NH
COMMUTER RAIL		COMMUTER RAIL FROM FRAMINGHAM TO SUDBURY CENTER
COMMUTER RAIL		EXTEND COMMUTER RAIL FROM WORCESTER TO SPRINGFIELD
COMMUTER RAIL		RESTORE SAUGUS BRANCH FROM MALDEN TO LYNN VIA SAUGUS
COMMUTER RAIL		OPERATE SERVICE FROM BOSTON TO ROUTE 1 IN PEABODY (BRANCH OFF OF HAVERHILL LINE AT WAKEFIELD)
COMMUTER RAIL	X	OPERATE TO DANVERS (BRANCH FROM SALEM)
COMMUTER RAIL	X	ADD SOUTH SALEM STOP
COMMUTER RAIL	X	ADD A NEW STATION AT MILLBURY ON FRAMINGHAM/WORCESTER LINE
COMMUTER RAIL		ADD A STATION AT ROUTE 128 ON THE NEEDHAM LINE
COMMUTER RAIL		ON THE WORCESTER COMMUTER RAIL LINE OPERATE RAPID-TRANSIT-STYLE SERVICE WITH DIESEL MULTIPLE UNIT CARS (DMUS) FROM ROUTE 128 TO SOUTH STATION WITH NEW STOPS AT NEWTON CORNER, FANEUIL, BRIGHTON CENTER, ALLSTON, BU CENTRAL, AND KENMORE
COMMUTER RAIL		BUILD NEW SPUR FROM SOUTH WEYMOUTH STATION INTO OLD AIR BASE
COMMUTER RAIL		RESTORE RANDOLPH BRANCH

SERVICE	SCREENED BY PMT	PROJECT
COMMUTER RAIL		BUILD A STATION IN WEST ACTON ON FITCHBURG LINE
COMMUTER RAIL		EXTEND PROPOSED GREENBUSH LINE FROM SCITUATE TO MARSHFIELD
COMMUTER RAIL	X	ADD A STATION ON FITCHBURG LINE AT UNION SQ. SOMERVILLE
COMMUTER RAIL	X	BUILD GREENBUSH BRANCH OF OLD COLONY RAIL SERVICE
COMMUTER RAIL		NEW STATION ON FITCHBURG LINE NEAR TWIN CITY PLAZA ON CAMBRIDGE/SOMERVILLE LINE
COMMUTER RAIL		ADD A STATION AT ROUTE 128/MASS. PIKE ON THE FRAMINGHAM/WORCESTER LINE
COMMUTER RAIL		BUILD A NEW COMMUTER RAIL STATION ON THE HAVERHILL/READING LINE THAT WOULD SERVE BOTH SULLIVAN STATION AND THE POTENTIAL NEW ASSEMBLY SQUARE STATION
COMMUTER RAIL		BUILD A COMMUTER RAIL BRANCH TO LOGAN AIRPORT
COMMUTER RAIL		EXTEND COMMUTER RAIL SERVICE FROM CORDAGE PARK TO PLYMOUTH CENTER
COMMUTER RAIL		EXTEND PROPOSED MILLIS LINE TO MEDWAY
COMMUTER RAIL		INSTITUTE A NEW COMMUTER RAIL LINE FROM LOWELL TO NEW BEDFORD
COMMUTER RAIL		INSTITUTE A NEW COMMUTER RAIL LINE FROM SOUTH ACTON TO MARLBOROUGH
COMMUTER RAIL		OPERATE EMU COMMUTER RAIL TRAINS FROM HYNES CONVENTION CENTER TO NEW CONVENTION CENTER
BUS		BETTER DOWNTOWN BUS DISTRIBUTION: EXPAND THE COVERAGE OF DOWNTOWN STOPS FOR BUS ROUTES SERVING DOWNTOWN
BUS		BUILD CENTRAL MASS. (WALTHAM TO BERLIN VIA WESTON, WAYLAND, SUDBURY, AND HUDSON) COMMUTER RAIL OR BUSWAY
BUS	X	IMPLEMENT A NETWORK OF LOCAL FEEDER BUS SERVICES TO METROWEST COMMUTER RAIL STATIONS
BUS	X	IMPLEMENT A NETWORK OF LOCAL FEEDER BUS SERVICES FROM SOUTH SHORE COMMUNITIES TO OLD COLONY COMMUTER RAIL STATIONS
BUS	X	IMPROVE FEEDER BUS SERVICE TO FITCHBURG COMMUTER RAIL STATION
BUS	X	URBAN RING: CONSTRUCT A TRANSIT SYSTEM FOLLOWING A CIRCULAR ROUTE AROUND THE INNER CORE. PHASE I INCLUDES NEW CONVENTIONAL BUS ROUTES, AND PHASE II INCLUDES NEW BUS RAPID TRANSIT SEGMENTS.
BUS	X	OPERATE CIRCUMFERENTIAL ROUTE 128 BUS SERVICE
BUS		RUN FEEDER BUS TO SOUTHBOROUGH COMMUTER RAIL STATION
BUS		RUN FEEDER BUS TO SOUTH ACTON COMMUTER RAIL STATION
BUS		NEW BUS SERVICE FROM FRAMINGHAM EXIT 12 PARK-AND-RIDE LOT TO T. F. GREEN AIRPORT AND MANCHESTER AIRPORT
BUS		OPERATE FEEDER BUSES TO MANSFIELD COMMUTER RAIL STATION
BUS		BUILD BUSWAY FROM RUGGLES TO DUDLEY
BUS		RUN FROM RHODE ISLAND TO FALL RIVER TO CONNECT WITH THE PROPOSED COMMUTER RAIL LINE

SERVICE	SCREENED BY PMT	PROJECT
BUS		RUN A JITNEY VAN LOOP FROM FOREST HILLS TO LONGWOOD MEDICAL AREA TO COOLIDGE CORNER
BUS	X	EXTEND TRACKLESS TROLLEY #71 FROM WATERTOWN TO NEWTON CORNER
BUS		BUILD A BUS RAPID TRANSIT LINE ALONG THE SAUGUS BRANCH
BUS		RUN MORE EXPRESS BUSES TO BOSTON FROM SCITUATE, COHASSETT, NORWELL, MARSHFIELD, AND HINGHAM
BUS	X	ADD 100 ADDITIONAL BUSES REGIONWIDE
BUS		CREATE HOV LANES ON ROUTE 128 FOR CIRCUMFERENTIAL BUS SERVICE
BUS	X	NEW BUSWAYS TO ALEWIFE STATION ALONG HEAVILY CONGESTED PORTIONS OF ALEWIFE BROOK PARKWAY AND ROUTE 2
BUS		BUILD A SURFACE BUSWAY ALONG THE CENTRAL ARTERY RIGHT OF WAY
BUS		INTERSUBURBAN BUS SERVICE
BOAT	X	BUILD A FERRY WHARF AT RUSSIA WHARF (NEAR SOUTH STATION)
BOAT		ADDITIONAL COMMUTER BOATS THROUGH CAPE COD CANAL
BOAT	X	HIGH-SPEED FERRY SERVICE FROM NORTH SHORE (LYNN/SALEM) TO BOSTON AND THE AIRPORT
BOAT	X	RESTORE EAST BOSTON FERRY
BOAT	X	IMPROVE FERRY SERVICE FROM SOUTH SHORE COMMUNITIES (QUINCY, HINGHAM, HULL, COHASSET, AND SCITUATE) TO BOSTON. IMPROVE FERRY INFRASTRUCTURE AS PART OF EXPANSION.
BOAT		NEW FERRY SERVICE, ASSEMBLY SQ. MALL–WORLD TRADE CENTER
SYSTEMWIDE AND MISCELLANEOUS		NEW "INTERCEPT STATIONS" ALONG HIGHWAYS: BUILD NEW STATIONS WITH PARKING AT LOCATIONS WHERE TRANSIT LINES CROSS MAJOR HIGHWAYS
SYSTEMWIDE AND MISCELLANEOUS		BUILD REGIONAL INTERMODAL TRANSPORTATION CENTERS
SYSTEMWIDE AND MISCELLANEOUS		LIGHT RAIL FROM ROUTE 495 TO BURLINGTON
SYSTEMWIDE AND MISCELLANEOUS		RAPID TRANSIT TO CHELSEA (NO LINE SPECIFIED)
SYSTEMWIDE AND MISCELLANEOUS		CONNECT TELECOM CITY TO URBAN RING
SYSTEMWIDE AND MISCELLANEOUS		BUILD LIGHT RAIL FEEDER LINES TO FRAMINGHAM FROM WALPOLE, MILFORD, AND MARLBOROUGH
SYSTEMWIDE AND MISCELLANEOUS		ADD AN OUTER URBAN RING FROM HARVARD SQ. TO DUDLEY VIA ALLSTON AND BROOKLINE (ROUTE 66 ROUTING)
SYSTEMWIDE AND MISCELLANEOUS		ADD AN OUTER URBAN RING ALONG ROUTE 128
SYSTEMWIDE AND MISCELLANEOUS		BUILD LIGHT RAIL LINE FROM SOUTH ACTON STATION TO MAYNARD CENTER
SYSTEMWIDE AND MISCELLANEOUS		BUILD LIGHT RAIL LINE IN SOUTH BOSTON TO REPLACE #9 BUS

SERVICE	SCREENED BY PMT	PROJECT
SYSTEMWIDE AND MISCELLANEOUS	X	EXTEND SILVER LINE FROM DUDLEY STATION TO MATTAPAN AND ASHMONT STATIONS
SYSTEMWIDE AND MISCELLANEOUS	X	EXTEND SILVER LINE FROM BOYLSTON STATION TO KENMORE STATION VIA NEW SUBWAY UNDER STUART STREET AND OPERATE TWO WESTERN BRANCHES: ONE TO THE LONGWOOD MEDICAL AREA AND ONE TO OAK SQUARE, BRIGHTON, VIA ALLSTON LANDING
SYSTEMWIDE AND MISCELLANEOUS	X	EXTEND SILVER LINE FROM CONVENTION CENTER TO CITY POINT VIA SUMMER STREET AND EAST BROADWAY
SYSTEMWIDE AND MISCELLANEOUS	X	RAPID TRANSIT TO CHELSEA (NO LINE SPECIFIED)
SYSTEMWIDE AND MISCELLANEOUS	X	NEED FOR MORE RIDESHARE AND PARK-AND-RIDE FACILITIES
MONORAILS AND BULLET TRAINS		NORTH STATION–SOUTH STATION MONORAIL
MONORAILS AND BULLET TRAINS		BUILD A MONORAIL SYSTEM ON A CIRCUMFERENTIAL ROUTE ALONG THE I-495 RIGHT-OF-WAY
MONORAILS AND BULLET TRAINS		BUILD MONORAIL ALONG SAUGUS BRANCH RAILROAD
MONORAILS AND BULLET TRAINS		BUILD MONORAIL IN NEEDHAM PARALLEL TO ROUTE 128 ALONG WITH MBTA PARKING GARAGE
NONMOTORIZED MODES		BUILD BIKEWAYS NEXT TO COMMUTER RAIL LINES
NONMOTORIZED MODES		BUILD BIKEWAY FROM ALEWIFE TO WALTHAM CENTER
NONMOTORIZED MODES		EXTEND BIKEPATH FROM SOMERVILLE TO LECHMERE

APPENDIX C

PROJECT RATINGS

Highway Project Ratings

Each highway project included in the Universe of Projects with a defined description was rated for its impact consistency with six of the eight Boston Region MPO Regional Transportation Plan policies. Ratings were given a value from –3 to 3.

This evaluation of the projects is summarized on the following pages in five matrices, each addressing a category of highway project. In the matrices, the numbers in parentheses that follow most of the project names refer to notes on the projects; the notes follow each matrix. For type of project, MI is an acronym for Major Investment (over $25 million) and AQ stands for Regionally Significant for AQ Conformity.

