CHAPTER 1

Challenges and Opportunities

This chapter lays out, as broad themes, the challenges and opportunities the MBTA faces as it promotes its 2030 vision for transit in the Boston metropolitan region. Meeting the challenges ahead—and seizing the opportunities—will require not only wise capital investment decisions, but also effective advocacy, a clear understanding of system needs and capacities, and a consistent commitment by management and staff at all levels to quality customer service.

AN UNDER-FUNDED TRANSIT SYSTEM WITH SIGNIFICANT INFRASTRUCTURE NEEDS

Forward Funding legislation enacted in 2000 was intended to put the MBTA on a sound financial footing. Instead, with sales tax revenues lower than projected, escalation in operating costs, and the largest debt burden of any major transit agency in the country, the MBTA finds itself in an unsustainable financial position, as documented by the Massachusetts Transportation Finance Commission in 2007 and 2008. Debt service currently represents one-third of the Authority's annual operating budget. The Authority's total debt burden (principal and interest) is $8.1 billion, attributable in large measure to transit expansion commitments undertaken in the 1990s as part of the mitigation for the Central Artery/Tunnel project.

This structural deficit constrains the capacity of the MBTA to reduce the estimated $2.7 billion backlog in system infrastructure needs and, left unresolved over the long term, would threaten the Authority's strategic investment priority of keeping the deferred maintenance backlog from getting larger. Although solutions for adequately financing the MBTA are beyond the scope of the PMT, the Authority's serious

fiscal problems must be addressed long-term in order for the vision, goals, and objectives of the PMT to be achieved.

Given its current funding realities and the pressing need to fix existing transit infrastructure, the MBTA has been compelled to scale back its financing of expansion projects. Under the direction of the Executive Office of Transportation and Public Works (EOT), the Commonwealth is playing a larger role in funding and prioritizing transit service extensions and securing capital and operations financing to support these expansion projects. This policy allows the MBTA to direct its capital funding to system preservation investments, which are essential for safe, reliable, and efficient transit operation.

BUS MAINTENANCE FACILITY

In addition to bringing the system into a state of good repair, the MBTA must invest in the regular maintenance and replacement of assets to keep them in good working condition and to prevent any future deterioration. Critical to the MBTA's success in this endeavor is the adoption of management practices that foster system preservation. The Authority is currently in the process of upgrading its system for tracking its assets and is developing ways in which to better coordinate the ongoing planning processes for identifying and prioritizing asset maintenance and replacement needs beyond the five-year horizon of the CIP. Also needed is a commitment to ensuring that staffing for the maintenance and repair of assets is sustained at appropriate levels.

ENVIRONMENTAL CONCERNS AND CHANGING GROWTH PATTERNS

Consensus in the scientific community that climate change is real and caused by human activities has led to broad acknowledgment that public policy decisions are needed to reverse global warming. In Massachusetts, the transportation sector emits 40% of all CO_2, a major component of greenhouse gases (GHGs).[1] If current development trends in eastern Massachusetts continue, GHG emissions from transportation will grow, as auto use increases and traffic congestion worsens. The regional travel demand model projects that CO_2 emissions from mobile sources would rise by 2030 to a level approximately 20% greater than the 2000 level if no changes were made to the transportation system.

Forecasts made by the Metropolitan Area Planning Council (MAPC) indicate that, under our current growth trends, two-thirds of suburban growth would occur outside already developed areas by 2030. Residential growth would be dispersed throughout the region, and half of the new jobs would be accessible only by car, not transit. The region cannot sustain this type of development long-term. Greener and smarter land use policies are needed to curb GHG emissions from transportation sources by containing suburban sprawl.

The MetroFuture planning initiative led by MAPC for the Boston area advocates an alternative land use future, one that envisions more concentrated development in the inner core and regional urban

1 U.S. Environmental Protection Agency, "Energy CO_2 Emissions by State," http://www.epa.gov/climatechange/emissions/state_energyco2inv.html. Date accessed: November 7, 2008.

centers. Under this scenario, two-thirds of residential and employment growth would occur in areas that are near existing transit service and have compact development patterns. Policies promoting more densification hold the potential for regional growth that is conducive to making transit a more broadly viable alternative to auto use and that accommodates GHG emissions reduction.

