

Beyond Lechmere Northwest Corridor Project

Purpose and Need

Introduction/Purpose Statement

The purpose of the Beyond Lechmere Northwest Corridor Project is to define the most appropriate transit strategy investment for improving mobility and regional access for residents in the northwest corridor communities of East Cambridge, Somerville and Medford. Traffic congestion, mode transfer, and service delays hamper access to downtown Boston and to employment and services. The Beyond Lechmere Northwest Corridor Project will investigate cost-effective transit solutions that will increase transit accessibility, improve corridor mobility, increase transit ridership, improve regional air quality and support opportunities for smart growth initiatives and sustainable development.

This document provides information on the project purpose and the need for transportation improvements in the East Cambridge, Somerville and Medford study area. It includes a discussion of the planning and policy context, defines the study area, presents demographic data, describes existing and programmed transportation facilities and services, and discusses state and regional policy goals and objectives.

Planning and Policy Context

Improvements to transit service in the study area have been the subject of several studies over the past 40 years. One of the objectives of the 1962 North Terminal Area Study was to “design a new transit alignment to permit a future branch extension (of the Green Line) to Somerville and communities northwest along the right-of-way of the Boston and Maine Railroad”. The 1973 Boston Transportation Planning Review Northwest Study focused on this issue by identifying and evaluating various bus, commuter rail, and Green Line extension alternatives in the “Somerville Radial Corridor”. In 1981, the MBTA conducted the Green Line Northwest Project Study, which provided an evaluation of transit alternatives beyond Lechmere Station.

In the late 1980s, the MBTA progressed the design of a relocated Lechmere Station to the eastside of Monsignor O’Brien Highway. This new station would have provided commuter parking as well as a storage facility for trolleys. This project was halted due to funding constraints. In 2000, the MBTA signed a public-private partnership agreement that provides for the relocation of Lechmere Station.

The current study to be undertaken by the MBTA has been initiated as a result of the 2000 EOTC/DEP Administrative Consent Order (ACO). As outlined in the ACO, extension of Green Line service to Medford Hillside is required to be completed by 2011. This project is also included in the MBTA’s Program for Mass Transportation (PMT) and is rated a medium priority based on the preliminary evaluation.

The Administrative Consent Order (ACO) does allow for substitute transit system improvement projects. However, to replace a project, EOTC must demonstrate to DEP that the project is infeasible due to associated adverse engineering, environmental or economic impacts. In the 2003 ACO Project Update and Project Schedule, EOTC explained that a Major Investment Study for this study will resolve issues of environmental impact, routing options, methods of construction and operational characteristics.

Study Area

The study area for the Beyond Lechmere Northwest Corridor Project is generally bound by Interstate 93 and the Orange Line to the east, the Red Line and Fitchburg Commuter Rail Line to the west and south, and West Medford to the north. This area includes a small part of East Cambridge, a large segment of Somerville, and portions of Medford. The geographic coverage of the study area includes primarily two communities – Somerville and Medford. Somerville is an urban city with a large industrial base of approximately 4.1 square miles. It is a city of neighborhoods each having its

own distinct character. With a population of 76,210, its density is 18,543 people per square mile. Medford has long been a suburban city taking advantage of its proximity to Boston. With an area of approximately 8.1 miles and a population of 57,407, it has a density of 7,052 people per square mile. Both cities have a large base of commuters and transit users. In Somerville, over 25 percent of the residents use public transit services.

Travel in the study area is strongly oriented towards downtown Boston and neighboring urban centers. On a typical weekday, approximately 250,000 trips begin or end in the study area, with 16% of the trips occurring within the study area and 25% going to downtown Boston and Cambridge. Transit accounts for 70 percent of the trips made to downtown Boston from the study area. This is due to a high level of transit dependency and usage. The study area has a high population density, a high percentage of elderly and low/moderate income residents and a low level of automobile ownership. As such, transit dependency is high in this area.

East and west of the study area, transit markets are effectively served by rapid transit facilities. The Red and Orange Lines provide high-capacity transit services that are well-utilized. The Orange Line offers commuter-parking facilities at Oak Grove, Wellington, and Sullivan Square Stations. The Red Line has a major parking structure available at Alewife Station in Cambridge. The Red Line also serves intermediate stations at Porter Square in Cambridge and Davis Square in Somerville.