Transit Project Ratings: See Page C-14

			MOBILITY													SAFETY & SECURITY					PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
			MMS DATA													MMS DATA																					
PAGE IN UNIVERSE OF PROJECTS AND PROGRAMS BINDER	COMMUNITY	PROJECT	AVERAGE MAJOR ROAD ADT	PEAK HOUR SPEED INDEX IN PEAK DIRECTION - RANGE	AVERAGE PEAK HOUR SPEED INDEX IN PEAK DIRECTION	AVERAGE AM/PM DELAY AT INTERSECTION (SECONDS OF DELAY)	VOLUME/PRACTICAL CAPACITY - AVERAGE	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILITIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	CRASHES PER YEAR	CRASHES/AVERAGE ANNUAL DAILY TRAFFIC (CRASHES PER MILLION VEHICLES)	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	CURRENT STATUS OF PROJECT	TYPE OF PROJECT
LIMITED ACCESS HIGHWAY PROJECTS – INTERCHANGES																																					
1-50	READING AND WO-BURN	I-93/I-95 INTER-CHANGE[1]	370,000	58–68%	63%	N/A	122%	2	0	3	0	0	0	2	3	187	1.38	3	3	3	0	0	0	0	0	0	0	0	0	0	1	2	1	1	1.25	$171,000,000	RTP	MI
1-14	CANTON	I-93/I-95 INTER-CHANGE[2]	233,000	64–72%	68%	N/A	95%	2	1	3	0	1	0	2	3	99	1.16	3	3	3	0	0	0	1	0	1	0	0	0	0	2	-1	-1	1	0.25	$120,000,000	RTP	MI/ AQ
5-10	BRAIN-TREE	I-93/ROUTE 3 INTER-CHANGE (BRAIN-TREE SPLIT)[3]	268,000	33–109%	71%	N/A	135%	2	1	3	0	0	0	2	3	105	1.07	2	3	3	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	-0.75	$500,000-$20,500,000 (Staff recommends $14,000,000)		AQ*
1-62	SOMER-VILLE	I-93/ MYSTIC AVENUE INTER-CHANGE[4]	216,900	93–105%	99%	N/A	109%	2	1	2	1	0	0	2	2	181	3.17	3	3	3	0	0	0	0	0	0	0	2	2	2	-1	1	2	1.00	$58,500,000	RTP	MI/ AQ
1-20	CON-CORD AND LINCOLN	ROUTE 2/ CROSBY'S CORNER GRADE SEPARA-TION5	59,000	53–87%	70%	27.8/ 34.7	146%	2	0	3	0	0	0	2	3	32	1.49	3	3	3	0	0	1	0	0	1	0	0	0	0	1	-1	-3	1	-0.50	$31,500,000	RTP/ TIP	MI/ AQ
1-56	REVERE	ROUTE 1A/ ROUTE 16 CONNEC-TION6	52,500	85–120%	103%	36.5/ 88.8	N/A	1	0	1	0	0	0	1	1	N/A	N/A	1	2	1	0	0	0	1	0	0	0	1	1	1	1	1	1	1	1.00	$46,300,000	RTP	MI
1-54	REVERE	ROUTE 1/ROUTE 16 INTER-CHANGE[7]	83,000	114–122%	118%	N/A	64%	2	0	3	0	0	0	2	3	56	1.85	2	2	2	0	0	0	0	0	0	0	1	1	1	-1	-1	1	0.00	$4,600,000	RTP	
1-52	REVERE	MAHONEY CIRCLE GRADE SEPARA-TION[8]	69,500	85–120%	103%	36.5/ 88.8	N/A	2	2	2	1	0	0	2	2	110	4.34	3	3	3	0	0	1	0	0	1	0	2	2	1	1	1	1	1	1.00	$30,000,000	RTP	MI/ AQ
1-40	MARL-BOR-OUGH AND HUDSON	I-495/I-290/ ROUTE 85 CONNEC-TOR INTER-CHANGE[9]	131,150	98–105%	102%	N/A	96%	2	0	2	0	0	0	2	2	82	1.75	3	3	3	0	0	0	0	0	0	0	0	0	0	2	1	1	1	1.25	$32,800,000	RTP	MI/ AQ
1-16	CANTON	I-95 NORTH-BOUND/ DEDHAM STREET RAMP AND BRIDGE[10]	104,000	58–102%	80%	N/A	97%	3	1	3	0	1	0	2	3	N/A	N/A	2	2	2	0	0	0	0	0	0	0	0	0	0	2	-1	1	1	0.75	$3,500,000	RTP	AQ
1-18	CON-CORD	CONCORD ROTARY/ ROUTE 2[11]	67,000	28–28%	28%	21.4/ 69.8	138%	3	0	2	0	0	0	2	3	67	2.74	3	3	3	0	0	0	0	0	0	0	0	0	0	-2	-1	-1	0	-1.00	$40,000,000	RTP	MI
5-2	ARLING-TON AND CAM-BRIDGE	ROUTE 2/ROUTE 16 INTER-CHANGE[12]	87,000	30–37%	33%	57.4/ 15.7	142%	2	2	1	0	0	0	1	2	38	1.20	2	2	2	0	0	0	0	0	0	0	0	0	0	2	-1	1	1	0.75	TBD		AQ

			MOBILITY														SAFETY & SECURITY					PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
			MMS DATA														MMS DATA																					
PAGE IN UNIVERSE OF PROJECTS AND PROGRAMS BINDER	COMMUNITY	PROJECT	AVERAGE MAJOR ROAD ADT	PEAK HOUR SPEED INDEX IN PEAK DIRECTION - RANGE	AVERAGE PEAK HOUR SPEED INDEX IN PEAK DIRECTION	AVERAGE AM/PM DELAY AT INTERSECTION (SECONDS OF DELAY)	VOLUME/PRACTICAL CAPACITY - AVERAGE	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILTIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	CRASHES PER YEAR	CRASHES/AVERAGE ANNUAL DAILY TRAFFIC (CRASHES PER MILLION VEHICLES)	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	CURRENT STATUS OF PROJECT	TYPE OF PROJECT
LIMITED ACCESS HIGHWAY PROJECTS – INTERCHANGES																																						
1-8	BOSTON	ROUTE 1A/BOARD-MAN STREET GRADE SEPARA-TION[13]	65,500	30–70%	50%	55.4/ 133.5	155%	1	1	2	0	0	0	2	2	19	0.79	1	2	1	0	0	1	0	0	1	0	0	0	1	-1	1	1	0.25	$10,000,000	RTP	
1-72	WILMING-TON AND READING	I-93/ROUTE 129 INTER-CHANGE IM-PROVEMENT PROJECT[14]	167,500	55–98%	77%	N/A	112%	1	0	2	0	0	0	2	2	43	0.70	2	2	2	0	0	0	0	0	0	0	0	0	0	0	-1	-1	1	-0.25	$17,500,000	RTP	AQ
1-70	WILMING-TON	I-93/BAL-LARDVALE STREET INTER-CHANGE[15]	153,000	52–102%	77%	N/A	116%	1	0	2	0	0	0	2	2	55	0.98	2	2	2	0	0	0	0	0	0	0	0	0	0	-3	-1	-2	1	-1.25	$20,000,000	RTP	AQ
5-18	GLOU-CESTER	GLOUCES-TER ROTARY[16]	46,000	N/A	N/A	N/A	53%	1	0	0	0	0	0	1	1	23	1.37	2	1	2	0	0	0	0	0	0	0	0	0	0	1	-1	-1	0	-0.25	TBD		
1-22	DANVERS AND PEA-BODY	ROUTE 1/ROUTE 114 CORRIDOR IMPROVE-MENTS[17]	163,570	N/A	N/A	N/A	N/A	1	0	2	0	0	0	1	1	84	1.41	2	2	2	0	0	0	0	0	0	0	0	0	0	2	-1	-1	1	0.25	$46,800,000	RTP	MI/ AQ
7-2	WESTON	ROUTE 30/ INTERSTATE 90 INTER-CHANGE IMPROVE-MENTS	96,500	44–51%	47%	N/A	109%	1	0	2	0	0	0	1	1	157	4.46	1	2	1	0	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	-0.75	TBD		AQ
5-20	HOPKIN-TON	I-495/SOUTH STREET NEW INTER-CHANGE[18]	25,000	N/A	N/A	N/A	N/A	0	0	0	0	0	0	0	0	35	3.84	2	1	2	0	0	0	0	0	0	0	0	0	0	-3	-1	-1	0	-1.25	TBD		
5-24	MEDFORD	ROUTE 16/I-93 CON-NECTION[19]	210,000	95–109%	102%	N/A	121%	3	0	2	0	0	0	2	2	100	1.30	0	0	0	0	0	0	0	0	0	0	0	0	0	-3	-1	-1	0	-1.25	TBD		AQ
5-8	BOSTON	BACK BAY MASSACHU-SETTS TURN-PIKE EXIT[20]	119,500	44–102%	83%	N/A	88%	3	0	2	0	0	0	1	2	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	3	-1	2	1	1.25	TBD		AQ
5-26	NEWTON	NEW RAMP FROM I-95/ ROUTE 128 TO RIVER-SIDE MBTA STATION[21]	182,500	N/A	N/A	N/A	N/A	3	2	2	0	0	0	0	2	13	0.20	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	-1	0	0.25	TBD		AQ
7-8	STOUGH-TON	ROUTE 24 INTER-CHANGE[22]	114,000	51–102%	87%	N/A	100%	2	0	2	0	0	0	2	2	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	1	-3	-1	1	-0.50	TBD		AQ
3-18	WILM-INGTON, TEWKS-BURY, AND ANDOVER	LOWELL JUNCTION[23]	149,500	52–102%	85%	N/A	129%	2	0	2	0	0	0	2	2	N/A	N/A	0	0	0	0	0	0	0	0	0	0	0	0	0	-2	-3	-1	1	-1.25	Depending on the alternative chosen: $5,400,000 to $10,700,000	MV RTP*	AQ

Notes: Limited-Access Highway Projects – Interchanges

1. A high crash location (#5). Used daily by the highest number of commuters.
2. A high crash location (#22). Chronic congestion AM and PM. LOS F. Route to Route128 commuter rail station and used by feeder shuttles to station. Implements previous MPO study; consistent with local growth planning study. Much abutting land protected (ACEC). MBTA station access. Economic development district.
3. A high crash location. Congestion in AM northbound (entering split) and PM southbound (both entering and leaving split). Implements results of previous MPO study. * AQ depending on alternative chosen.
4. A high crash location (#1). Design addresses safety on the arterial local road network. Some elements at LOS F in AM. At the intersection of 2 major regional roadways. Used by 3 MBTA bus routes accessing Orange Line rapid transit and commuter rail stations; will provide access to proposed Assembly Square station and major future development; rezoned to encourage high-density/mixed use development. Somerville is a state economic target area.
5. AM and PM LOS F (1995). High commuting use. Consistent with Concord long-range planning. High crash location.
6. A high usage corridor to Boston and Logan. Below 70% posted speed in AM and at LOS E/F in PM. Revere is a state economic target area. Route 1A/Route 16 would remove traffic now going through Mahoney Circle.
7. A high crash location (#65). Will improve mobility regional connections from Routes 1A, 107, and 1. Benefits EJ community. Linked to other improvements in the corridor. Revere is a state economic target area. Direct connection would relieve Mahoney Circle/Route 60 traffic delays.
8. Questionable community support. A high crash location (#14). LOS D in AM and LOS D and F in PM. The 18th most delayed intersection in the MPO region. Moves regional trips from local roads; benefits this EJ community. Revere is a state economic target area. Within 1/2 mile of MBTA Blue Line rapid transit station.
9. Existing safety problems. A high crash location (#42), including truck rollovers. Ramps at or near LOS F.
10. Benefit for local streets and access to major industrial/commercial area. Improves access to MBTA 128 commuter rail station. Implements previous MPO study; consistent with local growth planning study. In protected area (ACEC). Provides direct connection with Westwood business district and MBTA commuter station.
11. A high crash location (#99). One of 5 busiest radial routes to Boston; high commuting use.
12. A high crash location (#101). Bottleneck at interchange. Congestion in AM and PM peaks, all approaches. Access to Alewife Red Line rapid transit station; MBTA feeder bus service to station.
13. A high crash location (#428). LOS D in AM and F in PM. Ranked 1A's worst intersection. Air quality benefits.
14. Two high crash locations (#136 and #609). LOS D in PM at one ramp; LOS F in AM and E in PM at another (the 15th most delayed intersection in N. Suburban subregion in PM).
15. A high crash location (#92). LOS F in AM and PM.
16. A high crash location (#722). Important connector.

17. A high crash location (#229). Serious congestion in AM and PM. Corridors are in designated redevelopment districts.
18. A high crash location (#188). I-495 used by private commuter buses, Logan Express; major trucking route.
19. Route 16 is congested eastbound in AM and PM peaks. Located 1.5 miles from Orange Line and 2 miles from Red Line rapid transit stations.
20. Three high crash locations (#7 to #232). Congestion in AM and PM. Used by buses (private commuter, Logan Express, and MBTA express).
21. A high crash location (#874). Riverside Station Drive left turn are LOS F in AM and D in PM peaks. Important Green Line rapid transit and bus services (express to downtown, interstate, local).
22. A redevelopment area is adjacent.
23. LOS E and F at many locations in project area. Improves access to Lowell Junction industrial and office properties. Project to be funded through Merrimack Valley MPO but must also be listed in Boston Region MPO. *This project will be included and funded in Merrimack Valley MPO RTP.

		MOBILITY														SAFETY & SECURITY						PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
		MMS DATA														MMS DATA																						
COMMUNITY	PROJECT	AVERAGE MAJOR ROAD ADT	PEAK HOUR SPEED INDEX IN PEAK DIRECTION - RANGE	AVERAGE PEAK HOUR SPEED INDEX IN PEAK DIRECTION	VOLUME/PRACTICAL CAPACITY - RANGE	VOLUME/PRACTICAL CAPACITY - AVERAGE	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILTIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	CRASHES PER YEAR	CRASHES/MILE	CRASHES/AVERAGE ANNUAL DAILY TRAFFIC (CRASHES PER MILLION VEHICLES)	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	STATUS OF PROJECT AS OF 12/31/06	TYPE OF PROJECT
LIMITED ACCESS HIGHWAY PROJECTS - SEGMENTS																																						
BEVERLY TO PEA-BODY	ROUTE 128 CAPACITY IMPROVE-MENTS[1]	89,550	55–109%	89%	71–143%	110%	2	0	3	0	0	0	3	3	376	57	11.50	3	3	3	2	2	0	0	0	0	0	0	0	2	-3	-1	1	-0.25	$145,000,000	RTP	MI/ AQ
WEY-MOUTH TO DUX-BURY	ROUTE 3 SOUTH AD-DITIONAL LANES[2]	93,250	47–97%	83%	94–149%	123%	1	0	3	0	0	0	3	3	176	11	5.17	3	3	3	0	0	0	0	0	0	0	0	0	-3	-3	-1	1	-1.50	$210,600,000	RTP	MI/ AQ
MALDEN AND REVERE	ROUTE 1 IMPROVE-MENTS[3]	98,500	38–102%	75%	61–129%	95%	1	0	3	0	0	0	2	2	181	100	5.03	3	3	3	0	0	0	0	0	0	0	0	0	2	-1	1	1	0.75	$65,000,000	RTP	MI/ AQ
LYN-NFIELD TO READ-ING	ROUTE 128 CAPACITY IMPROVE-MENTS[4]	139,500	51–109%	92%	118–131%	125%	2	0	1	0	0	0	3	3	347	55	6.81	3	3	3	2	2	0	0	0	0	0	0	0	0	-3	-1	1	-0.75	$150,000,000	RTP	MI/ AQ
LYN-NFIELD, PEA-BODY, SAUGUS	ROUTE 1 CAPACITY IMPROVE-MENTS[5]	131,250	50–82%	69%	104%	104%	1	0	3	0	0	0	2	3	78	59	1.63	2	3	2	0	0	0	0	0	0	0	0	0	-1	-3	-1	0	-1.25	TBD		AQ
BOSTON TO REVERE	ROUTE 1A CAPACITY IMPROVE-MENTS[6]	61,167	30–125%	78%	61–155%	108%	1	1	3	0	0	0	2	3	143	64	6.41	2	3	3	0	0	0	0	0	0	0	0	0	1	-1	-1	0	-0.25	TBD		AQ
BOSTON TO BRAIN-TREE	INTER-STATE 93 (SE EX-PRESSWAY) CAPACITY IMPROVE-MENTS (HOV)[7]	180,250	25–62%	39%	134–144%	139%	0	1	1	0	0	0	0	1	126	72	1.92	0	0	0	0	0	1	0	0	1	0	0	0	1	2	1	-1	0.75	TBD		AQ
SOMER-VILLE AND DOR-CHESTER	EXTEND THE INTER-STATE 93 HOV LANE INTO THE CITY[8]	204,070	25–62%	39%	84–144%	106%	2	1	1	0	0	0	0	1	689	141	9.25	0	0	0	0	0	1	0	0	1	0	0	0	2	2	3	-1	1.50	TBD		AQ

