



**Massachusetts Department of Transportation  
Massachusetts Bay Transportation Authority**

**State Implementation Plan – Transit Commitments  
Monthly Status Report**

**November 17, 2011**

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## INTRODUCTION

This report is being submitted to the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA) to provide an update on the status of the four outstanding State Implementation Plan (SIP) transportation control measure (TCM) projects: (1) improvements to the Fairmount Line, (2) the siting and construction of 1,000 new commuter parking spaces, (3) the design of the Red Line/Blue Line Connector, and (4) the construction of the Green Line Extension to College Avenue (Medford) and Union Square (Somerville). The U.S. Environmental Protection Agency (EPA) approved the projects as part of the SIP on July 31, 2008. A complete description of the process by which those projects were included in the SIP is provided in the Boston Region MPO's long-range transportation plan – JOURNEY TO 2030 Amendment adopted on September 24, 2009 and amended on November 19, 2009. As part of the approval of the JOURNEY TO 2030 Amendment, FHWA and FTA stated:

*“The demonstration of timely implementation of TCMs in the SIP is required for a conformity determination. In order to ensure that the TCMs are completed as scheduled, the Executive Office of Transportation and Public Works shall prepare monthly progress reports to FTA, FHWA, and EPA. In addition to these progress reports EOT [MassDOT after November 1, 2009] shall convene monthly meetings with all interested parties to discuss the status of each TCM. This reporting requirement will be effective starting November 2009.”*

This is the twentieth update of the required monthly status reports, to be presented at the Boston MPO's Transportation Planning and Programming Committee at their November 17, 2011 meeting. This report builds on the *State Implementation Plan Transit Commitments 2011 Status Report*, submitted to the Massachusetts Department of Environmental Protection on July 27, 2011. This report will be posted on the website of the Massachusetts Department of Transportation.

The *State Implementation Plan Transit Commitments 2011 Status Report* public hearing was held September 13, 2011 in order to hear comments on the report. Written comments were due on September 20, 2011. This monthly report does not address any of these comments. Comments will be addressed in the 2011 Response to Comments, to be completed within 120 days of the public hearing.

## **I. FAIRMOUNT LINE IMPROVEMENT PROJECT**

### **Project Description**

The 9.2-mile Fairmount commuter rail line runs from South Station, currently serves four stations (Uphams Corner, Morton Street, Fairmount, and Readville) in the communities of Dorchester, Mattapan, and Hyde Park, and terminates in the Readville section of Boston. The line, which uses right-of-way entirely owned by the MBTA, also includes 41 bridges. It is the only commuter rail line that exclusively serves neighborhoods within the City of Boston, but ridership has historically been low and passenger facilities along the line do not meet modern standards.

The Fairmount Line Improvement Project includes the rehabilitation of the existing Uphams Corner and Morton Street Stations, construction of four new stations – Newmarket, Four Corners, Talbot Avenue, and Blue Hill Avenue – reconstruction of six existing railroad bridges (located over Columbia Road, Quincy Street, Massachusetts Avenue, Talbot Avenue, Woodrow Avenue, and the Neponset River), and construction of a new interlocking and upgraded signal system (required to advance the bridge reconstruction work). These upgrades will enhance future service, allowing for increased frequency on the line.

### **Project Funding & Cost**

In August 2007, MassDOT and the MBTA executed a contract to transfer approximately \$39 million in bond funds from MassDOT to the MBTA to support project costs of (1) signal work, (2) reconstructing the Columbia Road, Quincy Street, and Massachusetts Avenue Bridges, (3) designing the Talbot Avenue, Woodrow Avenue, and Neponset River Bridges, and (4) designing the Newmarket, Talbot, and Blue Hill Avenue Stations. A supplemental funding agreement providing \$23,756,574 in Commonwealth bond funding was executed in June 2009 in order to advance construction of the station at Four Corners. An additional funding agreement, approved in June 2011 by the MBTA Board of Directors in the amount of \$61,616,500, has allowed the remaining stations and bridges, including Blue Hill Avenue, to advance. The total cost of the project is estimated at \$135 million.

### **SIP Deadline**

“Before December 31, 2011, construction of the following facilities shall be completed and opened to full public use: Fairmount Line improvements consisting of enhancements of existing stations including without limitation: platform extensions; improved lighting and improved access; a new station in the general location of Four Corners, and a new station in each of the neighborhoods of Dorchester, Mattapan and Roxbury; and bridge upgrades and other measures to improve service and increase ridership (the Fairmount Line project).”

## **Project Status**

### **Systems**

The upgrades to the interlocking and signal system have been completed and are currently in use, allowing for the reconstruction of structurally deficient bridges along the Fairmount Line.