Commuter rail service within the study area is provided via the MBTA's Fitchburg Commuter Rail Line at Porter Square. North of the study area, commuter rail service is provided via the MBTA's Lowell Line, also known as the New Hampshire Main Line. The closest commuter rail station on the Lowell Line to downtown Boston is located in West Medford. Guilford Rail System (GRS) operates freight service over both the Fitchburg and Lowell Lines.

The MBTA operates seven bus routes in or near the study area. The quality of bus service in the study area is good, however, schedule adherence is always a challenge. Heavy traffic congestion in Union Square and Davis Square causes delays, resulting in missed or late trips.

These rail and bus services provide each of their market areas with high quality and effective public transportation. Any transit improvements to be considered for this study will need to take each of these modes into consideration and not adversely impact the high quality and effectiveness of the service.

Purpose and Need

Environmental Justice

The Environmental Justice (EJ) Policy of the Executive Office of Environmental Affairs (EOEA) is an effort to protect the environment and public health in the Commonwealth of Massachusetts. EJ is based on the principle that all people have the right to be protected from environmental pollution and to live in and enjoy a clean and healthful environment. EOEA's EJ Policy makes environmental justice an integral consideration in the implementation of all state environmental programs, including but not limited to, the grant of financial resources, the implementation and enforcement of laws, regulations and policies, and the provision of access to both active and passive open space.

The policy focuses resources on servicing the high-minority/low-income neighborhoods in Massachusetts where residents are likely to be unaware of or unable to participate in environmental decision-making or to gain access to state environmental resources. EOEA's policy defines EJ populations as neighborhoods, defined by the US Census Bureau, that meet one of the following criteria: median annual household incomes are at or below 65% of the statewide median; 25% of the residents are minority; 25% of the residents are foreign born; or 25% of the residents are lacking English

language proficiency. EJ populations are generally located in densely populated urban neighborhoods. These neighborhoods are generally smaller in area, with larger populations and are located in close proximity to contaminated and abandoned sites and large sources of air emissions.

The data used to analyze EJ compliance are generally based on 2000 U.S. Census data. The “Block Group level” is the smallest geographic area for which income, race, and ethnicity data are available from the U.S. Bureau of the Census. The characteristics of the population within the Study Area are compared to thresholds established by the state, municipality, or MPO. The analysis identifies minority population, Hispanic population and low-income populations.

The Boston Metropolitan Planning Organizations (MPO), working with the environmental justice community, has also developed methodologies to assess the impacts of their transportation plans and planning processes on low-income and minority populations. According to the guidelines established in the Regional Transportation Plan 2004-2025 of the Boston Region MPO, environmental justice requires the MPO to examine the benefits and burdens, historically, currently and planned in the future to ensure that minority and low-income communities are treated equitably in the provision of transportation services and projects. Target populations for the MPO are areas, or traffic analysis zones (TAZs), where: median household incomes are at or below 75% of the 2000 MPO median household income; minority populations are greater than 21.4%; greater than 4.1% of the residents five years and older are unable to speak English fluently; and greater than 15.4% of all households are without autos. Cambridge and Somerville are two such target areas for the Boston Region MPO. Performance measures to be used as indicators of benefits and burdens on areas include: mobility and congestion; environmental; and access to needed services and jobs.

The study area for the Beyond Lechmere Northwest Corridor Project includes a number of Environmental Justice Populations. Improvements to transit services will be in conformance with the EOEA and MPO’s plans to provide benefits to these populations in terms of air quality, mobility, and access to services and jobs.

Air Quality

The study area is located within an area designated non-attainment for ozone by the US Environmental Protection Agency (EPA), with a classification of “serious”. Motor vehicles are the predominant sources of ozone precursor emissions within the study area. A shift in travel mode from automobiles to transit is expected to result in an overall reduction in vehicle emissions of volatile organic compounds and carbon monoxide, and would improve regional air quality.