		MOBILITY													SAFETY & SECURITY						PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
		MMS DATA													MMS DATA																							
COMMUNITY	PROJECT	AVERAGE MAJOR ROAD ADT	PEAK HOUR SPEED INDEX IN PEAK DIRECTION - RANGE	AVERAGE PEAK HOUR SPEED INDEX IN PEAK DIRECTION	VOLUME/PRACTICAL CAPACITY - RANGE	VOLUME/PRACTICAL CAPACITY - AVERAGE	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILITIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	CRASHES PER YEAR	CRASHES/MILE	CRASHES/AVERAGE ANNUAL DAILY TRAFFIC (CRASHES PER MILLION VEHICLES)	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	STATUS OF PROJECT AS OF 12/31/06	TYPE OF PROJECT
LIMITED ACCESS HIGHWAY PROJECTS - SEGMENTS																																						
REGION-WIDE	HOV LANES ON I-495, I-95, AND ROUTE 128	N/A	N/A	N/A	N/A	N/A	0	1	1	0	0	0	0	1	N/A	N/A	N/A	0	0	0	0	0	1	0	0	1	0	0	0	-1	2	-1	-1	-0.25	TBD		AQ
SOMER-VILLE TO WOBURN	INTER-STATE 93 CAPACITY IMPROVE-MENTS (HOV)[9]	185,813	58–95%	87%	97–132%	120%	0	1	1	0	0	0	0	1	687	92	10.13	0	0	0	0	0	1	0	0	1	0	0	0	1	2	1	-1	0.75	TBD		AQ
RAYN-HAM TO RAN-DOLPH	ROUTE 24 CAPACITY IMPROVE-MENTS (HOV)[10]	115,500	43–112%	82%	100–114%	106%	0	1	1	0	0	0	0	1	188	25	4.46	0	0	0	0	0	1	0	0	1	0	0	0	-1	-2	-1	-1	-0.25	TBD		AQ
ACTON TO LEX-INGTON	ROUTE 2 CAPACITY IMPROVE-MENTS[11]	53,333	28–115%	68%	55–153%	115%	0	0	1	0	0	0	0	1	242	23	12.43	2	3	2	0	0	0	0	0	0	0	0	0	-2	-3	-1	0	-1.50	TBD		
WELLES-LEY TO WOBURN - HOV	I-95/ROUTE 128 CAPACITY IMPROVE-MENTS[12]	197,219	47–109%	81%	101–129%	123%	0	1	1	0	0	0	0	0	1304	69	18.11	0	0	0	0	0	1	0	0	1	0	0	0	1	2	-1	1	0.75	TBD		AQ
CANTON TO FOXBOR-OUGH	I-95 CAPACITY IMPROVE-MENTS (HOV)[13]	116,000	36–103%	85%	80–110%	94%	0	1	1	0	0	0	0	1	239	16	5.64	0	0	0	0	0	1	0	0	1	0	0	0	-1	2	-1	-1	-0.25	TBD		AQ
LITTLE-TON TO WREN-THAM	I-495 CAPACITY IMPROVE-MENTS14	86,353	86–105%	98%	75–98%	84%	0	0	3	0	0	0	3	1	500	12	15.86	2	3	2	0	0	0	0	0	0	0	0	0	-2	-3	-1	1	-1.25	TBD		AQ
SOMER-VILLE	DEPRESS INTER-STATE 9315	153,250	73–105%	88%	97–100%	99%	0	0	0	0	0	0	0	0	237	171	4.24	0	0	0	0	0	0	0	0	0	0	2	2	2	2	1	0	1.25	TBD		

Notes: Limited-Access Highway Projects – Segments

1. Eight high crash locations (#52 to #747). Oldest remaining section of 128; poor design standards and high volumes.
2. Four high crash locations (#45 to #175). LOS E and F AM and PM peaks; breakdown lane used in peaks.
3. A high crash location (#3). Congestion southbound AM and northbound PM peaks. Two redevelopment areas in project area; state economic target area. High crash location and substandard horizontal curve design.
4. Three high crash locations (#110 to # 655). Very congested. AM southbound queues at peak.
5. Six high crash locations (#11 to # 547). Bottleneck at Lynnfield Tunnel where roadway is at or near capacity in PM peak.
6. Six high crash locations (#55 to #671). Used by MBTA buses, private commuter buses, and Logan Express buses; provides access to 3 Blue Line rapid transit stations.
7. Nine high crash locations (#17 to #922). Congestion in AM and PM peaks. HOV connection to Central Artery would reduce congestion. Used by private commuter buses.
8. Eight high crash locations (#7 to #240).
9. Five high crash locations (#20 to #432). Reversible HOV a benefit; connections to intersecting highways a problem.
10. Nine high crash locations (#48 to #166). Congestion and volumes at or near capacity in 2 sections in MPO region, AM and PM peaks. Bottleneck at I-93/24 northbound. Reversible HOV would reduce travel times; connections with intersecting highways a problem.
11. Nine high crash locations (ranging from #99 to #523). Congestion in AM and PM peaks. Located within 1/2 mile of 2 commuter rail stations.
12. Fifteen high crash locations (#9 to 376). Reversible HOV a benefit, connections to intersecting highways a problem.
13. Five high crash locations (#22 to #515). AM peak congestion; at or near capacity northbound AM and southbound PM. Bottleneck at I-93/I-95. HOV would be benefit; connections to intermediate intersections a problem.
14. Thirteen high crash locations (#27 to #452). Traffic volumes near or at capacity in several limited locations in AM and PM.
15. Congestion in AM southbound and PM northbound peaks.

		MOBILITY											SAFETY & SECURITY						PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
		MMS DATA											MMS DATA																						
COMMUNITY	PROJECT	AVERAGE MAJOR ROAD ADT	AVERAGE DELAY PER MILE - AM/PM (SECONDS OF DELAY PER MILE)	AVERAGE AM/PM DELAY AT INTERSECTION (SECONDS OF DELAY)	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILITIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	CRASHES PER YEAR	CRASHES/MILE	CRASHES/AVERAGE ANNUAL DAILY TRAFFIC (CRASHES PER MILLION VEHICLES)	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY / SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	STATUS OF PROJECT AS OF 12/31/06	TYPE OF PROJECT
ARTERIAL ROADWAY PROJECTS - INTERSECTIONS																																			
FRAMINGHAM	ROUTE 126/ROUTE 135 GRADE SEPARA-TION[1]	36,800		218/220	2	0	0	1	0	0	2	2	134		9.98	2	2	2	0	0	1	0	0	1	0	1	1	2	2	2	2	2.00	$50,000,000	RTP	MI
FRAMINGHAM	ROUTE 9/ROUTE 126 INTER-CHANGE[2]	88,000		N/A	1	0	0	0	0	0	1	1	111		3.46	2	2	2	1	1	0	0	0	0	0	0	0	1	-1	-1	1	0.00	$17,500,000	RTP	
ARTERIAL ROADWAY PROJECTS - SEGMENTS																																			
WEYMOUTH	ROUTE 18 CA-PACITY IMPROVE-MENTS[3]	26,000	51/55		2	0	3	1	0	0	2	3		373		3	2	3	0	0	0	0	0	0	0	0	0	3	1	1	2	1.75	$14,000,000	RTP/ TIP	AQ
BEDFORD, BUR-LINGTON AND BILLERICA	MIDDLESEX TURNPIKE IM-PROVEMENTS[4]	15,000	25/28		1	0	3	1	0	0	2	2		150		1	2	1	0	0	0	0	0	0	0	0	0	2	-1	-1	1	0.25	$14,400,000	RTP/ TIP	AQ
EVERETT, MED-FORD, REVERE	ROUTE 16 (REVERE BEACH PARKWAY)[5]	50,000	102/102		2	0	3	0	0	0	2	3		317		3	2	3	0	0	0	0	0	0	0	1	1	1	1	-1	1	0.50	$93,600,000	RTP	MI/ AQ
SOMERVILLE	ROUTE 28 IM-PROVEMENTS[6]	55,000	57/70		3	1	0	3	0	0	1	3		258		2	2	2	0	0	0	0	0	0	1	2	2	2	2	2	1	1.75	TBD		
BOSTON	RUTHERFORD AVENUE[7]	29,000	N/A		1	1	-1	0	0	0	0	0		N/A		1	2	1	0	0	0	0	2	2	0	0	0	2	2	2	3	2.25	$79,300,000	RTP	MI
NEWTON AND NEEDHAM	NEEDHAM STREET/HIGH-LAND AVENUE[8]	24,000	N/A		1	0	3	0	0	0	1	2		N/A		2	2	2	0	0	0	0	0	0	0	0	0	2	-1	-1	1	0.25	$7,700,000	RTP	AQ
MILFORD	ROUTE 16 BY-PASS ROAD[9]	24,000	56/68		2	0	3	0	0	0	1	2		126		0	0	0	0	0	0	0	0	0	0	0	0	2	-1	-2	0	-0.25	$5,000,000		AQ
ASHLAND	ROUTE 135 GRADE SEPARA-TIONS[10]	20,000	33/34		1	0	0	0	0	0	1	1		104		0	1	0	0	0	0	0	0	0	0	0	0	1	1	-1	0	0.25	TBD		AQ
HANOVER	ROUTE 53 WIDENING[11]	29,000	23/25		1	0	2	0	0	0	1	1		118		1	1	1	0	0	0	0	0	0	0	0	0	-1	-1	-1	0	-0.75	TBD		AQ
HUDSON	WASHINGTON STREET (ROUTE 85) WIDENING[12]	26,000	17/19		1	0	2	2	0	0	1	2		73		1	1	1	0	0	0	0	0	0	0	0	0	2	1	1	1	1.25	TBD		AQ
MARSHFIELD	ROUTE 139 IMPROVEMENTS[13]	30,000	10 14		1	0	2	0	0	0	1	1		89		1	1	1	0	0	0	0	0	0	0	0	0	1	-1	-1	1	0.00	$7,000,000		AQ
SOMERVILLE	MCGRATH HIGHWAY GRADE CHANGE[14]	55,000	57/70		1	0	0	0	0	1	0	0		258		0	0	0	0	0	0	0	1	1	1	2	2						TBD		AQ
BURLINGTON	ROUTE 3A[15]	25,000	47/64		0	0	2	0	0	0	1	2		184		1	1	1	0	0	0	0	0	0	0	0	0	1	-1	-1	0	-0.25	$3,500,000		AQ

Notes: Arterial Roadway Projects – Intersections

1. A high crash location (#215). Intersection at LOS F in AM and PM. Second worst in MetroWest subregion and 8th worst in MPO region. MBTA commuter rail station in the vicinity and LIFT buses operate in area. Is an identified EJ community. Linked to downtown redevelopment.
2. Includes reconstruction of structurally deficient bridge. In the Golden Triangle business area.

Notes: Arterial Roadway Projects – Segment

3. Three high crash locations (#445 to #273). Six intersections in the top 25 most delayed in South Shore Coalition subregion. Provides access to South Weymouth commuter rail station on Plymouth Line. Part of development plan for S. Weymouth Naval Air Station, site designated for redevelopment. Weymouth is a state economic target area.
4. LOS E in AM and PM along Turnpike. LOS F at 6 of 7 intersections. Adding sidewalks. Improvements in a multi-community Economic Opportunity Area.
5. Four high crash locations (#10 to #942). LOS E/F in AM and PM. Would improve access to MBTA Wellington Orange Line station. Important access to Telecom City site. Everett is a state economic target area.
6. Five high crash locations (#4 to #212). Part of Route 28 Corridor Transportation Management Plan.
7. Two Orange Line rapid transit stations adjacent to project. An Urban Ring Phase 2 route. Would improve access to historic resources and park; improve pedestrian facilities; add open space. Boston is a state economic target area.
8. One high crash location (#106). LOS E/F in AM and PM. MBTA bus route uses Needham St. in Newton. Needham section in a redevelopment district; project would facilitate.
9. Improvements in traffic flow and a bike trail extension.
10. Route for LIFT 5 bus. Only state route in Ashland; connections to I-495.
11. LOS E in AM and LOS E or F PM and Saturday midday.
12. Hudson has private bus service.
13. Two high crash location (#850 and #885). Sidewalks and shared bicycle lane (shoulder) included. Development consistent with local master plan.
14. A high crash location (#30). Part of Route 28 Corridor Transportation Management Plan.
15. A high crash location (#834)

