

**Green Line Extension
Cambridge to Medford, Massachusetts
Engineering
(Rating Assigned June 2012)**

Summary Description	
Proposed Project:	Light Rail Transit 4.3 Miles, 7 Stations
Total Capital Cost (\$YOE):	\$1,334.62 Million (Includes \$218.8 million in finance charges)
Section 5309 New Starts Share (\$YOE):	\$557.07 Million (41.7%)
Annual Forecast Year Operating Cost:	\$47.00 Million
Ridership Forecast (2030):	44,800 Average Weekday Trips 7,000 Daily New Trips
Opening Year Ridership Forecast (2019):	39,100 Average Weekday Trips
Overall Project Rating:	Medium
Project Justification Rating:	Medium
Local Financial Commitment Rating:	Medium

Project Description: The Massachusetts Department of Transportation (MassDOT) and the Massachusetts Bay Transportation Authority (MBTA) are jointly proposing to extend the existing Green Line LRT route from a relocated Lechmere Station in Cambridge to College Avenue in Medford. The GLX will operate on the exclusive right-of-way of the MBTA Commuter Rail System, adjacent to existing commuter rail service. The project includes six at-grade stations and one elevated station; three miles of at-grade guideway and 1.3 miles of elevated guideway; reconstruction of eight bridge structures to maintain grade separation on the route; and the purchase of 24 light rail vehicles. Service will be provided twenty hours per day, seven days per week. Service will operate every five- to six minutes during weekday peak periods, every seven to ten minutes during weekend peak periods, and every nine to 14 minutes during off peak periods.

Project Purpose: The GLX project will improve mobility for residents of Cambridge, Somerville and Medford by providing a one-seat transit ride to Downtown Boston and the greater Boston metropolitan area. It will serve some of the region's most densely populated communities not currently served by rail transit. Approximately 80,300 residents live within one-half mile of proposed stations, 26 percent of whom do not own or have access to an automobile. The project will reduce transit travel time in the project corridor by approximately 13 to 17 minutes because it will be built on fully grade-separated right-of-way through congested built-up neighborhoods, eliminating the need for passengers to make bus-to-rail transfers. The GLX project is a requirement contained in the Massachusetts Department of Environmental Protection's State Implementation Plan to comply with Federal Clean Air Act standards. The project also fulfills a longstanding commitment to improve air quality and increase public transportation in Boston as a mitigation measure for the Boston Central Artery/Highway Tunnel project that was completed in 2007.

Project Development History, Status and Next Steps: Following publication of the draft Alternatives Analysis, "Beyond Lechmere Northwest Corridor Study," the Massachusetts Executive Office of Transportation (now MassDOT) identified the GLX project as the locally preferred alternative in August 2005. The Boston Metropolitan Planning Organization approved the project into the financially constrained long-range regional transportation plan in September 2009. An Environmental Assessment of the project was published in October 2011, with a Finding of No Significant Impact issued in July 2012. Under SAFETEA-LU, FTA approved the GLX project into preliminary engineering in June 2012.

The project is considered grandfathered into the MAP-21 engineering phase since the environmental review process is completed. MBTA anticipates receipt of a Full Funding Grant Agreement in 2014 and start of revenue service in 2019.

Locally Proposed Financial Plan		
<u>Source of Funds</u>	<u>Total Funds (\$million)</u>	<u>Percent of Total</u>
Federal: Section 5309 New Starts	\$557.07	41.7%
State: Commonwealth Bond Funding (Backed by Commonwealth General Funds)	\$558.75	41.9%
Commonwealth Transportation Fund	\$218.80	16.4%
Total:	\$1,334.62	100.0%

NOTE: The financial plan reflected in this table has been developed by the project sponsor and does not reflect a commitment by DOT or FTA. The sum of the figures may differ from the total as listed due to rounding.