Regional Transit System Capacity

Limited regional transit services are currently provided in the study area. These services provide inadequate links between centers of activity in the region and into Boston. Commuter rail service within the study area is provided via the MBTA’s Fitchburg Commuter Rail Line at Porter Square. North of the study area, commuter rail service is provided via the MBTA’s Lowell Line, also known as the New Hampshire Main Line. The closest commuter rail station on the Lowell Line to downtown Boston is located in West Medford.

Access to the MBTA’s rapid transit network is available at three locations on the periphery of the study area allowing walk and bicycle access to transit:

- Red Line at Davis Square,
- Orange Line at Sullivan Square, and
- Green Line at Lechmere Station.

Park-and-ride facilities are available for each of these transit lines at or just beyond the study area boundaries. In addition to providing walk, bicycle, and park-and-ride access, many of the bus routes in the study area terminate at

stations along the Red, Orange, and Green Lines. These bus routes provide important connecting service to key activity centers in Cambridge and Boston for commuters. Additionally, these routes provide service for transit patrons traveling between points within the study area and those not following traditional commuting patterns. Roughly 16 bus routes provide service (identified by route number and terminal points) in the study area. Although many of these bus routes provide high frequency, the quality of service provided is often limited by traffic congestion within the study area, which can have significant impacts on schedule adherence.

In addition to roadway and transit systems, walking and bicycling are important modes of transportation within the study area. Residents often walk to and from nearby commercial areas to meet their daily commerce needs. Sidewalks are prevalent throughout the study area and at least one off-road pedestrian and bicycle facility serves the northwest portion of the study area. In addition to the sidewalk network, the Somerville Community Path begins at Alewife Station and serves an extension of the Minuteman Commuter Bikeway into the North Cambridge and Davis Square neighborhoods. The path currently ends at Cedar Street in Somerville, but is under design between Cedar Street and Central Street. Ultimately, the path could extend along the MBTA's Lowell Commuter Rail Line to the North Point Development Project in East Cambridge where connections could be made to the Charles River Reservation. At North Point, a bicycle service and valet facility is planned by the developer as part of the relocated Lechmere Station to encourage intermodal connections between the Green Line and the bicycle path. Although neither project is designed, the Community Path and potential transit facility (LRT or BRT) expansion in the Lowell Line corridor could pose design and operational challenges and opportunities.

Access to Opportunity

The need for multiple transfer connections also constrain access by study area residents to important Boston destinations, which include education opportunities, with numerous private and public colleges and universities, the highest concentration of medical facilities and specialties in the Commonwealth, cultural facilities, and sporting events. Existing highway congestion, extended travel times, and limited (and often expensive) parking affect the ability of many area residents to access these destinations.

The City of Boston continues to provide substantial employment opportunities at all levels, and also contains a substantial employment labor force. Many of those in the North Cambridge, Somerville and Medford area have a substantial work orientation to Boston. Access between the study area and downtown Boston is constrained by the limited, overtaxed roadways and lack of easy connections to alternative transit modes. The ability to park in Boston is constrained by the limited space available to provide parking, high demand for parking resulting from new development, the high cost of parking, and the metropolitan area parking freeze. Residents of the study area would benefit substantially from improved employment access and reduced commuting times as well as reduced commuting and parking costs.

Mode Choice and Connectivity

Travel options in the study area are currently limited to automobiles, bus, bicycles and walking. The infrastructure of the study area consists of roadways, highways and rail. The existing fixed guideway systems through the study area do not currently serve the area. The proposed project would introduce access to fixed guideway transit in a region underserved by this mode. Introduction of a new or enhanced transit service would increase mode choice for area residents and offer a new mode option to travelers in the region. Additionally, there are also increased opportunities for multimodal connections in the study area.