### **Bridges**

A construction contract to replace the Columbia Road, Quincy Street, and Massachusetts Avenue bridges was awarded in October of 2007, with the construction work completed in 2010. The design of the Talbot Avenue, Woodrow Avenue, and Neponset River bridges is completed and construction is beginning (see below). The Talbot Avenue and Woodrow Avenue bridges will be constructed under the same construction contract as Talbot Avenue Station, while three Neponset River bridges are being advertised separately (see below).

The project includes replacing three bridges over the Neponset River. Bids for replacement of the northernmost Neponset River Bridge (just north of Fairmount Station) were opened on November 3, 2010. The low bidder was Barletta Construction. Contract authorization was given at the January 2011 MBTA Board of Directors meeting, and the MBTA issued a notice to proceed on February 11, 2011. The project duration is approximately 30 months and is currently 35% complete, with project completion to occur in August 2013.

The two southern Neponset River Bridges (one just south of Fairmount Station, and one just north of Readville Yard) were packaged with environmental remediation of the Yard 5 area. Bids for this group of projects were opened on October 13, 2010. The low bidder was S&R Construction Enterprises, with contract award authorization given at the January 2011 MBTA Board of Directors meeting. The notice to proceed for this contract was issued March 1, 2011. The project duration is approximately 30 months and is currently 35% complete, with project completion to occur in September 2013.

### **Existing Stations**

The MBTA held a station-opening at Uphams Corner on January 23, 2007. The reconstruction of Morton Street was celebrated at a station-opening on July 17, 2007. New elements at both stations include extended high-level passenger platforms, accessible walkways, canopies, benches, windscreens, signage, bicycle racks, variable messages signs, lighting, and landscaping. Work at both stations is now complete.

### **New Stations**

Four Corners Station is under construction and is now 70% complete. A notice to proceed was issued to S&R Construction Enterprises, Inc. on January 28, 2010. Four Corners Station has experienced delays due to unforeseen geotechnical conditions encountered during the excavation work undertaken for the construction of the

outbound platform at Washington Street. The revised substantial completion date for Four Corners Station is October 2012 with final completion to occur in December 2012.

The construction of Talbot Avenue Station and the Talbot and Woodrow Avenue Bridges Rehabilitation projects were advertised and opened for bids in May 2010. The MBTA Board of Directors authorized a construction contract to Barletta Construction on September 10, 2010 and the notice to proceed was issued on November 22, 2010. The construction period is expected to last approximately twenty-six months, with substantial completion of the station and the bridges in October 2012 and anticipated final completion of work by January 2013. Construction is currently 56% complete. A groundbreaking was held on June 7, 2011.

Construction of Newmarket Station was awarded to S&R Construction Enterprises at the MBTA Board of Directors meeting on October 6, 2010. The MBTA issued a notice to proceed on December 13, 2010. Construction is currently 40% complete. The MBTA anticipates substantial completion in December 2012 with final completion of work to occur in February 2013.

The proposed Blue Hill Avenue Station has been the subject of significant community controversy over the past two years. In early 2009, after design work for the station was well underway (60% design), concerns about negative impacts to surrounding residences were raised by a small number of abutters to the proposed station, which at the time was proposed to have two side platforms. In an effort to address these concerns, the MBTA conducted a new analysis of alternative station locations. This additional analysis determined that at least one alternative location (River Street) was infeasible due to track curvature, and that the two other alternative locations (north of Blue Hill Avenue and south of Cummins Highway) would have greater impacts to abutting residential properties than would the original design, while serving fewer riders at increased cost. The MBTA then developed an additional alternative that made use of a center-island platform at the original station site, therefore mitigating some abutter concerns by locating the platform further from homes and backyards; the MBTA also developed a conceptual design for this proposal. The MBTA continued to encounter opposition from some abutters; however, who question the need for and appropriateness of any commuter rail station in this location. The MBTA responded to the immediate neighborhood concerns by completing an additional analysis of noise impact and mitigation measures.

After this further review, the MBTA and MassDOT made a final determination on the Blue Hill Avenue station in May 2011. Station design will proceed at the original site with the center-island platform concept. The necessary redesign of the station is underway, and 100% design completion is anticipated by mid-February 2012. The project is tentatively scheduled for construction advertisement in April 2012, with anticipated construction to start in July 2012. This anticipated schedule will be

revisited as the design of the station evolves. Construction duration for this contract will likely be approximately 24 months, so the anticipated project completion would occur by the end of summer 2014.