		MOBILITY								SAFETY & SECURITY			PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
COMMUNITY	PROJECT	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILITIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INITIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	STATUS OF PROJECT AS OF 12/31/06	TYPE OF PROJECT
COLLECTOR/LOCAL ROADWAY PROJECTS																													
BOSTON	FENWAY AREA IMPROVEMENTS[1]	2	2	0	0	0	1	2	2	1	1	1	1	1	0	0	0	0	0	0	0	2	2	1	1	1.50	$30,400,000		MI
WEYMOUTH, HINGHAM, AND ROCKLAND	S. WEYMOUTH NAVAL AIR STA-TION ACCESS IMPROVEMENTS[2]	2	1	3	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	1	1	2	1.75	$45,000,000	RTP	MI/ AQ
QUINCY	QUINCY CENTER CONCOURSE, PHASE 2[3]	2	0	3	1	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	2	3	2	1	2.00	$7,000,000	RTP	AQ
WOBURN	NEW BOSTON STREET BRIDGE[4]	2	1	2	0	0	0	2	2	0	1	0	0	0	0	0	0	0	0	0	0	2	-1	-1	1	0.25	$2,400,000	RTP	AQ
SALEM	BRIDGE STREET[5]	1	2	3	1	0	0	1	2	2	2	2	0	0	0	0	0	0	0	0	0	2	1	-2	1	0.50	$3,500,000	RTP	AQ
EVERETT, MAL-DEN, MEDFORD	TELECOM CITY BOULEVARD[6]	2	0	2	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	2	1	1	1.75	$15,200,000	RTP	AQ
BOSTON	T UNDER D[7]	1	2	0	0	1	0	0	1	1	1	1	0	0	1	0	0	1	0	0	0	2	2	1	1	1.50	$65,000,000 to $74,000,000	RTP	MI
SALEM	BOSTON STREET[8]	1	1	3	0	0	0	1	2	1	1	1	0	0	0	0	0	0	0	0	0	1	-1	-1	1	0.00	$2,300,000		AQ
MARLBOROUGH AND NORTHBOR-OUGH	BOUNDARY STREET/ GOD-DARD STREET[9]	1	0	2	1	0	0	0	1	0	0	0	0	0	0	-2	0	-2	0	0	0	-1	-1	-1	0	-0.75	$2,900,000		AQ
CANTON	EAST-WEST CONNECTOR ROAD[10]	2	0	2	0	0	0	2	2	0	0	0	0	0	0	-2	0	-2	0	0	0	-2	-3	-1	1	-1.25	$8,400,000		AQ
SALEM	COMMERCIAL STREET/ TREM-ONT STREET[11]	1	0	2	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	-1	1	0.00	$700,000		AQ
BEDFORD	WIGGINS AVENUE EXTENSION[12]	2	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	1	-1	-1	0	-0.25	TBD		AQ
SALEM	ESSEX STREET CONVERSION[13]	1	0	2	-3	0	0	0	1	0	0	0	0	0	-1	0	-2	-2	0	0	0	-2	-1	-1	0	0.00	$2,400,000		AQ

Notes: Collector/Local Roadway Projects

1. Two high crash locations (#219 and #767). Many high volume roadways in corridor. MBTA rapid transit stations, bus routes, and Yawkey commuter rail station on Worcester Line. Many major institutions in area; 52,600 jobs.
2. Five high crash locations (#142 to #985) Would connect 2 regional routes and provide access to mixed-use redevelopment site and proposed multi-modal center for the South Weymouth commuter rail station on the Plymouth Line.
3. Would provide new connection and improve access and economic activity in downtown.
4. Would provide a second access route to the Anderson Regional Transportation Center on the Lowell commuter rail line and the Industriplex are and for emergency vehicles.
5. Two high crash locations (#445 and #969). Would improve access to Salem commuter rail station including pedestrian access. MBTA buses serve the station.
6. Would facilitate development at Telecom City and vicinity, a state economic target area.
7. Would provide more reliable service to Logan on Silver Line. In South Boston Waterfront District.
8. Salem is a state economic target area.
9. Would provide a new connection for Route 20 to I-290. Will include bicycle/pedestrian accommodations.
10. Would connect industrial park and Route 138.
11. In the vicinity of the Salem station on the Newburyport/Rockport commuter rail line. Seven MBTA bus routes serve the station.
12. Would improve access to industrial area. MBTA bus route and Minuteman Commuter Bikeway in the vicinity.
13. From pedestrian only to roadway. Conversion to pedestrian was a SIP commitment; would require implementation of a substitute project.

		MOBILITY								SAFETY & SECURITY			PRESER-VATION		ENVIRONMENT				REGIONAL EQUITY			LAND USE & ECONOMIC DEVELOPMENT					REVISED COST	PROJECT INFO.	
COMMUNITY	PROJECT	IMPROVES CONNECTIONS/ ACCESS TO SYSTEM	IMPROVES PUBLIC TRANSIT SERVICE	EXPANDS SYSTEM CAPACITY	PROVIDES BIKE & PED FACILITIES	ADDRESSES SUBURBAN TRANSIT NEEDS	BETTER ACCESS FOR TARGET POPULATIONS	IMPROVES FREIGHT MOBILITY	OVERALL RATING	ENHANCES SAFETY OF IN-FRASTRUCTURE FOR USERS	COMPONENT OF SAFETY/ SECURITY INTIATIVE	OVERALL RATING	PRESERVES EXISTING SYSTEM	OVERALL RATING	IMPROVES AIR QUALITY	PROTECTS WATER, OPEN SPACE,WILDLIFE, ETC.	PRESERVES NATURAL/CUL-TURAL RESOURCES	OVERALL RATING	IMPROVES MOBILITY FOR EJ RESIDENTS	ADDRESSES EJ ISSUE	OVERALL RATING	CONSIDERS LAND USE & ECONOMIC PLANS	SUPPORTS SUSTAINABLE DEVELOPMENT	SERVES EXISTING CENTER OF ACTIVITY	PROVIDES LINKS FOR ECONOMIC ACTIVITIES	OVERALL RATING	BASED ON 4% INFLATION	STATUS OF PROJECT AS OF 12/31/06	TYPE OF PROJECT
FREIGHT PROJECTS																													
BOSTON	EAST BOSTON HAUL ROAD/CHELSEA TRUCK ROUTE[1]	3	1	3	1	0	0	3	**3**	2	1	**2**	0	**0**	1	0	1	**1**	0	2	**2**	1	-1	1	3	**1.00**	$14,000,000	RTP	AQ
BOSTON	PORT OF BOSTON IN-NER HARBOR MAIN-TENANCE DREDGING PROJECT[2]	2	0	2	0	0	0	3	**2**	1	0	**1**	3	**3**	0	0	0	**0**	0	0	**0**	N/A	N/A	N/A	N/A	**N/A**	$50,500,000		MI
BOSTON	BOSTON HARBOR DEEP DRAFT NAVIGA-TION IMPROVEMENT PROJECT[3]	2	0	2	0	0	0	3	**2**	1	0	**1**	3	**3**	0	0	0	**0**	0	0	**0**	N/A	N/A	N/A	N/A	**N/A**	$75,000,000 TO $90,000,000		MI
BOSTON	CONLEY RAIL SERVICE[4]	2	0	2	0	0	0	3	**2**	0	1	**1**	0	**0**	0	0	0	**0**	0	0	**0**	2	1	1	3	**1.75**	$100,000		
BOSTON	RAIL EXT. TO MASSPORT MARINE TERMINAL[5]	2	0	2	0	0	0	3	**2**	0	0	**0**	0	**0**	0	0	0	**0**	0	0	**0**	3	1	1	3	**2.00**	$5,000,000		
BOSTON	CONLEY TRUCK ROAD[6]	2	0	2	0	0	0	3	**2**	0	1	**1**	0	**0**	0	0	0	**0**	0	0	**0**	2	-1	-1	2	**0.50**	$20,000,000		
BOSTON	CHARLESTOWN HAUL ROAD[7]	2	0	1	0	0	0	3	**1**	0	1	**1**	0	**0**	0	0	0	**0**	0	0	**0**	1	-1	1	3	**1.00**	$8,000,000		
BOSTON TO NEWTON	DOUBLE-STACK INITIATIVE[8]	1	0	1	0	0	0	3	**1**	0	1	**0**	0	**0**	0	0	0	**0**	0	0	**0**	0	0	0	3	**0.75**	$23,400,000	RTP	
FRAMINGHAM TO WORCESTER	DOUBLE-STACK INITIATIVE[9]	1	0	1	0	0	0	3	**1**	0	1	**0**	0	**0**	0	0	0	**0**	0	0	**0**	0	0	0	3	**0.75**	$9,400,000	RTP	
NATICK TO WELLESLEY	DOUBLE-STACK INITIATIVE[10]	1	0	1	0	0	0	3	**1**	0	1	**0**	0	**0**	0	0	0	**0**	0	0	**0**	0	0	0	3	**0.75**	$23,400,000	RTP	
BOSTON	INNER HARBOR FERRY VESSELS[11]	1	2	1	0	0	0	0	**1**	0	0	**0**	0	**0**	0	0	0	**0**	0	0	**0**	2	2	1	1	**1.25**	$2,000,000 TO $4,000,000		

Notes: Freight Projects

1. Would enhance accessibility for commercial vehicles to Logan and Chelsea; remove this traffic from neighborhood streets; add pedestrian connection to E. Boston Greenway. Eliminates truck traffic bottleneck. Boston is a state economic target area.
2. Would allow wider range of ships access to the Port. Massport requests this be listed in Plan but not funded through the MPO.
3. Would allow wider range of ships access to the Port. Massport requests this be listed in Plan but not funded through the MPO.
4. Rail feasibility study of providing rail access to Conley Terminal; an alternative to trucking.
5. Would eliminate large numbers of trucks from roadways in area and would make Port more competitive.
6. Enhance accessibility of commercial vehicle travel between the Port and interstate highways. In the industrial employment center in South Boston.
7. Would connect Mystic River Designated Port Area with regional highway network; possible option for direct rail service.
8. Would improve freight rail access to Boston, reduce port-related truck traffic.
9. Would improve freight rail access to Boston and reduce port-related truck traffic.
10. Would improve freight rail access to Boston, reduce port-related truck traffic.
11. Would allow more frequency of service and would connect to MBTA bus, rail, and Silver Line.

Transit Project Ratings

Evaluations of the transit expansion projects broken down by mode (rapid transit, bus and trackless trolley, commuter rail, and boat) follow. High, medium, and low ratings are used.

OVERALL RAPID TRANSIT PROJECT EVALUATION									
PROJECT DESCRIPTION	TYPE	UTILIZATION	MOBILITY	COST-EFFECTIVE	AIR QUALITY	SERVICE QUALITY	ECON./ LAND USE IMPACTS	ENVIRON. JUSTICE	TOTAL
BLUE-RED CONNECTOR	LINE EXT.	◗	◗	●	◗	◗	●	◗	◗
CONVERT DUDLEY/ BOYLSTON SECTION OF SILVER LINE TO LIGHT RAIL	LINE EXT.	❍	❍	❍	❍	◗	●	●	❍
EXTEND BLUE LINE FROM BOWDOIN TO WEST MEDFORD	LINE EXT.	◗	◗	◗	◗	◗	●	●	◗
EXTEND BLUE LINE FROM LYNN TO SALEM	LINE EXT.	●	◗	◗	●	❍	◗	◗	◗
EXTEND BLUE LINE FROM WONDERLAND TO LYNN	LINE EXT.	●	◗	◗	●	◗	●	●	●
EXTEND GREEN LINE TO WEST MEDFORD	LINE EXT.	◗	◗	◗	◗	◗	◗	●	◗
NEW GREEN LINE NEEDHAM BRANCH	LINE EXT.	❍	❍	❍	❍	◗	❍	❍	❍
ORANGE LINE NO. EXT. FROM OAK GROVE TO READING/ROUTE 128	LINE EXT.	◗	❍	❍	◗	❍	❍	❍	❍
ORANGE LINE SO. EXT. FROM FOREST HILLS TO RTE. 128 VIA HYDE PARK	LINE EXT.	❍	❍	❍	◗	◗	◗	◗	❍
ORANGE LINE SO. EXT. FROM FOREST HILLS TO W. ROXBURY/NEEDHAM	LINE EXT.	❍	❍	❍	❍	❍	❍	◗	❍
RED LINE EXTENSION TO WEYMOUTH	LINE EXT.	◗	❍	❍	◗	❍	●	❍	❍
RED LINE NW EXT. FROM ALEWIFE TO RTE. 128	LINE EXT.	❍	❍	❍	◗	◗	❍	❍	❍
RESTORE GREEN LINE SERVICE BETWEEN HEATH ST. & ARBORWAY	LINE EXT.	❍	❍	◗	❍	●	●	◗	◗
SILVER LINE EAST EXT. TO CITY POINT	LINE EXT.	❍	❍	●	◗	◗	●	❍	◗
SILVER LINE PHASE III: SOUTH STATION-BOYLSTON CONNECTOR	LINE EXT.	●	●	◗	◗	◗	●	●	●
SILVER LINE SO. EXT. TO ASHMONT & MATTAPAN	LINE EXT.	◗	◗	●	◗	●	●	●	●
SILVER LINE WEST EXTS. TO ALLSTON & LONG-WOOD MEDICAL AREA	LINE EXT.	●	◗	◗	◗	◗	●	◗	◗
URBAN RING PHASE 2	LINE EXT.	●	●	●	●	●	●	●	●
URBAN RING PHASE 3	LINE EXT.	●	●	●	●	●	●	●	●
CONSTRUCT ORANGE LINE NEW STATION AT ASSEMBLY SQ.	NEW STATION	❍	❍	●	◗	❍	●	◗	◗
WONDERLAND: NEW CONNECTOR	NEW STATION	❍	❍	◗	◗	❍	●	❍	❍

HIGH PRIORITY ● **MEDIUM PRIORITY ◗** **LOW PRIORITY ❍**

OVERALL BUS/TRACKLESS TROLLEY PROJECT EVALUATION								
PROJECT DESCRIPTION	TYPE	UTILIZATION	MOBILITY	COST-EFFECTIVE	AIR QUALITY	SERVICE QUALITY	ENVIRON. JUSTICE	TOTAL
BUILD NEW BUSWAYS TO LINE EXT./ALEWIFE STATION	LINE EXT./ NEW LINE	❍	❍	●	●	◗	❍	◗
EXTEND TRACKLESS TROLLEY LINE #71 FROM WATERTOWN TO NEWTON CORNER	LINE EXT./ NEW LINE	❍	❍	●	◗	❍	❍	❍
ROUTE 128 CIRCUMFERENTIAL BUS SERVICE	LINE EXT./ NEW LINE	◗	●	❍	❍	❍	❍	❍
SUBURBAN COMMUTER RAIL FEEDER BUS SERVICES	LINE EXT./ NEW LINE	◗	●	◗	◗	●	●	●
URBAN RING PHASE 1	LINE EXT./ NEW LINE	●	◗	❍	❍	●	●	●