Economic Development

The study area is a typical dense early 20th-century urban setting with double and triple-deckers distributed around urban centers that attract city activities, and a number of main avenues that collect and funnel the vehicular traffic. The lack of

easy connections to Boston may constrain economic activity in the urban study area. Opportunities for economic development around transit centers are possible within the study area. The urban centers or activity areas that must be considered in their proper context are:

- **Union Square.** Union Square bears striking similarities with, and has the potential to become if served by enhanced transit, another Porter Square. While presently appearing to be underdeveloped, it has considerable potential in the eyes of the City of Somerville officials to become an economic catalyst, given its proximity to Inman Square in Cambridge. Union Square plays the role of a hinge between a light industrial area that lies along the eastern end of Somerville Avenue, the commercial establishments at the intersection of Prospect, Bow and Washington Streets, and the residential areas north of Bow and Summer Streets. Union Square connects with the Central Hill area via Walnut Street.
- **City Hall Square/Gilman Square.** The heart of Somerville seems to reside at the intersection of Highland Avenue and School Street, extend along Highland Avenue to Walnut Street and then wrap around the high school complex to, and on, Medford Street across the bridge over the MBTA right-of-way to Gilman Square, behind City Hall. Just as Union Square bears similarities to Porter Square in terms of character (and even physical layout, as it features streets that intersect at sharp angles), this area bears similarities to Cambridge's Central Square. It appears that, for reasons of location and importance to the city, this site could be a prime candidate for a transit station.
- **Ball Square.** Located at the important intersection of Broadway and the Lowell Line right-of-way, Ball Square is expected to be a stop on any transit extension from Lechmere to Medford Hills. The similarities of this intersection with the intersection of Blue Hill Avenue and the Fairmount Commuter Rail Line in Mattapan (presently under study by the MBTA) are inescapable and the potential as large.
- **Powder House Square.** This intersection (or "circle") is the gateway to Tufts University, hence its importance to the study area. It is also a "hinge" in the connection between the cities of Somerville and Medford, as well as an introduction to the more suburban landscapes that occur beyond Mystic River and Alewife Brook and Mystic River parkways.

Introduction of enhanced transit will increase the potential of the study area to attract new development. Transit improvement should also make the area more competitive for new office, market rate housing, and light industry.

Goals and Objectives

The Beyond Lechmere Northwest Corridor is part of a comprehensive effort to achieve a series of broad study area transportation and development goals, as well as specific objectives for improving the quality of transportation services and the equity of the distribution of services within the study area. These goals and objectives have been developed as part of both broad-based policies and specific regional documents. The following two sections summarize the relevant studies and policies and their applicability to this project.

Statewide Policy Documents and Studies

A number of important studies, reports and policy statements have helped to document the development of transportation policy in eastern Massachusetts. Among these are:

- In 1966, the MBTA developed and the MBTA Advisory Board approved a comprehensive **Program for Mass Transportation (PMT)**. The PMT is the mass transit plan for the Boston region and was updated in 1978, 1994 and 2003. The objective of the PMT is to *identify and recommend projects that will result in a cost-effective transit system that serves the greatest number of people in a way that respects the environment and enhances responsible economic development*. The 2003 update identifies mass transit needs through the year 2025 that involve capital expenditures.

- The Massachusetts Office for Commonwealth Development (OCD) was created in 2002 with a mission to care for the built and natural environment by promoting sustainable development through the integration of energy, environmental, housing, and transportation agencies' policies, programs, and regulations. OCD is to invest public funds wisely in smart growth and equitable development, giving priority to investments that will deliver living wage jobs, transit access, housing, open space, and community-serving enterprises.

A key element in the sustainable development principles is providing transportation choice. This principles goal is to increase access to transportation options, in all communities, including land- and water-based public transit, bicycling, and walking. Invest strategically in transportation infrastructure to encourage smart growth. Locate new development where a variety of transportation modes can be made available.

- Throughout this past year, the Executive Office of Transportation and Construction (EOTC) has been working on developing proposed evaluation criteria for Massachusetts' transportation projects. These criteria were developed to:
 - Ensure during the project development stage that the limited budgetary and staff resources of the implementing agency are committed to the best proposals;
 - Assist the MPO's programming of federal funding through the regional Transportation Improvement Programs (TIPs); and
 - Examine existing projects in the pipeline and determine those that should proceed into the design and construction phases.

The Beyond Lechmere Project has the opportunity to be one of the first major transportation projects in Massachusetts to go through this evaluation screening process from the beginning.