In addition to land use changes, demographic trends underway portend an opportunity for achieving greater transit ridership. MAPC projections show that, by 2030, the population in metropolitan Boston over the age of 55 is expected to increase by 78%; one-third of the residents in the region will be seniors. As these baby boomers grow older and retire from driving, demand for transit services will increase as these residents look for ways to maintain their mobility independence.

Already propelling an increase in transit ridership is the recent volatility in energy and financial markets. According to the U.S. Department of Transportation, Americans drove 12.2 billion miles less in June 2008 than in June 2007—a drop of 4.7%—due in large measure to inflation in fuel and energy costs. Even if this turns out to be a short-term trend, a consensus is developing that we cannot continue to build highways to accommodate ever greater volumes of traffic. As traffic congestion worsens and policies are implemented to promote energy efficiency goals, mass transit and other alternatives to the private motor vehicle become more viable options to accommodate growing demand for mobility.

TRANSIT CAPACITY AND MEETING MOBILITY EXPECTATIONS

To meet future demand for transit generated by growth and changing travel behavior, the MBTA must plan and take steps to ensure that the system has sufficient capacity. Currently, more than 1.1 million unlinked transit trips are made daily on the MBTA. The MAPC population and employment projections show that by 2030 unconstrained demand for transit could increase by approximately 500,000–600,000 additional unlinked trips per day, even if the existing transit system is not expanded. To meet the needs of these potential new transit riders, the MBTA must not only build capacity, but also offer a highly attractive alternative to driving. The key to doing so will be a focus on the reliability, convenience, and comfort of services.

CONTENTED MBTA CUSTOMER

On-time performance (OTP) is perhaps the most important measure of service reliability. OTP for the MBTA rapid transit system is generally very good, with all lines and branches surpassing, meeting, or coming close to meeting the MBTA's schedule adherence standard. Bus and commuter rail services currently do not perform as well. In 2004, 94% of trips of all commuter rail lines departed from and arrived at terminals within five minutes of scheduled departure and arrival times. In 2007, only 79% of all commuter rail trips did so.[2] On the bus system, only 60% of all time points measured on all routes currently show buses arriving on time.

2 The MBTA's Service Delivery Policy states that, for a commuter rail line to meet the schedule adherence standard, 95% of all trips must depart from and arrive atterminals within five minutes of scheduled departure and arrival times.

The MBTA's system preservation backlog contributes to reliability problems on all service modes. Aging vehicles and infrastructure cause equipment breakdowns that result in service delays, dropped trips, and speed restrictions. OTP problems on commuter rail are largely attributable to deferred infrastructure needs, such as signal system failures, deficient bridges, or inadequate track layout.

Improving OTP will be critical to attracting ridership, as will ensuring sufficient service frequency. When service is not frequent enough, vehicles can become crowded and uncomfortable for passengers. As ridership grows, the Authority will need to purchase additional vehicles so that routes/lines will not exceed the number of passengers allowed by the MBTA's vehicle load standards. Infrequent service can also make transit less convenient, discouraging use. Expanding geographic coverage—particularly circumferential connections—could increase the convenience of MBTA service, as could decreasing travel times and ensuring that service is available at the times, on the days, and to the destinations desired by existing and potential customers.

SYSTEM ACCESSIBILITY FOR ALL

The MBTA is a national leader among transit agencies in making the strategic investments needed to advance a full-accessibility agenda. It is committed to complying with both the letter and the spirit of the Americans with Disabilities Act (ADA), so that all people with disabilities will be able to use the system in an equitable, effective, and dignified manner.

The MBTA's blueprint for accessibility has been developed in partnership with the Boston Center for Independent Living (BCIL). A 2007 agreement between the Authority and BCIL enumerates many accessibility improvements that must be made in relation to all aspects of MBTA operations.