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Factor	Rating	Comments
Local Financial Commitment Rating	Medium	
Non-Section 5309 New Starts Share (20% of summary financial rating)	Medium-High	The New Starts share of the project is 41.7 percent.
Project Capital Financial Plan (50% of summary financial rating)	Medium	
Capital Condition (25% of capital plan rating)	Medium	<p>The average age of the bus fleet is 8.8 years, which is higher than the industry average.</p> <p>The Massachusetts Bay Transportation Authority's (MBTA's) most recent bond ratings, issued December 2010, are as follows: Moody's, Aa1; and Standard & Poor's, AAA. The Commonwealth of Massachusetts' most recent bond ratings, issued September 2011, are as follows: Moody's, Aa1; Fitch, AA+; and Standard & Poor's, AA+.</p>
Commitment of Funds (25% of capital plan rating)	High	All of the non-Section 5309 New Starts funds are committed or budgeted. Sources of funds include Commonwealth bond funding backed by the Commonwealth's general funds and funding from the Commonwealth Transportation Fund.
Capital Cost Estimates, Assumptions and Financial Capacity (50% of capital plan rating)	Medium-Low	<p>MBTA's assumption of debt by the Commonwealth to fund existing state of good repair needs and assumptions for new revenue sources requiring significant hurdles to implement are optimistic.</p> <p>The capital cost estimate is reasonable.</p> <p>MBTA has a reasonable plan to cover cost increases or funding shortfalls equal to at least 10 percent of estimated project costs.</p>
Project Operating Financial Plan (30% of summary financial rating)	Medium	
Operating Condition (25% of operating plan rating)	Low	MBTA's current ratio of assets to liabilities as reported in its most recent audited financial statement is 0.49. There have been no service cutbacks, but historical cash flows show several years of revenue shortfalls.
Commitment of Funds	Medium	Over 50 percent of operating funds is existing and committed or budgeted. The

(25% of operating plan rating)		remainder of the funds is planned. These committed, budgeted or planned sources include farebox revenues, dedicated sales tax revenues, dedicated local property assessments, Commonwealth contract assistance, Vehicle Miles Traveled fee revenue, and casino revenues.
O&M Cost Estimates, Assumptions, and Financial Capacity (50% of operating plan rating)	Medium	Assumed farebox revenues, farebox recovery, and operating and maintenance costs are consistent with historical experience. Several new proposed sources of operating revenues are optimistic. Projected cash balances and reserve accounts exceed 12 percent (1.5 months) of annual system-wide operating expenses.

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LAND USE RATING: Medium-High

The land use rating reflects the population and employment densities within ½-mile of proposed station areas.

- Average population density in all station areas is 19,500 persons per square mile, rating “high” according to FTA benchmarks. Total employment within the seven project station areas is 35,700. The project, however, will provide a one-seat ride to the Boston Central Business District (CBD), where there are 310,900 jobs, resulting in total employment served by the project of 346,600 (“high” by FTA guidelines).
- Compact, traditional residential neighborhoods, interspersed with small urban retail commercial centers, typify the corridor. Most station area development pre-dates the automobile age and conforms to transit-supportive patterns. Residences generally are closely spaced, two-family and triple-decker houses, with sidewalks, minimal setbacks, and street trees. Sections of the Relocated Lechmere and Washington Street Station areas are industrial or include large vacant lots and rail yards. Newer residential development consists primarily of mid-to-high-rise buildings. The immediate environs of stations generally have less transit-supportive development and street-level activity, because the stations are located adjacent to existing commuter rail lines.
- Typical daily parking rates in Downtown Boston exceed \$30, rating “high” according to FTA benchmarks.