### **Potential Challenges**

Community concerns (described above) regarding the construction of a station at Blue Hill Avenue, as well as construction challenges throughout the Fairmount Line, have resulted in a delay of the overall Fairmount Line Improvement Project beyond the December 31, 2011 SIP deadline. MassDOT anticipates that the Four Corners, Talbot Avenue, and Newmarket Stations and their attendant bridges and other infrastructure will be completed incrementally in 2012-2013, beyond the SIP deadline. A reliable completion date for Blue Hill Avenue station continues to be unknown at this time, although the MBTA is working to advance the project as quickly as possible.

MassDOT recognizes that this delay triggers the Project Delay component of the SIP regulation and that MassDOT therefore needs to prepare a Petition to Delay and an Interim Emission Offset Plan, to be implemented for the duration of the delay. Both the Petition and Offset Plan were submitted to DEP on July 27, 2011.

In order to compensate for the delay, MassDOT has estimated the reduced emissions expected to be generated by the implementation of the new Fairmount Line stations. MassDOT and the MBTA, in consultation with Fairmount Line stakeholders, identified a set of potential interim emission reduction offset measures. MassDOT submitted these proposed measures to DEP in a July 27 petition and is currently soliciting feedback from DEP. Concurrently, MassDOT and the MBTA are continuing to work to refine these offsets for implementation on January 1, 2012. A likely change to the July 27 package of proposed offset measures will be dropping the improved service on the Route 29. Eliminating Route 29 frequency improvements does not prevent the package of proposed measures from meeting the emissions reduction target. This change also allows the MBTA to better maintain the existing bus fleet, by not reducing target spare ratios during the heavily-used AM peak period.

## **II. CONSTRUCTION OF 1,000 NEW PARKING SPACES**

### **Project Description**

To encourage commuters and other travelers to make use of the public transit network for trips into downtown Boston – and other locations as appropriate – the MBTA will construct 1,000 new parking spaces at MBTA stations within the 101 communities of the Boston Region Metropolitan Planning Organization (MPO).

### **SIP Deadline**

Before December 31, 2011, construction of the following facilities shall be completed and opened to full public use: 1,000 new park and ride parking spaces serving commuter transit facilities within the 101 cities and towns constituting the Boston Metropolitan Planning Organization.

### **Project Status**

In prior reports submitted to DEP, MassDOT identified two major garage projects (at the Beverly and Salem Commuter Rail Stations) that it planned to construct in order to provide the 1,000 park and ride spaces required under the SIP regulation. While MassDOT was focused on developing these two projects for the SIP commitment, the MBTA was also advancing a series of other projects that would result in additional parking spaces in other locations. Following these two paths simultaneously, MassDOT and the MBTA would have constructed significantly more than the required 1,000 spaces.

However, unanticipated delays to the projects in both Beverly and Salem have extended the anticipated timelines for design and construction of those two facilities beyond the deadline required by the SIP. That being the case and as previously reported, MassDOT has established a revised list of parking projects (provided below) in order to fulfill the necessary SIP commitments and requirements.

### **Wonderland/Blue Line (Revere)**

MassDOT, the City of Revere, and the MBTA are working together to advance a transit-oriented development (TOD) project at Wonderland Station. The master plan for the TOD project calls for residential, retail, office, and hotel space to be built on a portion of the existing surface parking lots at the site currently used by transit riders. In exchange, the developer will build for the MBTA a new 1,465-car parking garage to not only replace the parking lost due to the development but also to increase overall transit parking supply. This project will result in 612 net new transit spaces.

In November 2009, with the garage substantially designed, the City of Revere and MassDOT secured funding under ARRA for construction of the garage. This unanticipated funding source substantially expedited the development of the project. The MBTA entered into a Memorandum of Understanding with the City of Revere to

award a construction contract using a municipal earmark. On September 9th, 2010, the MBTA authorized the City of Revere to award a Design/Build contract to Suffolk Construction. Notice to proceed was issued September 9th, 2010 to Suffolk Construction, and a project groundbreaking occurred on September 13th, 2010.

Construction is currently 80% complete. The final pieces of the garage precast were erected on November 1, 2011. The final Butler Circle and Route 1A paving was completed on November 4, 2011. The contractor began the erection of the station structural steel on November 9, 2011. The current construction schedule anticipates substantial completion by the end of June 2012.

The current delay in the project is due to issues with the relocation of a major third party utility, removal of unforeseen asbestos at the existing station, inadequate initial fireproofing duration in the baseline schedule and the delayed re-inspection of the interim elevator that failed its initial inspection. The MBTA is working diligently with Suffolk Construction to make up the delay and move the substantial completion date as early as the end of May 2012. Schedule recovery options being reviewed include: re-sequencing of work, increasing manpower, shift changes, and an alternate method of fireproofing the elevator shaft structural steel. This review will be completed by the end of November 2011. An appropriate recovery schedule will then be finalized and incorporated in to the project monthly schedule update.