HIGH PRIORITY ● **MEDIUM PRIORITY ◗** **LOW PRIORITY ❍**

OVERALL COMMUTER RAILROAD PROJECT EVALUATION									
PROJECT DESCRIPTION	TYPE	UTILIZA-TION	MOBILITY	COST-EFFECTIVE	AIR QUALITY	SERVICE QUALITY	ECON./ LAND USE IMPACTS	ENVIRON. JUSTICE	TOTAL
BUILD CRR SPUR FROM FRAMINGHAM TO LEOMINSTER	LINE EXT.	●	●	❍	❍	❍	●	◗	◗
BUILD CRR SPUR FROM SALEM TO DANVERS	LINE EXT.	◗	●	◗	◗	❍	❍	◗	●
CRR BRANCH FROM EXISTING OLD COLONY LINES TO GREENBUSH	NEW LINE	●	●	◗	◗	❍	❍	❍	●
CRR TO MILLIS	LINE EXT.	●	●	◗	◗	❍	❍	❍	◗
CRR TO NEW BEDFORD/FALL RIVER	LINE EXT.	●	●	◗	◗	❍	◗	◗	●
EXTEND CRR FROM PROVIDENCE TO T.F. GREEN (RI)	LINE EXT.	◗	●	◗	◗	◗	❍	❍	◗
EXTEND CRR FROM FITCHBURG TO GARDNER	LINE EXT.	❍	●	❍	❍	❍	●	◗	◗
EXTEND CRR FROM FORGE PARK TO MILFORD	LINE EXT.	◗	●	◗	◗	❍	❍	◗	◗
EXTEND CRR FROM HAVERHILL TO PLAISTOW	LINE EXT.	●	❍	●	●	❍	❍	❍	◗
EXTEND CRR FROM LOWELL TO NASHUA	LINE EXT.	●	●	◗	●	❍	❍	❍	◗
EXTEND CRR FROM MIDDLEBOROUGH TO WAREHAM	LINE EXT.	◗	●	❍	◗	❍	◗	❍	◗
EXTEND PASSENGER RAIL SERVICE FROM WAREHAM TO HYANNIS	LINE EXT.	◗	❍	❍	●	❍	❍	❍	❍
NORTH-SOUTH RAIL LINK	LINE EXT.	●	◗	◗	◗	◗	●	◗	●
OPERATE FULL-TIME SERVICE TO FOXBORO STA.	LINE EXT.	❍	◗	❍	◗	❍	❍	❍	❍
OPERATE HIGH-FREQUENCY RIVERSIDE – SOUTH STATION CRR	LINE EXT.	❍	❍	❍	❍	❍	◗	❍	❍
OPERATE HIGH-FREQUENCY RIV-ERSIDE – JFK/UMASS CRR	LINE EXT.	◗	❍	❍	❍	❍	◗	◗	❍
OPERATE HIGH-FREQUENCY READVILLE – ALLSTON LANDING CRR	LINE EXT.	❍	◗	❍	❍	❍	●	●	◗
ADD STATION AT MILLBURY ON THE FRAMINGHAM/WORCESTER LINE	NEW STATION	❍	◗	●	◗	❍	●	❍	◗
ADD A STATION AT SO. SALEM ON ROCKPORT/NEWBURYPORT LINE	NEW STATION	❍	◗	●	●	❍	◗	◗	◗
BUILD A NEW ALLSTON/ BRIGHTON CRR STATION	NEW STATION	❍	◗	◗	◗	❍	●	●	◗
BUILD A NEW CRR STATION ON THE FITCHBURG LINE AT UNION SQ., SOMERVILLE	NEW STATION	❍	◗	●	◗	❍	●	●	●
BUILD A REGIONAL CRR STATION ALONG RTE. 2 WEST OF I-495	NEW STATION	❍	❍	❍	◗	❍	❍	❍	❍
BUILD REGIONAL CRR STATION ON I-495 IN METROWEST	NEW STATION	◗	❍	◗	●	❍	❍	❍	◗
CONNECT FITCHBURG CRR W/ RED LINE AT ALEWIFE	NEW STATION	❍	❍	◗	◗	◗	●	❍	◗
FAIRMOUNT LINE IMPROVEMENTS	NEW STATION	◗	●	◗	❍	●	●	●	●
NEW CRR STATION AT RIVERSIDE	NEW STATION	❍	❍	●	◗	◗	❍	❍	◗

HIGH PRIORITY ● **MEDIUM PRIORITY ◗** **LOW PRIORITY ❍**

OVERALL BOAT PROJECT EVALUATION									
PROJECT DESCRIPTION	TYPE	UTILIZA-TION	MOBILITY	COST EFFECTIVE	AIR QUALITY	SERVICE QUALITY	ECON./ LAND USE IMPACTS	ENVIRON. JUSTICE	TOTAL
RUSSIA WHARF/ SOUTH STATION	LINE EXT./ NEW LINE	◗	◗	●	❍	◗	●	❍	●
HIGH-SPEED FERRY SERVICE FROM THE NORTH SHORE TO BOSTON AND THE AIRPORT	LINE EXT./ NEW LINE	◗	❍	❍	❍	❍	◗	◗	❍
RESTORE EAST BOSTON FERRY	LINE EXT./ NEW LINE	❍	❍	◗	❍	❍	●	●	◗
IMPROVED FERRY SERVICE FROM SOUTH SHORE COMMUNITIES (QUINCY, HINGHAM AND HULL) TO BOSTON	FREQUENCY IMPROVE-MENT	●	◗	◗	❍	❍	❍	◗	◗

HIGH PRIORITY ● **MEDIUM PRIORITY ◗** **LOW PRIORITY ❍**

APPENDIX D

PROJECT DESCRIPTIONS FOR 2000 BASE YEAR AND 2030 NO-BUILD PROJECTS

2000 Base Year Projects

Highway Projects

Route 53, Phase I (Hanover): Widening of Route 53 from Route 3 to Mill Street (Hanover) was completed by MassHighway in 1994. This project widened Route 53 from a two-lane to a five-lane roadway segment.

HOV Lane on I-93 (Mystic Avenue): This MassHighway project is an extension of the existing southbound HOV lane to the Sullivan Square (Somerville) off-ramp. The HOV lane is for vehicles with two or more occupants and is a total of 2.03 miles in length. The extension was opened in September 1994.

HOV Lane on the Southeast Expressway: This six-mile HOV lane is between Furnace Brook Parkway (Quincy) and Freeport Street (Dorchester, Boston). The facility opened in November 1995. It uses contra-flow technology, in which a travel lane is reallocated from the off-peak side of the expressway to the peak side for the duration of the peak period. Originally the HOV lane was for vehicles with three or more persons. The required occupancy was reduced to two or more persons via a sticker program and then later instituted as two or more by right in 1999.

Ted Williams Tunnel: The Ted Williams Tunnel (aka the Third Harbor Tunnel) extends 1.6 miles of which .75 miles is under water from South Boston (Boston) to Logan Airport property (East Boston). It opened for commercial traffic on December 15,1995. The approximate cost for the tunnel was $1.5 billion.

South Boston Bypass Road (aka Haul Road): The roadway segment runs from the Ted Williams Tunnel (South Boston) to near the I-93/Massachusetts Avenue interchange (Boston). The roadway is restricted to commercial vehicles. It was opened in July 1993. This roadway project is part of the Central Artery/Tunnel project.

Blue Hill Avenue Signal Coordination: This MassHighway project involved the coordination of signals along the Blue Hill Avenue corridor in Boston.

Brighton Avenue Signal Coordination: This MassHighway project involved the coordination of signals along the Brighton Avenue corridor in Boston.

Marrett Road Signal Coordination: This MassHighway project consists of reconstructing Route 2A (Marrett Road) from I-95 (Route 128) west to beyond the Massachusetts Avenue extension.

Beverly Salem Bridge: Replace a drawbridge over the Danvers River/Beverly Harbor connecting the cities of Beverly and Salem with an elevated fixed structure. The bridge opened for traffic on August 2, 1996.

Route 20, Segment 1 (Marlborough): Widen a 1.1-mile section of Route 20 from two lanes to four lanes. The project extends from just west of Farm Road to the Raytheon traffic lights just east of DiCenzo Boulevard. The project includes the replacement of traffic signals at the intersection of Route 20 and Farm Road and Wilson Street, the installation of traffic signals at DiCenzo Boulevard (West), and the coordination of these two signals and existing signals at Hager Street and Raytheon Company Drive. This project opened to traffic in October 1999.

Leverett Circle Bridge (Charlestown): A part of the Central Artery/Tunnel project, these new ramps connect the Tobin Bridge via a parallel four-lane bridge with Storrow Drive and the Leverett Circle area on the northwestern edge of downtown Boston with points north of the Charles River.

I-495 Interchange (Marlborough and Southborough): Construct an interchange to Interstate 495 between Route 9 and Route 20. Major elements of the work include the construction of four entrance/exit ramps for I-495 with two bridges and a connector road from the ramps to Crane Meadow Road, as well as the reconstruction and signalization of Crane Meadow Road. This project was advertised in September 1998 and work is ongoing.

I-93/Industriplex Interchange (Woburn): Construct an interchange to Interstate 93 between Interstate 95 and Route 129. Major elements of the work include the construction of four entrance/exit ramps for I-93 with two bridges and a connector road from the ramps to Commerce Way, as well as the reconstruction and signalization of the Commerce Way intersection. This project was advertised in June 1997 and was opened to traffic in October 2000.

Quincy Center Concourse, Phase I (Quincy): Construct the Quincy Center Concourse Bridge connecting Burgin Parkway to Parking Way. The work also includes the reconstruction of sections of Burgin Parkway, the Granite Street Connector, and Parking Way, including the installation of an interconnected traffic signal system. The 2025 No-Build Scenario does not include the final two phases of the Quincy Center Concourse project—the connection of Burgin Parkway to Hancock Street (the Westside Link) and the connection of Hancock Street to Mechanic Street/Revere Road (the Eastside Link). This project was advertised in October 1998.

Route 62 and Middlesex Turnpike (Burlington): Make traffic safety improvements to Route 62 between the Route 3 overpass and Network Drive (formerly Kent Road) and to Middlesex Turnpike from Lexington Street to Terrace Hall Avenue and Network Drive. The improvements to Route 62 include the installation of a traffic signal and the reconstruction of two others, the widening of the roadway from two to four lanes, and the installation of a sidewalk along one side of the roadway. Work on Middlesex Turnpike includes the installation of two traffic signals and the reconstruction of two others, the widening of the roadway from two to four lanes, including an additional left turn lane at three separate locations, and the installation of a sidewalk along one side of the roadway.

Route 9 (Wellesley): Widen Route 9 from four to six lanes from Willow Street to the Interstate 95 (Route 128) northbound on-ramp. This project was advertised in July 1999 and completed in 2000.

Route 138 (Canton): Widen Route 138 from two to four lanes from the Route 128 Interchange (the northern limit of the Washington Street Bridge) to 200 meters north of the intersection of Route 138 and Royal Street/Blue Hill River Road. This project was advertised in August 1999 and was open to traffic in October 2000.

Bridge Street (Salem): Widening of Bridge Street from Flint Street to St. Peter Street to two lanes in each direction, including the reconstruction of the Washington Street rotary. The benefits of the project include a lessening of traffic congestion, operational improvements, improved access to the commuter rail station, and improved safety.

Transit Projects

Urban Ring Bus Service: This MBTA crosstown bus service was begun in 1994. It consists of three limited-stop bus routes providing connections among the Red Line, Orange Line, and Green Line branches. The three services are:

- CT1: Central Square (Cambridge) to B.U. Medical Center (Boston)
- CT2: Kendall Square (Cambridge) to Ruggles Station (Boston) via Longwood Medical Area. The service extension to Sullivan Square began in 2000.
- CT3: Andrew Station (South Boston) to Longwood Medical Area (Boston) via Ruggles Station.

Worcester Commuter Rail, Partial Service: This MBTA commuter rail service from Framingham Station to Worcester Station, with no intermediate stops, began in September 1994. This includes four inbound trains from Worcester in the morning and one in the afternoon, and four outbound trains from Framingham in the afternoon and one in the evening. This service includes Grafton Station, which opened in February 2000.

Additional Park-and-Ride Spaces: These are the new parking spaces added between January 1, 1991, and December 31, 2000. Parking spaces were added at commuter rail stations, including Needham Heights, Worcester, Lowell, Lynn, Readville, and West Concord.

South Station Transportation Center: This MBTA improvement is the intercity bus terminal above the commuter rail tracks and platforms at South Station. The facility was opened in October 1995. The facility serves intercity bus carriers, major regional carriers, and commuter bus operators. The bus concourse has 23 sawtooth docks, four pull-through docks, and two airport link docks. This does not include a pedestrian connector between the bus station and the railway station.

Amtrak Northeast Corridor Electrification: This Federal Railroad Administration/Amtrak project involves the electrification of the Northeast Corridor rail line from Boston to New Haven, Connecticut, the purchase of high-speed train sets, and expansion of Boston–New York passenger-train service. Service using the electrified track began in 2000. High-speed Acela service began in December 2000.

Newburyport Commuter Rail Service: Extension of the MBTA commuter rail line from Ipswich Station (Ipswich) to Newburyport, a total length of 9.6 miles. There is an intermediate stop, with a new station and associated parking, at Rowley. The service opened in October 1998. The additional parking at Rowley and Newburyport Stations is included in the 15,931 New Parking Spaces project. The service includes 13 inbound and 13 outbound trips during the week, and 6 inbound and 6 outbound trips on the weekend.

Old Colony Commuter Rail (two lines): This MBTA commuter rail service includes the restoration of two of the Old Colony lines. Service runs from South Station to Middleborough/Lakeville,

with six intermediate stops, and service from South Station to Kingston and Cordage/Plymouth, with six intermediate stops. Service on the two lines began in September 1997. The additional parking at the stations is included in the 15,931 New Parking Spaces project. This project does not include the proposed Greenbush branch of the Old Colony commuter rail line.

Route 128 Amtrak Station: This project jointly constructed by Amtrak and the MBTA will consist of a new station for the Northeast Corridor Amtrak service and the MBTA Attleboro service. At full-build, the station will have an associated parking garage with 2,750 parking spaces (550 reserved for Amtrak). Electrified trains (Amtrak) began serving the station in 2000. Full-build is not expected until 2005, with the completion of an access road to Route 128.