Some of the specific initiatives that the MBTA will need to complete include:

- Eliminating separate treatment of persons with disabilities, such as remote/uncovered mini-high platforms
- Providing redundant elevators at stations and maintaining and replacing them as needed
- Purchasing accessible vehicles that are compatible with station accessibility features
- Improving overall customer service for people with disabilities through actions such as pulling buses to curb, making all stop announcements, securing wheelchairs on vehicles, ensuring that CSA (Customer Service Agent) assistance is available, using a bridge plate when needed, and improving wayfinding
- Implementing a program for customer input regarding vehicle accessibility design needs

BICYCLE CAGE AT MBTA STATION

Also of importance to MBTA customers is the ease of access to stations and services for those who walk, bicycle, or drive to transit. The MBTA should work closely with municipalities to improve pedestrian access to services and will need to upgrade bicycle amenities at stations. In addition, the MBTA will need to develop strategies to meet demand for station parking. In some cases, this will mean increasing the supply of parking spaces; however, at other stations, parking demand management strategies, including pricing incentives, may be more feasible. Due to the differing characteristics of individual parking facilities, such as

availability of space to expand and land ownership, differing solutions must be considered for the various stations that need improved access.

QUALITY CUSTOMER SERVICE

Our customers rely on MBTA service for getting to their jobs and accomplishing other essential parts of their daily routines. Moving people on time, safely, and courteously is expected. Riders are our greatest assets, and the MBTA must, as part of any ridership growth strategy, continue to focus on customer service, including improved communications. The MBTA looks to employ new technologies in more effectively managing services and in getting more timely and accurate information to customers. Recent developments in technology have made it possible to communicate with customers faster and more accurately; the MBTA has been consistently improving customer communication through investments such as automated stop-announcement capabilities, next-train alert systems, and Web-based trip planning.

At the same time, however, the MBTA cannot neglect basics such as printed schedules that are easily obtainable on vehicles and in stations; posted schedules and maps that are up-to-date; station public-address announcements that are easily understood; stop announcements that are consistently executed; display of relevant information on variable-message signs; readily available information on how to connect from one mode to another; and timely information about unexpected service delays.

BLUE LINE DISPLAY CASE

Of paramount importance is courteous and respectful treatment by front-line MBTA personnel. The MBTA has instituted personnel training programs, has transformed booth fare collectors into Customer Service Agents, and has established a customer care center that consolidates processing and monitoring of all customer inquiries and complaints.

BALANCING OPEN MOBILITY WITH SAFETY AND SECURITY CONCERNS

The nature of transit systems in general, and the age of the MBTA system in particular, pose safety and security challenges. Transit, an essential transportation element of any densely developed urban area, is designed and operated as an open system, making it inherently difficult to monitor and secure. Unfortunately, as demonstrated by attacks in London and Madrid earlier in this decade, this openness, along with the high volumes of users on a successful transit service, makes such systems high-consequence targets for terrorists. The age of the MBTA infrastructure adds to its vulnerabilities, as it was built long before planners anticipated the need to design stations with blast-resistant structures and with open spaces that provide broad fields of vision for easy surveillance.

The MBTA has increased passenger safety and security through its hub station program, which incorporates closed-circuit television monitoring and elevator, escalator, fire, and automated-fare-collection-system alarms. In addition, cameras are being installed on buses to monitor and guard against crime and/or terrorist activities. Protecting passenger safety will also require regular replacement of vehicles when they reach the

HUB MONITORING STATION

end of their useful lives and ensuring that necessary midlife overhauls and ongoing maintenance are carried out. In addition to physical safety, data security is of ever-increasing importance. Critical to data protection will be investment in redundant and secure computer networks and in systems necessary to protect the security of customers making online pass purchases.

Fundamental to all future MBTA safety and security efforts will be ongoing maintenance of existing equipment, infrastructure, and security systems; upgrades/expansions of technologies as needs change; continued efforts to track security threats as they emerge; and implementation of needed safety and security improvements to protect passengers.

EQUITABLE DISTRIBUTION OF BENEFITS AND BURDENS

The Boston region is blessed with a mature, functioning public transit infrastructure that is the envy of other cities. It is an economic-development asset to the region and critically important in connecting communities. Decisions we make at the MBTA regarding provision of service and capital resource allocation have potentially significant impacts on the future of the region we serve.

Of particular concern are the impacts that transit investments may have on environmental justice communities. These are the communities that are made up of census tracts in which many residents are minority and/or low-income.[3] Transit has played an important role in helping to eliminate barriers that have isolated poor and minority neighborhoods, by providing needed mobility options for transit-dependent residents and making connections to employment opportunities. At the same time, transit service by necessity generates some community burdens, such as noise and emissions from in-service vehicles and from vehicle storage or maintenance garages.