#### **Beverly Depot/Commuter Rail**

As part of the proposed parking garage project in downtown Beverly, the MBTA purchased a parcel of land for use for a portion of the project. In the fall of 2009, the MBTA added 102 surface level spaces on the purchased parcel, which are currently open for use by commuters. Future development on this site will include a parking garage, replacing and supplementing the current surface parking.

#### **Savin Hill/Red Line (Dorchester)**

The MBTA purchased a parcel of land adjacent to the Savin Hill Red Line Station for the purpose of staging and related uses during construction. Upon completion of the project, the parcel was converted to a surface lot, which is currently open for use by commuters. The Savin Hill lot has 28 total spaces, with 22 available for use by daily commuters (the remaining spaces are reserved for MBTA employees and Zipcar users).

#### **Woodland/Green Line (Newton)**

100 spaces were built as part of a joint development project in this area. These spaces were opened and made available to the public in 2007.

#### **Quincy Shipyard/Ferry**

The MBTA purchased a site previously occupied by a series of abandoned buildings associated with the Quincy Shipyard. The buildings were deemed a safety hazard and



subsequently razed. Construction of a 168-space commuter parking lot is complete and open to the public.

Location	Spaces	Status
Wonderland/Blue Line (Revere)	612	Expected Completion March 2012
Beverly Depot/Commuter Rail	102	Complete
Savin Hill/Red Line (Dorchester)	22	Complete
Woodland/Green Line (Newton)	100	Complete
Quincy Shipyard/Ferry	168	Complete
<b>Total</b>	<b>1,004</b>	

### **Project Funding**

Of the 1,004 spaces reported, 392 are complete and the 612 at Wonderland/Blue Line (Revere) have identified funding sources. The following table provides detail on the funding sources for the reported locations:

Location	Funding Source (Percentage)
Wonderland/Blue Line (Revere)	ARRA (46) Federal Earmark (6) MBTA (23) State MORE <sup>1</sup> Grant (20) State TOD Grant (5)
Beverly Depot/Commuter Rail	Federal Earmark (80) MBTA (20)
Savin Hill/Red Line (Dorchester)	MBTA (100)
Woodland/Green Line (Newton)	MBTA (100)
Quincy Shipyard/Ferry	Federal Earmark (80) MBTA (20)

### **Potential Challenges**

With 392 spaces of the identified 1,004 parking spaces complete, and the Wonderland/Blue Line (Revere) garage currently under construction, it is anticipated that MassDOT will complete this SIP commitment. However, with the construction of the Wonderland garage taking longer than anticipated, MassDOT will not meet the full 1,000-space commitment in time for the December 31, 2011 deadline.

MassDOT recognizes that this delay triggers the Project Delay component of the SIP regulation and that MassDOT therefore needs to prepare a Petition to Delay and an Interim Emission Offset Plan, to be implemented for the duration of the delay. However, MassDOT believes that the delay in the Wonderland parking garage causes

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<sup>1</sup> Massachusetts Opportunity Relocation and Expansion Jobs Capital Program

no measurable loss of air quality improvement at the opening date, as described in the Petition to Delay submitted to DEP on July 27, 2011. Given that, MassDOT is requesting that DEP not require the implementation of interim emission reduction offset measures for the 1,000 parking space commitment. MassDOT is continuing to work with DEP on this element of the SIP Requirement,

### **III. RED LINE-BLUE LINE CONNECTOR - DESIGN**

#### **Project Description**

The proposed Red Line/Blue Line Connector consists of an extension of the MBTA Blue Line under Cambridge Street to the Red Line station at Charles/MGH. As currently envisioned, the project consists of two major components: (1) a new tunnel extending the Blue Line under Cambridge Street from Joy Street to Charles Circle and (2) a new underground Blue Line station connected to the existing Charles/MGH station. The project will also consider whether and how to make use of the existing Bowdoin Station – which will require significant rehabilitation – possibly including the relocation of underground trackage and platforms at Bowdoin Station.

The SIP regulations require only that MassDOT complete final design for the project. Construction of the Red Line/Blue Line Connector is not required.

#### **Project Funding & Cost**

The ‘immediate needs’ Transportation Bond Bill of 2007 provides state bond funding for the design of the Red Line/Blue Line Connector project. The estimated funding needed to complete design has increased from the previous \$29 million estimate to \$52 million, according to the new cost estimates completed during the development of the DEIR.

#### **SIP Deadline**

Before December 31, 2011, complete final design of the Red Line/Blue Line Connector, from the Blue Line at Government Center to the Red Line at Charles Station.