Hingham Ferry: The Hingham Ferry provides commuter boat service from the Hingham Shipyard to Rowes Wharf, in downtown Boston. Service has been provided since the late 1970s, and in the late 1990s, high-speed catamarans were introduced to the service. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

Improved Service on the Haverhill Commuter Rail Line: In July 1997, increased service was enacted on the Haverhill commuter rail line. Increased service included the running of eight additional trains each day, including express trains that shorten peak-period travel time. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

Salem–Boston Express Bus: Express bus service between Salem and Boston was introduced in the fall of 1997. Service is provided from the North Shore via Lynn Central Square and Logan Airport's Terminal C, providing direct, one-seat service between the North Shore and the South Boston Piers area, the Financial District, and Downtown Crossing. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

2030 No-Build Projects

Highway Projects

Central Artery: The Central Artery/Tunnel project is the largest, most complex, and most technologically challenging highway project in American history. The estimated cost of the project is $14 billion, with a final completion date estimated at April 2005. This Massachusetts Turnpike Authority project is highlighted by the construction of an eight to ten lane, limited-access, 1.5-mile long underground expressway to replace the existing elevated I-93 highway. Other components of the project are the Ted Williams Tunnel from South Boston to Logan Airport, an extension of I-90 from near South Station to Logan Airport and Route 1A in East Boston, four major highway interchanges, a cable-stayed bridge across the Charles River, and the reconstruction of an additional 2.1-mile segment of I-93. In all the project is building or rebuilding 161 lane-miles of urban highway, about half in tunnels, in a 7.5-mile corridor. Approximate completion dates are:

- Ted Williams Tunnel (opened December 15, 1995,—included in 2000 Base Case)
- South Boston Bypass Road (opened in 1993—included in 2000 Base Case)
- Charlestown/Leverett Circle Bridge (opened October 7, 1999—included in 2000 Base Case)
- I-90 Extension to the Ted Williams Tunnel (opened in January 2003)
- I-93 Northbound (opened in March 2003)
- I-93 Southbound (opened approximately in April 2004)
- Project completion (approximately April 2005)

Massachusetts Avenue/Lafayette Square, (Cambridge): This project realigns the intersection of Massachusetts Avenue, Main Street, and Columbia Street. The signalized intersection will be moved to a realigned four-way intersection opposite Sidney Street on the south side of the intersection.

Cambridgeport Roadways: Street patterns in Cambridgeport from Massachusetts Avenue to Memorial Drive will be realigned, including Sidney Street, Waverly Street, Albany Street, and Brookline Street. The benefits of the project include the diversion of traffic away from neighborhood streets, traffic-flow improvements, and economic development opportunities.

I-95 (SB)/Dedham Street On-ramp (Canton): Construction of a new southbound ramp to I-95 from Dedham Street. There is no signal at the on-ramp. This project will provide direct access to Interstate 95 (South) from Westwood's University Avenue industrial area. The benefits of the project include a reduction in congestion and delays at the current access point (Blue Hill Drive) and improved access for commuters wishing to use the Route128 commuter rail station.

Route 140 (Franklin): Route 140 will be widened from one lane in each direction to two lanes in each direction from I-495 to Garelick Farms. The alignment of Route140 will also be altered to accommodate an improved diamond interchange. The length of Route 140 affected is 1.2 miles. The benefits of the project include a lessening of traffic congestion, operational improvements at the affected interchange, associated travel-time savings, and economic development opportunities.

Route 139 (Marshfield): This MassHighway project consisted of the reconstruction, widening, and installation of traffic signals on Route 139 in Marshfield from the Route 3 off-ramp to the Pembroke town line.

Route 20, Segments 2 and 3 (Marlborough): From Farm Road to the Sudbury line, Route 20 will be widened from one lane in each direction to two lanes. The 0.9-mile portion of Route 20 from Felton Street to Ames Street will also be widened from one lane in each direction to two lanes in each direction. The installation of a new signal is also included at the intersection of Route 20 and Williams Street.

Bridge Street Bypass (Salem): Construction of a new road along the North River from Veteran's Memorial Bridge to the vicinity of St. Peter Street and Bridge Street.

Route 128 Additional Lanes (Randolph to Wellesley): Widening Route 128 from three lanes in each direction to four lanes in each direction from Randolph to Wellesley. The lane volumes for this corridor are the highest of any portion of Route 128.

Route 38 (Wilmington): This MassHighway project consists of widening and reconstructing Route 38 from Route 129 (Richmond Street) to Middlesex Avenue. Signalization improvements will be made at the intersections of Route 38/Clark Street, Route 38/Wilmington Plaza, and Route 38/Richmond Street.

Route 1 and Associated Improvements (Foxborough): As a result of a directive from the Massachusetts Legislature, MassHighway will oversee a project to improve access to the new CMGI Field, which is being built adjacent to Foxboro Stadium. Contract #1 focuses on the area from the intersection of Route 1 and North Street to the intersection of Route 1 and Pine Street, in the town of Foxborough. A grade-separated interchange is to be built at the north end of the stadium on Route 1. A flyover bridge/ramp will be built on the south side of the stadium to Route 1. A new access drive will be built from North Street into the stadium. The cost of this contract is $10 million. Contract #2 deals with improvements along Route 1 between the two nearest interstate highways. A new slip ramp is to be constructed at the Route 1/Interstate 95 interchange in Sharon. New sidewalks will be built on North Street from the access road to the Walpole town line. The shoulder along Route 1 in Foxborough and the Route 1/Interstate 495 ramps in Plainville will be widened. Regional and local signage improvements are also part of this contract. The cost for Contract #2 is $4 million.

Route 3 North: The project widens Route 3 along a 21-mile stretch from Burlington to the

New Hampshire border. The affected towns are Bedford, Billerica, Chelmsford, Westford, Tyngsborough, and Burlington. The highway is currently two lanes in each direction and will be expanded to three lanes. There will also be full right and left shoulders in each direction. All of the bridges along the corridor will be reconstructed to accommodate a potential fourth lane in each direction. The average daily traffic volumes for the New Hampshire border end of the project area were 63,800 vehicles in 1999. On the Billerica portion of the project area, the average daily traffic volumes were 84,000 vehicles. The MEPA approval process is complete. The design-build agreement was approved by MassHighway on August 2, 2000. There is an approximate 42-month design/build schedule. The cost and programming for this project is being carried in the Northern Middlesex Council of Governments Transportation Plan.

Route 53 (Hanover): Widen the one-mile section of Route 53 between Mill Street and Rawson Road from two lanes to five lanes: two lanes in each direction and a two-way center turn lane. A six-foot sidewalk will be added to the west side of the roadway. Some driveway entrances will be relocated or consolidated with other driveways. Pond Street will be relocated and realigned, approximately 210 feet north of its current location, to intersect Route 53 opposite Old Washington Street, creating a four-way intersection. The existing traffic signal at the Route 53/Old Washington Street intersection will be upgraded to accommodate this new configuration.

Burgin Parkway (Quincy): The project creates new ramps at the Route 3/Burgin Parkway interchange. A grade separation will allow the Burgin Parkway southbound movement (toward Route 3) to pass over Centre Street. Beginning on Burgin Parkway just south of Penn Street, the outbound roadway splits. Southbound traffic staying left continues to the existing at-grade intersection at Centre Street. Traffic bearing right and continuing south along Burgin Parkway passes over Centre Street enroute to the Route 3/Route 128/I-93 ramp system. The grade-separated section provides two travel lanes and will be constructed with a maximum grade of less than 7percent. A viaduct section will be constructed over Centre Street. The viaduct will merge with the existing viaduct carrying outbound traffic from the Quincy Adams MBTA station.

Construct a new ramp from Crown Colony Drive at its intersection with Congress Street that carries traffic from Centre Street to I-93 north and Route 128. The ramp joins the southbound flow from Burgin Parkway downstream of the MBTA ramp and the Burgin Parkway merge location. Traffic using this ramp will not be required to weave with other traffic using Burgin Parkway, which will minimize traffic weaving conditions on the Route 128/I-93 ramps. Construction of a channelized ramp will allow northbound Crown Colony Drive traffic to bypass the Crown Colony Drive/Centre Street and Burgin Parkway/Centre Street intersections and connect with southbound Burgin Parkway ramps.

Route 53/228 (Hingham and Norwell): Reconstruct the Route 53/Route 228 intersection in Hingham (Queen Anne's Corner) to widen all four approaches to three-lane roadways, including a center left-turn lane. Intersection improvements will also be done at the High Street/Grove Street intersection in Norwell. A center left-turn lane will be added between the two intersections (approximately one-half mile).

Crosby Drive (Bedford): Reconstruction of Crosby Drive, widening it from one to two lanes in each direction with a shared center left-turn lane. The roadway cross-section width increases to 66 feet, and the total right-of-way width to 80 feet. Each direction consists of a 14-foot outside travel lane and a 12-foot inside lane, with a 14-foot shared turning lane. The north side of the roadway has a 3-foot grass strip with a 5-foot sidewalk. The south side has a 6-foot grass strip.

Interstate 93/Ballardvale Interchange (Wilmington): The construction of a new northbound I-93 on-ramp from Route 125 West. Route 125 will be widened to accommodate the new ramp between Ballardvale Street and the interchange.

Transit Projects

North Station Improvements: This MBTA project includes the relocation of the aboveground portion of the Green Line to Lechmere Station to underground. The new rapid transit station includes a superstation platform with direct transfers between the Green and Orange lines.

Blue Line Modernization: The modernization program to allow for six-car operation is underway. Modernization of stations from Wood Island to Wonderland is complete. Aquarium Station will be renovated in conjunction with the Central Artery/Tunnel project work.

Additional Park-and-Ride Spaces: Included in the recommended plan is the addition of at least 1,050 new surface parking spaces. At an average cost of $5,000 per space, the total cost is approximately $5.2 million. Additional proposed spaces are located at the following commuter rail sites within the Boston Region MPO area: Hamilton, West Gloucester, North Wilmington, Walpole, and Sharon. An additional 1,685 spaces outside of the MPO region were included in the travel-demand model analysis. Locations included Mansfield, Middleborough, Halifax, and Lowell. These figures do not include parking associated with the Worcester or Greenbush commuter rail extensions. The 2,100 park-and-ride spaces being built by the Massachusetts Turnpike Authority at Interchanges 9–16 on the Massachusetts Turnpike are also included.

Worcester Commuter Rail, Full Service including New Stations: This MBTA service includes intermediate stops in Westborough, Southborough, and Ashland. Each stop includes a new commuter rail station with associated parking. This service will replace the interim service provided between Framingham and Worcester. The stations were opened in 2002. The stations were proposed as a substitute for the Greenbush Line SIP commitment until the line is in service.

Silver Line Washington Street, Phase 1: The MBTA's Silver Line runs along Washington Street from Dudley Square in Roxbury to Downtown Crossing in the city of Boston. The vehicles used on the route are 60-foot articulated compressed-natural-gas (CNG) buses, and their low-floor design makes them accessible to people with disabilities. The buses operate in mixed traffic from Dudley Square to Melnea Cass Boulevard, where they enter a reserved lane. At the Massachusetts Turnpike, the reserved lane ends and the vehicles enter mixed traffic again. Proposed stations for the Silver Line include Dudley Square, Melnea Cass Boulevard, Lenox Street, Newton Street, Cathedral, and East Berkeley Street. Additionally, vehicles will make stops at Herald Square, New England Medical Center, Chinatown, and Downtown Crossing. This project is a Central Artery/Tunnel commitment.

Silver Line Transitway, Phase 2: This MBTA transitway provides service via tunnel from South Station (Boston) to the World Trade Center (in the vicinity of Viaduct Street), with an intermediate station stop at Courthouse Station (in the vicinity of Northern Avenue and Farnsworth Street). Service began in 2003. It also includes a surface route from the D Street portal to City Point (South Boston).

Mattapan Refurbishment: This MBTA project involves refurbishing the existing PPC (Presidential Conference Committee) cars currently running on the Mattapan High-Speed Line (Boston, Mattapan, and Milton). There are no scheduled run-time or frequency improvements associated with this project.

Airport Intermodal Transit Connector: ($35 million) This project would provide a new transit service in Boston from South Station Intermodal Center to the Logan Airport terminals. There would be approximately eight vehicles that would be similar to those used in the Silver Line Transitway Section A, except that these vehicles have more luggage storage space. The service would use the MBTA South Boston Piers Transitway

tunnel from South Station to South Boston, and then the Ted Williams Tunnel to the five Logan Airport terminals. The capital portion of this service would be sponsored by Massport. This service would provide for enhanced connection between the Red Line and Logan Airport. There would continue to be AITC bus service between the Blue Line's Airport Station and the Logan airport terminals. This project must be completed by June 2004 as part of the administrative consent order between EOTC and the Executive Office of Environmental Affairs (EOEA).

Industriplex Intermodal Center (Woburn): This is a joint agency (MassHighway, Massport, and MBTA) project. The Industriplex in Woburn provides an intermodal facility for the northern suburbs that combines MBTA commuter rail, Massport's Logan Express shuttles, a 2,400-space parking lot, and a station on Amtrak's future service to Portland, Maine. Ground was broken on the Industriplex in 2000. MassHighway has completed a new interchange with Interstate 93 that improves access to the facility. In addition to its intermodal component, Industriplex provides improved access to both I-93 and Route 128, is adjacent to growing employment centers, and increases parking capacity. The increase in parking partially addresses the SIP commitment of new park-and-ride spaces. The Intermodal Center opened in September 2001.

New Commuter Rail Station at JFK/UMass Station: This station was added to the Old Colony commuter rail service lines and provides connections to the MBTA Red Line, local bus service, and shuttle service. Access is also provided to UMass Boston and the JFK Library. This project is a substitute for the Greenbush Line SIP commitment until the line is in service.

Greenbush Commuter Rail Service: This project will restore rail service on a third branch of the Old Colony lines, diverging from the route of the Middleborough/Lakeville and Plymouth/Kingston lines in Braintree and following a combination of active and inactive rail freight routes to the Greenbush section of Scituate.