ECONOMIC DEVELOPMENT RATING: Medium-High

Transit-Supportive Plans and Policies: Medium-High

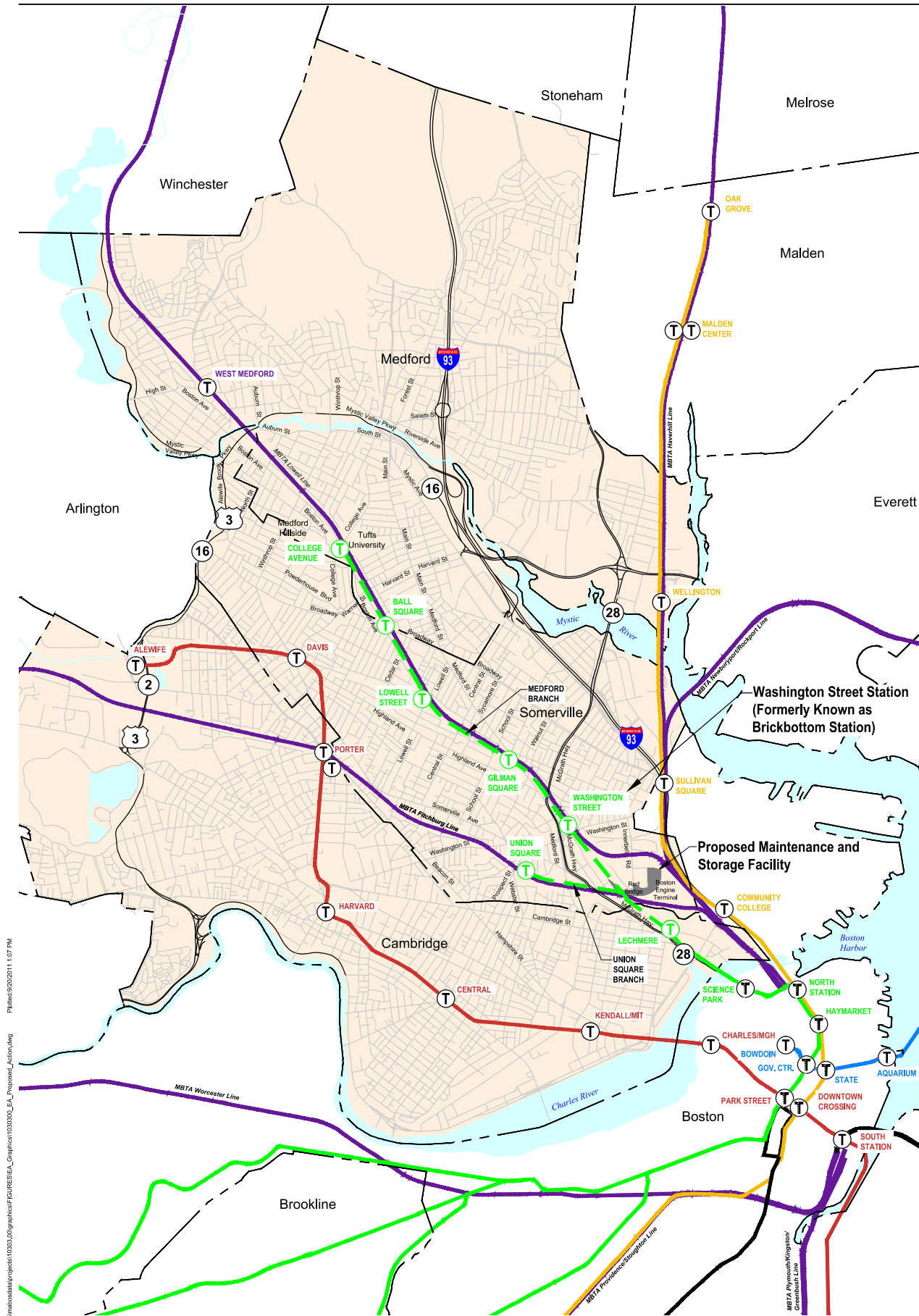
(50 percent of Economic Development Rating)

- State policies support the concentration of growth around established activity centers and major transit facilities. Programs implementing these policies provide financial incentives to communities that create districts allowing high-density mixed-use development, particularly in areas close to transit stations. The citywide plans of corridor communities support channeling growth along the Green Line Extension corridor.
- While most project station areas are largely built-out, the corridor communities have detailed plans for the redevelopment of areas near several stations where there currently is older industrial development that no longer is a productive use of available land. These plans promote development with transit-supportive characteristics: high densities, mixed uses, street-front retail, and vertical zoning in commercial areas near transit stations. Grassroots, non-profit organizations are dedicated to redeveloping the traditional commercial districts in several station areas.
- Existing zoning throughout most of the station areas already supports moderate-to-high density mixed use development in many districts. Recent zoning changes have been implemented or are being formulated for developing or redeveloping sections of several station areas. These zoning changes support mixed-use development, require walkable street networks, and reduce minimum parking requirements.
- The Commonwealth of Massachusetts provides a number of financial incentives to implement growth management policies, including direct payments to municipalities that adopt smart growth overlay zoning districts and issue building permits for residential development in areas surrounding transit stations. The cities of Cambridge and Somerville provide financial support for façade and storefront improvements to invigorate neighborhood commercial centers.

Performance and Impacts of Policies: Medium-High

(50% of summary economic development rating)

- The submittal identifies several large-scale projects that have been completed or are under construction in station areas and a dozen large planned or proposed development projects.
- The corridor has a strong base in growing economic sectors, including education, information technology, and the life sciences. Employment in station areas is forecast to increase by approximately 15 percent by 2030. The corridor’s capacity to accommodate additional development depends on the improvement in transportation access that would be provided by the Green Line Extension.



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Green Line Extension Project

Figure 1.1-2

Proposed Action

Legend

- █ MBTA Green Line
- █ MBTA Orange Line
- █ MBTA Red Line
- █ MBTA Blue Line
- █ MBTA Silver Line
- █ MBTA Commuter Rail Line
- ▣ Green Line Proposed Action
- T Existing Station
- T Proposed Station
- Proposed Maintenance and Storage Facility