#### **Project Status**

On September 14, 2007, MassDOT filed an Expanded Environmental Notification Form with the Massachusetts Environmental Policy Act Office. A public scoping session was held on October 17, 2007, and the Secretary of Energy & Environmental Affairs issued a certificate on the project on November 15, 2007. Based on the project scope as defined in the MEPA Certificate, MassDOT issued a Request for Proposals on March 27, 2008 for a consultant to complete the necessary environmental reviews and engineering for the project. MassDOT awarded a consultant contract during the summer of 2008.

MassDOT has completed the following environmental reviews and conceptual engineering for the project:

#### **Draft Environmental Impact Report**

- The Draft Environmental Impact Report (DEIR) was filed on March 31, 2010
- A MEPA Certificate for the DEIR was issued on May 28, 2010

#### **Public Outreach**

- Six Working Group meetings were held

- A public hearing on the DEIR was held on May 3, 2010
- A project website has been launched and is maintained at [www.mass.gov/massdot/redblue](http://www.mass.gov/massdot/redblue)

### **Refinement of Alternatives/Conceptual Engineering**

- Refinement of potential alternatives was performed for three options: (1) a no-build option, (2) a tunnel option with Bowdoin Station remaining open, and (3) a tunnel option with Bowdoin Station closed. The refinement of alternatives also included an evaluation of potential construction options (a mined tunnel vs. a cut-and-cover tunnel) and construction phasing schemes.
- A *Definition of Alternatives/Conceptual Engineering Report* was completed in November 2009.

### **Design Criteria**

- A draft *Design Criteria Report* was prepared and was included with the *Definition of Alternatives Report*.

### **Alternatives Analysis**

- An *Alternatives Analysis Technical Report* was completed on March 31, 2010.

### **Design**

- The conceptual design of the project is complete.

### **Cost Estimates**

- Conceptual cost estimates were included in the *Definition of Alternatives Report*.

### **Construction Staging and Sequencing Plans**

- Construction staging and sequencing plans were included in the Draft Environmental Impact Report.

### **Real Estate Requirements**

- Potential real estate impacts were identified as part of the DEIR.

### **Potential Challenges**

As part of the environmental review and conceptual design process, MassDOT determined that the ultimate construction costs for the project will far outstrip the cost projections in place at the time that the SIP regulation was promulgated: \$290 million at the time of the SIP regulation versus the current best estimate of \$748 million (escalated to year of expenditure). MassDOT has already spent \$3 million to advance the project through environmental review and conceptual design, but the current \$52 million estimate to complete final design substantially exceeds the \$29 million previously identified for the effort in the 2009 Regional Transportation Plan for the

Boston Region. Furthermore, MassDOT has been unable to identify funding with which to construct the Red Line/Blue Line Connector at any point in the next 20 years. As a matter of policy, MassDOT believes that it is irresponsible to spend precious public funds to design and permit transportation projects for which there are no identified construction funds, particularly given the need to continually refresh planning and permitting materials for major projects. To pursue final design of the Red Line/Blue Line Connector project at this point would be to squander resources that could otherwise be spent on projects for which construction funds are already committed.

Therefore, MassDOT has initiated a process to amend the SIP to permanently and completely remove the obligation to perform final design of the Red Line/Blue Line Connector. To this end, MassDOT will continue to work with DEP and with the general public on the amendment process. MassDOT has not proposed to substitute any new projects in place of the Red Line/Blue Line Connector commitment, given the absence of any air quality benefits associated with the current Red Line/Blue Line commitment (final design only). Correspondence from MassDOT to DEP formally initiating the amendment process was submitted on July 27, 2011, and is posted to the MassDOT website.

## IV. GREEN LINE EXTENSION TO SOMERVILLE AND MEDFORD

### Project Description

This project – the purpose of which is to improve corridor mobility, boost transit ridership, improve regional air quality, ensure equitable distribution of transit services, and support opportunities for sustainable development – will extend the MBTA Green Line from a relocated Lechmere Station in East Cambridge to College Avenue in Medford, with a branch to Union Square in Somerville.

### Proposed Stations

New Green Line stations are currently proposed for:

- **College Avenue, Medford** – Located at the intersection of College Avenue and Boston Avenue in Medford, adjacent to Tufts University. The station platform will be located on the north side of the College Avenue Bridge, which crosses over the MBTA Lowell Line. Access to the station will be provided from both Boston Avenue and College Avenue, as well as from the Burget Avenue neighborhood, which lies northeast of the station site.
- **Broadway/Ball Square, Medford/Somerville** – Located at the intersection of Broadway and Boston Avenue on the north side of Ball Square. The station platform will be located on the north side of the Broadway Bridge, which crosses over the MBTA Lowell Line. Access to the station will be provided from both Boston Avenue and Broadway. An electrical substation, needed to support the Green Line Extension, will likely be installed at this location.
- **Lowell Street, Somerville** – Located at the Lowell Street Bridge, which crosses over the MBTA Lowell Line adjacent to the proposed extension of the Somerville Community Path. The station platform will be located on the north side of the Lowell Street Bridge. Access to the station will be provided from Lowell Street.
- **Gilman Square, Somerville** – Located in the vicinity of the Medford Street crossing of the MBTA Lowell Line, behind Somerville City Hall, Public Library, and High School. The station platform will be located on the north side of the Medford Street Bridge, which crosses over the MBTA Lowell Line. Access to the station will be provided from Medford Street. The proposed extension of the Somerville Community Path will be located in close proximity to the station.
- **Washington Street, Somerville** – Located within the footprint of the Washington Street Bridge, proximate to Somerville’s Brickbottom, Inner Belt, and Cobble Hill areas. The station platform will be located south of the Washington Street undergrade crossing of the MBTA Lowell Line. Access to the

station will be provided via entrances located under or adjacent to the south abutment of the bridge, in conjunction with improved sidewalk and street-crossings in the area. The proposed extension of the Somerville Community Path will be located in close proximity to the station.

- **Union Square, Somerville** – Located east of Prospect Street in the vicinity of Union Square in Somerville. The station platform will be located within the MBTA Fitchburg Line right-of-way east of Prospect Street. Access to this station will be provided from both the street and bridge levels of Prospect Street.

Details of the design of the stations, including the relationship of the stations to the pedestrian, bicycle, and bus networks around them, are now being more fully developed. The MBTA has completed a series of public Design Workshops, held to engage the public in developing the ‘look and feel’ of the stations and the areas around the stations. The MBTA will use the information collected at the Workshops and from work with the Green Line Extension Design Working Group to inform the ongoing station design and engineering work.

#### Vehicle Storage and Maintenance Facility

The Green Line Extension will also require the construction of a new light rail vehicle storage and maintenance facility in the vicinity of the Green Line Extension. MassDOT has identified a location known as ‘Option L’ in the Inner Belt area of Somerville as its preferred alternative for the location of the vehicle support facility. The MBTA is currently working on the program and design of the maintenance facility and its associated vehicle storage areas. The MBTA must acquire certain parcels of private property in order to construct the vehicle facility at the Option L location.

#### Somerville Community Path Extension

In addition, the Green Line Extension project includes the design of the proposed extension of the Somerville Community Path (not part of the SIP commitment).

#### **Project Funding & Cost**

MassDOT and the MBTA continue to work with the FTA to seek funding for the Green Line Extension project under the FTA New Starts capital funding program. In January of 2010, MassDOT and the FTA initiated formal collaboration on the development of a complete New Starts application for the Green Line Extension project, including oversight and assistance from a Project Management Oversight Consultant (PMOC). This effort is and will be ongoing. The MBTA, MassDOT, FTA, and the PMOC held a week-long ‘Cost and Schedule Risk Assessment’ Workshop in March 2011, which was crucial to moving ahead with the New Starts application process.

In addition to the use of any federal funding, MassDOT and the MBTA will use Commonwealth funds to support the design and construction of the Green Line Extension project. These funds will be raised with the backing of authorizations made to support the SIP projects in Transportation Bond Bills of the past several years. At present, MassDOT has \$800 million (less funds already spent on planning, design, and construction) in active Transportation Bond Bill authorizations for the SIP projects.

As needed, MassDOT will seek additional Transportation Bond Bill authorization to cover the costs of the Green Line Extension project, as well as other SIP projects. At the present time, the total cost of the Green Line Extension project is estimated at approximately \$1.115 billion. This estimate results from a project cost and schedule risk analysis which indicates that, based on the current array of cost and schedule risks facing the project, there is a 50% probability that the project will be completed for this estimated amount or less. The MBTA is working to mitigate those identified risks and complete the project for an amount less than that project estimate. Further details on this cost estimate will be posted shortly on the Green Line Extension project website.

### **SIP Deadline**

Before December 31, 2014, construction of the following facilities shall be completed and opened to full public use: 1. The Green Line Extension from Lechmere Station to Medford Hillside; 2. The Green Line Union Square spur of the Green Line Extension to Medford Hillside.

### **Project Status**

State-level environmental review (MEPA) was completed in July 2010. Federal-level environmental review (NEPA) documents were submitted to the Federal Transit Administration (FTA) in December 2010, and after extensive review have now been approved to be released. The documents were distributed and published to the project website in early October, and the EA hearing was held on October 20, 2011. MassDOT hopes to receive a Finding of No Significant Impact from the FTA for the Green Line Extension project by the end of 2011, followed by approval to enter into the Preliminary Engineering.