Capital Investments not Affecting the Travel Model

Green Line Vehicles – Type 8: In 2006, the MBTA completed the procurement with the receipt of 85 new Green Line vehicles from the manufacturer. The vehicles feature a low-floor design that allows mobility-impaired riders to access them at any of the Green Line stations that have been designated as key stations. The Type 8 vehicles also feature interior message displays, electronic exterior route indicators, and recorded station announcements.

Blue Line Vehicles: The MBTA will purchase new six-car trainsets for the Blue Line. These vehicles can be used on the Blue Line once the reconstruction of stations has been completed. The Blue Line is the only of the three subway lines to operate only four-car trainsets during peak periods. Reconstruction of the existing stations involves lengthening platforms so that the longer trains can be accommodated.

Low-Emission Buses: The MBTA is committed to the purchase of 314 compressed-natural-gas (CNG) buses for systemwide use. The new vehicles are required to be purchased by 2004 in the consent order agreed to by EOTC and the Executive Office of Environmental Affairs in 2000 relating to the fulfillment of Central Artery/Tunnel project mitigation commitments.

Dorchester Branch Modernization: The MBTA will reconstruct four stations on the Dorchester branch of the Red Line. The four stations included in the project are Savin Hill, Field's Corner, Shawmut, and Ashmont—all located within the Boston neighborhood of Dorchester. In addition to the station work, some older bridges along the Ashmont branch will be rehabilitated.

Charles Street Station Modernization: This project involves the reconstruction of the Charles Street Station on the Red Line. Goals of the

project are to make the station accessible and to improve its relationship to the surrounding Charles Circle/Cambridge Street area.

Bus Maintenance Facilities: The MBTA's purchase of 314 new CNG buses marks the first time this type of vehicle will be used in the system. In order to service these alternative-fuel vehicles, the MBTA will build new facilities and will retrofit existing facilities to maintain the CNG fleet.

Automated Fare Collection: This project involves complete replacement of the MBTA's current fare-collection equipment on all subway, trolley, trackless trolley, and bus vehicles. The new automated-fare-collection (AFC) equipment will provide several benefits to the MBTA and its riders. In addition to the current monthly pass system, riders will be able to purchase a stored value card (CharlieCard). The CharlieCard acts as a debit card, allowing passengers to use any mode in the system provided that the dollar value remaining on their card is sufficient to pay the fare. Value can be added to CharlieCards after they are purchased, either at fare collector booths or at automatic vending machines (AVM). They are beneficial to less frequent riders because they provide the convenience of a pass without the investment in an unlimited-ride monthly pass. They also reduce the amount of cash transactions in the system. AFC fare gates will be better able to provide accurate data on fare collection and revenue for the MBTA. Since AFC equipment has both read and write capabilities, the MBTA can use them as a paperless method of providing transfers.

Green Line Accessibility: This project involves the completion of the Green Line's key station program. The key station program will put the Green Line in compliance with the Americans with Disabilities Act (ADA). Copley, Arlington, and Government Center Stations in the central subway will be made accessible. In addition, several key stations along the Green Line's surface routes will be made accessible through the construction of elevated platforms.

AMTRAK Service to Portland, Maine: In 2001, AMTRAK reintroduced service between Boston and Portland, Maine. The service uses North Station as its Boston terminus. Other stops include Haverhill, Massachusetts; Exeter, Dover and Durham, New Hampshire; and Old Orchard Beach, Wells, and Saco, Maine. The travel time between Boston and Portland is approximately two and half hours.

Orange Line Signal Improvements and Additional Coaches: Signal improvements along the Orange Line to allow for an additional 18 coaches have been completed by the MBTA. The additional coaches are scheduled to be in revenue service by December 31, 2015.

Project descriptions for the 2030 Build Projects in the recommended plan are included in Chapter 13, The Recommended Transportation Plan.

APPENDIX E

REGIONAL EQUITY MEETINGS: ISSUE SUMMARIES AND FOLLOW-UP ACTIONS

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
MATTAPAN CDC - INTERVIEWED: FEBRUARY 15, 2005					
PROVIDE MORE FREQUENT SERVICE ON THE FAIRMOUNT LINE	REFER TO MBTA PLANNING, RAILROAD OPERATIONS	UPGRADE FAIRMOUNT LINE AND STATIONS	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA PLANNING FOR CIP	SILVER LINE EXTENSION – DUDLEY TO MATTAPAN STATION	REFER TO MPO FOR CONSIDERATION IN UPWP; REFER TO MBTA
EXTEND PUBLIC TRANSIT TO SITE OF FORMER BOSTON STATE HOSPITAL (600 – 700 NEW RESIDENTIAL UNITS BEING CONSTRUCTED)	REFER TO MBTA, SERVICE PLANNING	ACCESSIBILITY IMPROVEMENTS TO THE MATTAPAN HIGH-SPEED LINE–ALL STATIONS	REFER TO MBTA PLANNING FOR CIP, INFORM MPO	MOVE LOCATION OF PROPOSED NEW STATION AT BLUE HILL AVENUE TO FORMER CODY FORD SITE (CUMMINS HIGHWAY)	REFER TO MBTA PLANNING
PROVIDE EXTENDED TRANSIT SERVICE TO FRANKLIN PARK ZOO–TOURIST	REFER TO MBTA PLANNING, SERVICE PLANNING	SILVER LINE EXTENSION – DUDLEY SQUARE TO MATTAPAN (ALONG BLUE HILL AVE.)	REFER TO MBTA PLANNING FOR CIP, INFORM MPO	NEPONSET RIVER GREENWAY TRAIL – MILTON TO MATTAPAN	REFER TO MPO FOR CONSIDERATION IN UPWP
		EXTEND THE NEPONSET RIVER GREENWAY TRAIL FROM MILTON INTO MATTAPAN	REFER TO BOSTON TRANSPORTATION DEPARTMENT (BTD) AND TO THE MPO FOR CONSIDERATION IN TIP		
		PEDESTRIAN IMPROVEMENTS – WALKWAYS/TRAILS, SIDEWALKS, AUDIBLE CROSSING SIGNS, BRAILLE SIGNS	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING, INFORM MPO		
		ROADWAY IMPROVEMENTS TO REDUCE CONGESTION – BLUE HILL AVE., RIVER ST.	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING, INFORM MPO		
ASIAN CDC - INTERVIEWED: FEBRUARY 16, 2005					
TRANSIT SERVICE IS ABUNDANT IN THE NEIGHBORHOOD.	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING	PEDESTRIAN VIMPROVEMENTS – FOR ACCESS AND SAFETY (IMPROVEMENTS TO CROSSWALK VISIBILITY, SIGNALS)	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING		
TRAFFIC CONGESTION IS A PROBLEM – PARTICULARLY ON KNEELAND ST. AND WASHINGTON ST.)	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING	ROADWAY IMPROVEMENTS TO REDUCE CONGESTION AND TRAFFIC MANAGEMENT SOLUTIONS – KNEELAND ST. AND WASHINGTON ST.	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING		
PEDESTRIAN IMPROVEMENTS – RESTRIPING CROSSWALKS	REFER TO BTD AND EOT/ MASSHIGHWAY PLANNING	INSTALL BILINGUAL SIGNAGE AT CROSSWALKS, BUS STOPS, RAPID TRANSIT	REFER TO BTD AND MBTA PLANNING, OFFICE OF CIVIL RIGHTS AND DIVERSITY		

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
ALLSTON-BRIGHTON CDC - INTERVIEWED: FEBRUARY 22, 2005					
PROVIDE BUS ROUTE IMPROVEMENTS – SCHEDULE IMPROVEMENTS AND REDUCED HEADWAYS FOR ROUTES 57, 64, 66, AND 86	REFER TO MBTA SERVICE PLANNING	COMMUTER RAIL STATION IN ALLSTON, WORCESTER LINE – HARVARD SHOULD CONSTRUCT AND PROVIDE OTHER TRANSIT IMPROVEMENTS	REFER TO MBTA PLANNING	COMMUTER RAIL STATION IN ALLSTON, WORCESTER LINE	REFER TO MBTA PLANNING
PROVIDE GREEN LINE SERVICE IMPROVEMENTS – B LINE OVERCROWDING, BYPASS STATIONS, SERVES STUDENTS, NOT RESIDENTS	REFER TO MBTA SERVICE PLANNING	CONSTRUCT A SOUND BARRIER ALONG THE MASSPIKE	REFER TO MASSPIKE	REALIGN PROPOSED URBAN RING ROUTE THROUGH ALLSTON – PROVIDE BETTER CONNECTIONS WITH ALLSTON-BRIGHTON	REFER TO MBTA PLANNING
IMPROVE REVERSE COMMUTE OPTIONS – WOULD LIKE TRANSIT ACCESS TO JOBS IN THE ROUTE 128, WALTHAM AREA	REFER TO MBTA PLANNING, INFORM MPO (SUBURBAN MOBILITY)	CREATE PEDESTRIAN ACCESS TO THE CHARLES RIVER FROM CAMBRIDGE ST./RIVER ST. BRIDGE	REFER TO BTD, INFORM MPO	IMPROVE REVERSE COMMUTE OPTIONS – TRANSIT ACCESS TO JOBS IN THE ROUTE 128, WALTHAM AREA	REFER TO MPO (UPWP AND SUBURBAN MOBILITY)
CLEAN AND REPAIR ROADWAYS	REFER TO BTD	GREEN LINE STATION ACCESSIBILITY – ALL SHOULD BE MADE ADA ACCESSIBLE	REFER TO MBTA PLANNING FOR CIP	TRUCK VOLUMES ON WESTERN AVE. ARE TOO HIGH/NEED TO BE REDUCED – THEY CAUSE CONGESTION FOR MBTA BUS ROUTES 70, 70A, 86, FOR OTHER TRAFFIC IN PEAK PERIODS, AND COMMUNITY DISCOMFORT	REFER TO MPO (UPWP)
ENFORCE/DEVELOP PARKING REGULATIONS – NON-RESIDENTS TAKE SPACES FOR ACCESSING TRANSIT/RIDESHARING OR ENTERTAINMENT; ALSO PARK LONG-TERM ON COMMONWEALTH AVE.; ALSO PROBLEMS AT BRIGHTON H.S. LOT AND ON CAMBRIDGE ST.	REFER TO BTD			AUTOMOBILE TRAFFIC ON TREMONT ST. TO OAK SQUARE AND ON PARSON ST. ARE HIGH AND CAUSE COMMUNITY DISCOMFORT. PROBLEM INCREASED WITH CLOSING OF NEWTON CORNER EXIT FROM MASSPIKE	REFER TO MASSPIKE AND TO MPO (UPWP)
				PROBLEMS WITH PARKING – NON-RESIDENTS TAKE SPACES FOR ACCESSING TRANSIT/RIDESHARING OR ENTERTAINMENT; ALSO PARK LONG-TERM ON COMMONWEALTH AVE.; ALSO PROBLEMS AT BRIGHTON H.S. LOT AND ON CAMBRIDGE ST.	REFER TO BTD
				CONCERNS OVER PLANNED DEVELOPMENTS BY HARVARD (BRIGHTON) AND BY BOSTON COLLEGE (LAKE ST./FORMER ARCHDIOCESE)	CDC IS CONDUCTING NEIGHBORHOOD TRANSPORTATION STUDY

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
SOUTHWEST BOSTON CDC - INTERVIEWED: FEBRUARY 22, 2005					
PROVIDE MORE FREQUENT SERVICE ON THE FAIRMOUNT LINE	REFER TO MBTA PLANNING	UPGRADE FAIRMOUNT LINE AND STATIONS	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA PLANNING		
MOVE ADDITIONAL TRAINS BACK TO SOUTH STATION; AIR POLLUTION FROM ADDITIONAL AND IDLING TRAINS AT READVILLE YARD	REFER TO MBTA PLANNING, ENVIRONMENTAL	MAKE ROADWAY IMPROVEMENTS – PARTICULARLY ON HYDE PARK AVE. AND RIVER ST.	REFER TO CITY OF BOSTON		
IMPROVED TRANSIT SERVICE TO LONGWOOD MEDICAL AREA – AN ISSUE FOR MINORITY AND OTHER RESIDENTS	REFER TO MBTA PLANNING				
ALLSTON-BRIGHTON AREA PLANNING ACTION COUNCIL - INTERVIEWED: MARCH 3, 2005					
PROVIDE CUSTOMER SERVICE TRAINING FOR DRIVERS	REFER TO MBTA OPERATIONS	INSTALL SHELTERS AT BUS STOPS AND GREEN LINE STATIONS	REFER TO MBTA AND CITY OF BOSTON	COMMUTER RAIL STATION IN ALLSTON	CONSIDER FOR UPWP; REFER TO MBTA PLANNING
PROVIDE BUS ROUTE IMPROVEMENTS – SCHEDULE IMPROVEMENTS AND REDUCED HEADWAYS FOR ROUTES 57, 64, 66, AND 86	REFER TO MBTA – SERVICE PLANNING	CONSTRUCT COMMUTER RAIL STATION IN ALLSTON	REFER TO MBTA PLANNING		
FIELDS CORNER CDC - INTERVIEWED: MARCH 8, 2005					
IMPROVED EAST-WEST TRANSIT ACCESS TO NEIGHBORHOODS THROUGHOUT BOSTON	REFER TO MBTA PLANNING			EXAMINATION OF COMMUTER TRAFFIC ON LOCAL STREETS, PARTICULARLY DORCHESTER AVENUE	CONSIDER FOR UPWP, REFER TO BTD AND EOT/MASSHIGHWAY PLANNING
MANAGE PARKING ISSUES ON NEIGHBORHOOD STREETS; REDUCE IMPACTS OF COMMUTERS	REFER TO BTD				
LOCAL ROADS BEING USED AS "COMMUTER ROUTES," PARTICULARLY DORCHESTER AVENUE	REFER TO BTD, MPO AND EOT/MASSHIGHWAY PLANNING				
BETTER COORDINATION BETWEEN PUBLIC AND PRIVATE UTILITY COMPANIES WHEN REPAIRING INFRASTRUCTURE	REFER TO BTD AND PRIVATE UTILITY COMPANIES (NSTAR AND KEYSPAN)				