In meeting our environmental justice responsibilities, the Authority makes every effort to ensure that minority and low-income communities have access to public information relating to the planning and operation of MBTA services and the opportunity to be meaningfully involved in the planning process. The MBTA is committed to ensuring that no neighborhood or community will be forced to shoulder a disproportionate burden of any negative economic impacts, or of any negative human-health or environmental impacts of pollution or other environmental hazard, resulting from the construction, operation, or maintenance of its facilities.

The Authority is equally committed to ensuring that the benefits of its services are equitably distributed to minority and low-income areas. As required by the federal Civil Rights Act of 1964, the MBTA monitors the equity of its services through its Title VI program, which ensures that the MBTA does not discriminate, either intentionally or unintentionally, in its delivery of services. For the purposes of Title VI, the MBTA defines minority census tracts as ones in which the proportion of minority persons is greater than the average

3 The MBTA defines minority and low-income census tracts based on the requirements for its Title VI monitoring. Minority census tracts are ones in which the proportion of minority persons is greater than the average proportion of minority persons in the MBTA's service area, and low-income tracts are ones in which the median household income is less than 60% of the median household income for the service area.

proportion of minority persons in the service area, and low-income tracts as ones in which the median household income is less than 60% of the median household income for the service area.[4]

Although there are census tracts that are minority and/or low-income scattered throughout the MBTA service area, the majority are located within the core and in the region's other cities. Boston's neighborhoods are minority, with the exception of the downtown area/financial district and South Boston. Parts of Boston are low-income as well as minority. These are concentrated primarily in the South End, Fenway, Roxbury, and parts of Dorchester and Roslindale. In the cities closest to Boston, the largest minority areas are found in Cambridge, Somerville, Everett, Chelsea, Revere, Malden, and Lynn. Smaller areas that are both low-income and minority are located in most of these cities as well. Farther from the core, the areas with the largest minority and low-income populations are located in Randolph, Brockton, Framingham, Worcester, Leominster, Fitchburg, Harvard, Lowell, and Lawrence.

Recent analysis that was completed as a part of the MBTA's 2008 Title VI monitoring shows that almost half (49%) of the MBTA's approximately 182 bus routes are defined as minority and 16% are defined as minority and low-income.[5] Approximately 70% of all bus boardings occur at stops that are in minority census tracts, and about 26% of boardings are in census tracts that are both low-income and minority.

All of the MBTA's heavy rail lines (Red, Blue, and Orange) are classified as minority, but none is low-income. For light rail, the Green Line B and E branches are minority and low-income, and the Mattapan High Speed Line is minority but is not low-income. The Green Line C and D branches are neither minority nor low-income. With respect to boardings, 54% of all heavy rail inbound boardings occur in minority census tracts and 44% in low-income tracts. For light rail, 57% of inbound boardings occur in minority census tracts and 22% in low-income tracts.

Only 2 of the 12 MBTA commuter rail lines are classified as minority (Fairmount and Middleborough/Lakeville), and none is classified as low-income. Of all commuter rail inbound boardings, 20% occur at minority stations and 5% at low-income stations.

Systemwide, on all modes, over half (approximately 52%) of all inbound boardings occur in minority census tracts, 16% in low-income tracts, and 19% in census tracts that are both minority and low-income.

The MBTA remains committed to ensuring that the benefits and burdens of its services are shared equitably both now and in the future.

4 For Title VI, the MBTA has defined two separate service areas: one for the rapid transit and bus systems, and another for the commuter rail system, which is much larger. The average proportions of minority persons in the bus and rapid transit service area and the commuter rail service area are 24.56% and 19.93%, respectively. Sixty percent of the median household income is $32,120 in the bus and rapid transit service area and $32,582 in the commuter rail service area.

5 Commuter rail lines, rapid transit lines, and bus routes are designated as minority and/or low-income if 40% or more of passengers board in minority and/or low-income tracts. In this PMT's discussion of this aspect of each mode, the lines, routes, and tracts classified as "minority *and* low-income" are not included when quantifying how many are simply "minority" or simply "low-income."