The MBTA procured a new Program Management / Construction Management / Preliminary Engineering (PM/CM/PE) technical team in the autumn-winter of 2010-2011. This team is currently working under an initial contract to perform Advanced Conceptual Engineering for the Green Line Extension project, which will lead to Preliminary Engineering and then to the initiation of procurement of a Design-Build (D/B) team to complete design of and to construct the Green Line Extension. (Note: the PM/CM/PE team and MBTA are currently reevaluating the D/B program delivery recommendation and developing potential phasing plans for the program). The MBTA has also selected an Owner's Representative to support the MBTA throughout the



implementation of the project. This contract will be brought to the MBTA Board for approval in the near future.

A draft New Starts submittal was submitted in September to FTA for review, and will be finalized and re-submitted to FTA for formal evaluation and rating in December 2011 when updated Operations and Maintenance (O&M) modeling information is expected to be completed.

Procurement of 24 new Green Line vehicles, designated the Type 9, needed to support the operation of the Green Line Extension is now underway. The MBTA advertised for the new vehicles in January 2011 and held a pre-bid meeting for prospective bidders in February 2011. Proposals were submitted to the MBTA by potential car builders on June 13, 2011 and are currently under review by the MBTA Technical Selection Committee.

As reported earlier, completion of an agreement with Pan Am Railways allowed the Commonwealth to acquire land and track vital to the construction of the project in the red bridge and Lechmere area.

Other potential real estate impacts have also been identified and are continuing to be refined. MassDOT and the MBTA are collaborating on necessary background and support work. Geotechnical and hazardous materials testing continues. MassDOT has requested and been granted approval from FTA to begin certain pre-acquisition activities ahead of the completion of the NEPA process, and is initiating those activities.

Advanced Conceptual design work is advancing on the Green Line Extension project, including: refinement and analysis of track alignments and typical section verification, bridge and station design, development of design criteria, a traction power study, maintenance facility programming and yard layout and review of the initial cost and schedule as discussed below. Concurrence has recently been reached on a key design issue regarding the track arrangement in the Brickbottom district. However, the progression of designs for the stations and bridges has resulted in new questions for some elements related to ADA access. The team is working diligently to address these continuing issues.

Previously, the Green Line Extension project team performed a cost and schedule analysis and a risk analysis that thoroughly examined all aspects of the project and the actions required to move it forward expeditiously. As a result of this analysis, a range of schedule outcomes for the projections for the Green Line Extension project have been presented. As reported the range of dates for initiation for full revenue service have been presented as having a 10% probability of completing in September 2018 and a 90% probability of completing by the summer of 2020. These schedule projections include

the constraint that the MBTA will take full ownership of all land required for construction prior to awarding the Design / Build contract.

This risk-based schedule was developed recognizing lessons learned on the Greenbush Commuter Rail project, in which the MBTA did not take ownership of needed properties until after the Design/Build process began, which cost the MBTA both time and money on that project. Seeking to accelerate the timeline where possible, MassDOT and the MBTA met with legislative and municipal leaders to evaluate strategies to advance portions of the project and allow components to be put in service earlier than the completion dates previously reported for the entire project.

One strategy resulting from this process as mentioned above is the development of a 'phasing' scenario that would allow for some stations to open for public use while others are still being constructed. This phasing approach along with a change in the program delivery methodology to a Construction Manager/General Contractor (CM/GC) delivery methodology would allow for a Notice to Proceed for the CM/GC firm in late summer 2012 for preconstruction support services. Then, as the design advances, the development of contract packages for construction to begin as soon as the middle 2013 on the extension of service to Washington and Union Square. Under this scenario three new stations – a relocated Lechmere, Washington St and Union Square -- along with viaduct, track, systems and support facilities would be targeted for completion and placed into revenue service by the end of 2016, while remaining committed to complete the entire GLX program within the range of program completion dates noted above. Also included in this approach is the early completion of design and construction on an early package of bridge and site demolition work, to be funded by the Commonwealth. This approach would get construction work started on critical bridges in Somerville and Medford and create staging area for follow on construction in the Lechmere area. This work is now targeted to begin construction in the fall of 2012. This phasing approach came from an evaluation of a range of project delivery methods which would best protect the project budget from unnecessary risks while allowing work to proceed promptly and expeditiously.