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
VIET-AID - INTERVIEWED: MARCH 17, 2005 AND COMMUNITY MEETING: APRIL 6, 2005					
IMPROVEMENTS IN SAFETY/ SECURITY AT TRANSIT STATIONS	REFER TO MBTA AND CITY OF BOSTON POLICE DEPARTMENTS	INSTALLATION OF NEW LIGHTING UNDER THE FREEMAN STREET BRIDGE	REFER TO MBTA OPERATIONS AND DESIGN/CONSTRUCTION	RECONFIGURATION OF THE INTERSECTION OF FREEPORT STREET, PLEASANT STREET AND DORCHESTER AVENUE	CONSIDER FOR UPWP; REFER TO BTD AND EOT/MASSHIGHWAY PLANNING
IMPROVED TRAFFIC FLOW ON DORCHESTER AVENUE	REFER TO BTD	RECONFIGURATION OF THE INTERSECTION OF FREEPORT STREET, PLEASANT STREET AND DORCHESTER AVENUE	REFER TO BTD		
PARKING ENFORCEMENT AT BUS STOPS AND ON NEIGHBORHOOD STREETS	REFER TO BTD AND BOSTON POLICE DEPARTMENT	INSTALLATION OF UNIVERSAL SYMBOL PEDESTRIAN CROSSING SIGNALS	REFER TO BTD		
		BILINGUAL SIGNAGE AT TRANSIT STOPS	REFER TO MBTA SERVICE PLANNING, INFORM MPO		
DUDLEY STREET NEIGHBORHOOD INITIATIVE - INTERVIEWED: MARCH 17, 2005					
PROVIDE MORE FREQUENT SERVICE ON THE FAIRMOUNT LINE	REFER TO MBTA PLANNING AND RAILROAD OPERATIONS	UPGRADE FAIRMOUNT LINE AND STATIONS	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA PLANNING	RECONSIDER THE PROPOSED ROUTE FOR THE URBAN RING IN ROXBURY	REFER TO MBTA PLANNING
SERVICE IMPROVEMENTS TO SILVER LINE WASHINGTON STREET	REFER TO MBTA SERVICE PLANNING	RECONSTRUCTION/REHABILITATION OF NEIGHBORHOOD INFRASTRUCTURE (ROADS AND BRIDGES)	REFER TO BTD, MBTA PLANNING AND EOT/MASSHIGHWAY PLANNING	INEQUITY OF FARES TO SERVICE RECEIVED	REFER TO MBTA PLANNING AND SERVICE PLANNING
IMPROVED TRAFFIC FLOW ON MAJOR ROADWAYS SUCH AS MASS AVE, COLUMBIA ROAD, BLUE HILL AVE AND HOWARD AVE	REFER TO BTD	INSTALLATION OF NEW OR MISSING SIGNS FOR BRIDGES, CROSSWALKS, STREET NAMES AND SPEED LIMITS	REFER TO BTD, MBTA PLANNING AND EOT/MASSHIGHWAY PLANNING		
IMPROVED COORDINATION OF SERVICE TO MAKE TRANSFERS AMONG TRANSIT MODES	REFER TO MBTA SERVICE PLANNING				

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
CAMBRIDGE COMMUNITY DEVELOPMENT DEPARTMENT - INTERVIEWED: APRIL 5, 2005					
SERVICE IMPROVEMENTS TO THE RIDE	REFER TO MBTA SERVICE PLANNING AND OTA	CONSTRUCTION OF A PEDESTRIAN BRIDGE OVER THE FITCHBURG LINE TO ACCESS ALEWIFE STATION FROM CONCORD AVENUE	REFER TO MBTA PLANNING, INFORM MPO	CORRIDOR STUDY OF THE ALEWIFE AREA FROM AN ALTERNATIVE MODE POINT OF VIEW	REFER TO MPO FOR CONSIDERATION IN UPWP
		CONSTRUCTION OF THE URBAN RING	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA	CREATION OF A LONG-TERM COMPREHENSIVE PLAN FOR ALEWIFE BROOK PARKWAY	REFER TO MPO FOR CONSIDERATION IN UPWP
		PLACEMENT OF ROUTE SIGNS, SCHEDULES AND BENCHES AT BUS STOPS WHERE SHELTERS CANNOT FIT.	REFER TO MBTA SERVICE PLANNING AND FOR CIP		
		CONTINUED SUPPORT AND FUNDING OF THE CAMBRIDGE EZRIDE SHUTTLE	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO EOT/MASSHIGHWAY PLANNING		
SALEM HARBOR CDC - INTERVIEWED: APRIL 11, 2005					
PARKING MANAGEMENT ALONG BRIDGE STREET	REFER TO CITY OF SALEM PLANNING AND POLICE DEPARTMENTS	CONSTRUCTION OF THE SALEM STATION PARKING GARAGE	REFER TO MBTA PLANNING, INFORM MPO	COMMENDATION FOR IMPROVED NORTH SHORE BUS SERVICE	REFER TO MBTA SERVICE PLANNING
		PEDESTRIAN IMPROVEMENTS – WALKWAYS, SIDEWALKS AND CROSSING SIGNS	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO CITY OF SALEM PLANNING AND PUBLIC WORKS DEPARTMENTS		
		SUPPORT FOR THE RECONSTRUCTION OF BOSTON AND BRIDGE STREETS	REFER TO EOT/MASSHIGHWAY PLANNING; INFORM MPO FOR CONSIDERATION IN TIP		
		FOCUS EFFORTS ON IMPROVEMENTS TO COMMUTER RAIL SERVICE RATHER THAN EXTENDING THE BLUE LINE FROM REVERE	REFER TO MBTA PLANNING		
DORCHESTER BAY EDC - INTERVIEWED: APRIL 13, 2005					
PROVIDE MORE FREQUENT SERVICE ON THE FAIRMOUNT LINE	REFER TO MBTA PLANNING AND RAILROAD OPERATIONS	UPGRADE FAIRMOUNT LINE AND STATIONS	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA PLANNING FOR CIP		
REDUCING OVERCROWDING ON AND BETTER SCHEDULING OF BUSES	REFER TO MBTA SERVICE PLANNING	PLACEMENT OF ROUTE SIGNS, SCHEDULES AND SHELTERS AT BUS STOPS	REFER TO MBTA PLANNING FOR CIP		
PROVIDING TRANSIT ACCESS TO SCHOOL AND JOBS FOR YOUTH AND YOUNG ADULTS	REFER TO MBTA PLANNING AND SERVICE PLANNING				

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
FRAMINGHAM COMMUNITY PARTNERSHIP - INTERVIEWED: JUNE 1, 2005					
ENFORCEMENT IN MAKING LIFT DRIVERS STICK TO DESIGNATED ROUTES	REFER TO TOWN OF FRAMINGHAM PLANNING DEPARTMENT	PROVIDING TRANSPORTATION FOR JOB OPPORTUNITIES AND TRAINING	INFORM MPO FOR CONSIDERATION IN TIP AND REFER TO MBTA PLANNING FOR CIP	ASSISTANCE TO NON-ENGLISH SPEAKING PERSONS IN OBTAINING DRIVERS LICENSES	REFER TO RMV AND TOWN OF FRAMINGHAM
SHORTER HEADWAYS ON LIFT SERVICE	REFER TO TOWN OF FRAMINGHAM PLANNING DEPARTMENT	IMPROVEMENTS TO PEDESTRIAN ACCESS THROUGHOUT FRAMINGHAM	REFER TO MPO FOR CONSIDERATION AS A WALKABLE COMMUNITY WORKSHOP AND CONSIDERATION IN TIP	IMPROVED PUBLIC TRANSPORTATION SHOULD INCLUDE STUDENT POPULATIONS AT AREA COLLEGES	REFER TO MPO FOR CONSIDERATION IN UPWP AND FRAMINGHAM PLANNING DEPARTMENT
INCREASED ADVERTISING AND BETTER MAINTENANCE OF LIFT SERVICE	REFER TO TOWN OF FRAMINGHAM PLANNING DEPARTMENT			EASE TRAFFIC CONGESTION ON AREA ROADWAYS	REFER TO MPO FOR CONSIDERATION IN UPWP; EXAMINATION IN MMS
SERVICE IMPROVEMENTS TO THE RIDE	REFER TO MBTA, SERVICE PLANNING AND OFFICE OF TRANSPORTATION ACCESS (OTA)				
USE OF TAXI VOUCHERS FOR TRANSPORTATION SERVICES	REFER TO MBTA, SERVICE PLANNING AND TOWN OF FRAMINGHAM PLANNING DEPARTMENT				
NEED FOR TRANSPORTATION SERVICES TO PERSONS WITH DISABILITIES	REFER TO MBTA SERVICE PLANNING AND OTA				
CHELSEA GREEN SPACE AND RECREATION COMMITTEE - INTERVIEWED: JULY 29, 2005					
OVERCROWDING ON BUSES AT PEAK TIMES	REFER TO MBTA SERVICE PLANNING	LACK OF BICYCLE ACCESS INTO BOSTON AND INSTALLATION OF BICYCLE RACKS ON ALL BUSES IN CHELSEA	REFER TO MBTA PLANNING AND EOT/MASSHIGHWAY PLANNING, INFORM MPO	PROVIDING REDUCED FARES FOR COMMUTER RAIL TRIPS IN BOSTON	REFER TO MBTA PLANNING AND BUDGET
PROVIDING EXPRESS BUS SERVICE ON THE ROUTE 111 INTO BOSTON	REFER TO MBTA SERVICE PLANNING	IMPLEMENT THE PROPOSED CT6 IN CHELSEA	REFER TO MBTA PLANNING AND SERVICE PLANNING	TRANSIT ACCESS FOR SCHOOL-AGED CHILDREN	REFER TO MBTA PLANNING AND MASSRIDES
MAKING SCHEDULE IMPROVEMENTS ON THE ROUTE 112 BUS	REFER TO MBTA SERVICE PLANNING	INSTALLATION OF BUS SHELTERS	REFER TO MBTA PLANNING, FOR CIP, INFORM MPO		
COURTESY TRAINING FOR MBTA BUS DRIVERS	REFER TO MBTA OFFICE OF CIVIL RIGHTS AND DIVERSITY AND SERVICE PLANNING	IMPROVED PEDESTRIAN ACCESS TO CHELSEA STATION	REFER TO MBTA PLANNING, CITY OF CHELSEA, AND EOT/MASSHIGHWAY PLANNING, INFORM MPO		
ENSURE THAT COMMUTER RAIL TRAINS STOP AT CHELSEA STATION	REFER TO MBTA RAILROAD OPERATIONS AND PLANNING	CREATION OF A MULTI-USE TRAIL THROUGH CHELSEA, EAST BOSTON AND EVERETT	REFER TO EOT/MASSHIGHWAY PLANNING AND THE CITIES OF BOSTON, CHELSEA AND EVERETT, INFORM THE MPO		
REPAVING OF REVERE BEACH PARKWAY (ROUTE 16)	REFER TO EOT/MASSHIGHWAY PLANNING AND DCR	STRIPING OF BICYCLE LANES ON STATE ROUTES	REFER TO EOT/MASSHIGHWAY PLANNING		

SERVICE/MAINTENANCE ISSUES	FOLLOW-UP	CAPITAL ISSUES	FOLLOW-UP	STUDY REQUESTS & OTHER	FOLLOW-UP
SOMERVILLE TRANSPORTATION EQUITY PARTNERSHIP (STEP) - INTERVIEWED: OCTOBER 14, 2005					
INFREQUENCY OF BUS SERVICE IN EAST SOMERVILLE	REFER TO MBTA SERVICE PLANNING	LACK OF BUS SHELTERS	REFER TO MBTA PLANNING, FOR CIP, INFORM MPO	TRUCK TRAFFIC CONCERNS	REFER TO CITY OF SOMERVILLE AND MPO
EARLY MORNING BUS SERVICE ON WEEKENDS	REFER TO MBTA SERVICE PLANNING	BARRIERS TO WALKING	REFER TO CITY OF SOMERVILLE AND EOT/MASSHIGHWAY PLANNING, INFORM MPO FOR WALKABLE COMMUNITY WORKSHOP	LACK OF INFORMATION REGARDING TRANSIT SERVICE	REFER TO MBTA SERVICE PLANNING
LACK OF TRANSFERS BETWEEN SAME AND DIFFERENT MODES	REFER TO MBTA SERVICE PLANNING	BARRIERS TO BICYCLING	REFER TO CITY OF SOMERVILLE AND MPO	AIR POLLUTION CONCERNS	REFER TO MPO
LENGTH OF CURRENT BUS ROUTES	REFER TO MBTA SERVICE PLANNING				
PARATRANSIT NEEDS FOR RESIDENTS	REFER TO MBTA SERVICE PLANNING AND OTA				
SOMERVILLE COMMUNITY CORPORATION (SCC) - INTERVIEWED: SEPTEMBER 25, 2006					
"IMPROVE BUS SERVICE IN EAST SOMERVILLE"	REFER TO MBTA – SERVICE PLANNING	INSTALL MORE BUS SHELTERS AND BENCHES, PARTICULARLY IN EAST SOMERVILLE	REFER TO MBTA PLANNING, FOR CIP, INFORM MPO	KEEPING AREAS AFFORDABLE IN LIGHT OF THE PROPOSED GREEN LINE EXTENSION	REFER TO CITY OF SOMERVILLE AND INFORM MPO
LACK OF NORTH-SOUTH BUS ROUTES	REFER TO MBTA PLANNING	IMPROVE PEDESTRIAN AND BICYCLE ACCESS TO, AND CONDITIONS AROUND, SULLIVAN SQUARE	REFER TO CITY OF SOMERVILLE AND EOT/MASSHIGHWAY PLANNING	LACK OF INFORMATION, INCLUDING BILINGUAL INFORMATION, REGARDING TRANSIT SERVICE	REFER TO MBTA SERVICE PLANNING, OFFICE OF CIVIL RIGHTS AND DIVERSITY
		IMPROVE TRAFFIC PATTERNS AROUND UNION SQUARE, FOCUS ON SAFETY FOR PEDESTRIANS AND BICYCLISTS	REFER TO CITY OF SOMERVILLE AND EOT/MASSHIGHWAY PLANNING	SUGGESTIONS FOR FUTURE OUTREACH	REFER TO MPO