Public outreach on the project which has included hundreds of meetings and other events over multiple years continues. MassDOT and MBTA staff have met with numerous public groups, elected officials, and other interested parties. There have been two different project advisory committees, including the former Project Advisory Group and the present Design Working Group. Meeting types have included meetings of those groups and their subcommittees, station workshops, interagency meetings, neighborhood briefings, briefings with elected officials, institutional and business group meetings, public meetings and hearings, land use workshops, and 'meet and greet' sessions, as well as many others. Through late spring and early summer 2011, a series of 7 station design workshops were held, and meetings were held with the Brickbottom community. A community path workshop was held September 22, and a workshop on

the maintenance facility was held October 12. The most recent meeting of the Design Working Group was held on August 24, and a portion of the agenda discussed progress on the work and the above noted schedule revisions. Follow on workshops and design reviews will be scheduled likely starting with Lechmere station by the end of 2011.

### **Potential Challenges**

MassDOT – which has committed substantial resources to the Green Line Extension project, a top transportation priority of the Commonwealth and the largest expansion of the MBTA rapid transit system in decades – has now transitioned the project from the planning and environmental review phases to design, engineering, and eventual construction, coupled with the tasks associated with applying for New Starts funding. As part of this transition, the MBTA has assumed lead project management responsibility for the ongoing development of the Green Line Extension project, with MassDOT continuing to support the MBTA on an as-needed basis.

Under a phased approach to the project, 60% design of the first phase (early bridges and site demolition) is expected in November 2011. Construction bidding of this phase is likely to occur in spring 2012. Over the last two month, MassDOT and the MBTA have worked closely with municipal and legislative leaders to develop a phased project plan. While the configuration of the remaining phases continues to be refined, commitment continues strong that all components of the Green Line Extension remain part of the original project scope and will be completed.

Still, the Green Line Extension remains an enormously complex capital project, with many tasks and sub-tasks that must be completed, some in sequence and some in parallel, in order for the first rider to travel from a relocated Lechmere Station toward Union Square and College Avenue. MassDOT and the MBTA now have a much deeper and more nuanced understanding of the constraints and limitations that must be managed in order to implement the Green Line Extension project.

This deeper understanding continues to call for a completion timeframe – rather than a specific month or day – for the introduction of revenue service on the Green Line Extension. As presented in the previous report, the critical points within the timeframe are associated with different probabilities, as shown below:

- 10% Probability of Not Exceeding – September 2018
- 50% Probability of Not Exceeding – June 2019
- 90% Probability of Not Exceeding – July 2020

However, as noted earlier in this report, the phased delivery approach and the use of a variety of project delivery methods are expected to mitigate some of the larger pressing project risks. The phasing plan requires legislative approval to use CM/GC as the

program delivery method along with MBTA Board approval and Inspector General approval to use CM/GC. This will allow construction to begin on affected Green Line Extension components prior to the MBTA taking full ownership of all private property of any substantial size required for the construction of the Green Line Extension, allowing the Green Line Extension project to benefit from lessons learned on the Greenbush Commuter Rail project, where the MBTA did not take ownership of needed properties at the appropriate time, thus costing the MBTA both time and money and slowing the overall completion of the project.

If approval for use of the CM/GC approach is not obtained, the project would likely return to a Design/Build approach for the majority of the project, as originally intended. This would likely rule out any phasing scenario that would allow early completion and revenue service on various project sections. Under a Design/Build approach, the MBTA would wait to issue a Notice to Proceed to a contractor until all property is obtained, likely not until the end of 2013 or beginning of 2014.

More detail on the project schedule, including a cover memo, critical path schedule, and detailed project schedule can be found on the project website at:  
<http://greenlineextension.eot.state.ma.us/documents.html> .

Finally, the timeline listed above represents a substantial delay beyond the current SIP deadline of December 31, 2014, triggering the need to provide interim emission reduction offset projects and measures for the period of the delay (beginning January 1, 2015). Working with the Central Transportation Planning Staff, MassDOT and the MBTA are currently initiating the process of calculating the reductions of NMHC, CO, and NO<sub>x</sub> – reductions equal to or greater than the reductions projected for the Green Line Extension itself, as specified in the SIP regulation – that will be required for the period of the delay. Once that process is complete, MassDOT and the MBTA will develop a portfolio of interim projects and/or measures that can meet the requirement, and will seek input from both DEP and the general public on the portfolio.

MassDOT and the MBTA are aware of the strong public interest in potential interim emission reduction offsets, having already received many suggestions and recommendations; we will strive to make use of ideas presented to us by the public whenever possible. However, MassDOT and the MBTA are acutely aware of the need for any selected interim emission reduction offsets to quantitatively and demonstrably meet the emission reduction threshold established in the SIP regulation, and will be subjecting potential interim emission reduction offsets to necessary rigorous analysis by the Central Transportation Planning Staff. MassDOT and the MBTA are also sensitive to the constrained fiscal environment in which all of the Massachusetts transportation agencies currently operate, and will weigh fiscal concerns when selecting appropriate interim emission reduction offsets.