



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

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

November 15, 2012

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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 twenty-ninth update of the required monthly status reports, to be presented to the Boston Region MPO at their November 15, 2012 meeting. This report builds on the *State Implementation Plan Transit Commitments 2012 Status Report*, submitted to the Massachusetts Department of Environmental Protection on July 22, 2012. This report will be posted on the website of the Massachusetts Department of Transportation.

The *State Implementation Plan Transit Commitments 2012 Status Report* public meeting was held on September 18, 2012 in order to hear comments on that report. Written comments were due September 24, 2012. This monthly report does not address any of those comments. Comments will be addressed in the *2012 Response to Comments*, to be completed within 120 days of the public meeting.

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 from the ‘immediate needs’ Transportation Bond Bill of 2007 (which provides state bond funding to support the costs of the SIP projects) from MassDOT to the MBTA to support the 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 the construction of the station at Four Corners. A third funding agreement, approved in June 2011 by the MBTA Board of Directors in the amount of \$61,616,500, has allowed the remaining stations (including Blue Hill Avenue) and bridges, to advance. These contracts total approximately \$124.4 million in spending on the Fairmount Line Improvement Project to this point.

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

Necessary upgrades to interlocking and signal systems 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 underway (see “New Stations” 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 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 97% 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 29 months and is currently 97% complete, with project completion to occur in August 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 84% 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,

relocation of existing utilities, and a redesign of the inbound sloped walkway structure at Geneva Avenue. The current substantial completion date for Four Corners Station is April 2013 with final completion to occur in May 2013. The delay in completion dates can be attributed to extra work required to construct the Washington Street outbound ramp structure, where the discovery of a rock vein, not identified in the engineer's test borings, required reengineering, installation of additional soil nails due to a difference in existing soil conditions, and construction of additional structural elements to support the inbound sloped walkway and retaining walls.

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 November 2012 and anticipated final completion of work by January 2013. Construction is currently 96% complete. The structural replacement of the Woodrow Avenue Bridge occurred during the first weekend of November 2011; and it was completed one day ahead of the planned schedule. The Talbot Avenue Bridge was replaced during the third weekend of December 2011, which was also completed one day ahead of the planned schedule. These bridges continue to be worked on in conjunction with the station construction.

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 74% complete. The substantial completion and completion of work are currently anticipated for June 14, 2013 and August 13, 2013, respectively. The extension of the completion dates can be attributed to: the discovery of an existing power duct bank for the South Bay Shopping Center not previously discovered or identified on any existing condition NStar plans; the driven-pile redesign for inbound and outbound retaining walls; and the delay in manufacturing the precast concrete platform panels.

The proposed **Blue Hill Avenue Station** has been the subject of significant community controversy over the past three 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 developed one 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 continues to encounter opposition from some abutters, however, who question the need for and appropriateness of any commuter rail station in this location. The MBTA has responded to the immediate neighborhood concerns by completing an additional analysis of noise and vibration impacts 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 is proceeding at the original site with the center-island platform concept. The necessary redesign of the station has now reached 60%. MassDOT is discussing the parameters of appropriate mitigation with immediate abutters, however, which requires detailed examination of 26 homes. Currently, at the request of elected officials, an independent peer review of the station location, design, and environmental impacts is also being coordinated. Once the peer review is sufficiently advanced, the MBTA will be able to develop a new schedule for completion of Blue Hill Avenue Station. Given the unexpected delays, it is unlikely that the Blue Hill Avenue Station will be completed before 2015 at the earliest.

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 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 has triggered the Project Delay component of the SIP regulation. Therefore, MassDOT prepared 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, and posted to MassDOT's SIP website.

As described in the Offset Plan, MassDOT estimated the reduced emissions expected to be generated by the implementation of the new Fairmont Line stations. MassDOT and the MBTA, in consultation with Fairmount Line stakeholders, identified a set of potential interim emission reduction offset measures that would meet the emissions reduction targets. MassDOT submitted these proposed measures to DEP in a July 27, 2011 petition, after which time MassDOT and the MBTA continued to work to refine the offset concepts for implementation, including a second letter to DEP (dated November 29, 2011) describing changes to the proposed offsets. On January 2, 2012 (the first weekday following January 1), the offset measures were implemented: additional trips via a dedicated shuttle on the CT3 bus route between Andrew Station and Boston Medical Center; and increased weekday frequency on the Route 31 bus.

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

MassDOT, along with the MBTA, identified a set of parking projects intended to fulfill the necessary SIP commitments and requirements. All projects slated to fulfill the SIP commitment are now complete. In addition, MassDOT and the MBTA provided interim offset measures for the six-month delay in the fulfillment of the 1,000-space commitment, as is also described below.

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, including 612 net new transit spaces. In November 2009, the City of Revere and MassDOT secured funding under the American Recovery & Reinvestment Act for construction of the garage. A groundbreaking occurred on September 13th, 2010. Construction is completed and the garage opened for public use on June 30, 2012, six months past the required deadline.

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 26 total spaces, with 20 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, which were deemed a safety hazard and razed. Construction of a 168-space commuter parking lot is complete and open to the public.

Location	Spaces	Status
Wonderland/Blue Line (Revere)	612	Complete
Beverly Depot/Commuter Rail	102	Complete
Savin Hill/Red Line (Dorchester)	20	Complete
Woodland/Green Line (Newton)	100	Complete
Quincy Shipyard/Ferry	168	Complete
Total	1,002	

Project Funding

The following table provides detail on the funding sources for the parking locations:

Location	Funding Source (Percentage)
Wonderland/Blue Line (Revere)	ARRA (46) Federal Earmark (6) MBTA (23) State MORE ¹ 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

MassDOT has completed the SIP commitment of 1,000 parking spaces. However, it was not met in time for the December 31, 2011 deadline, due to the delays in the completion of the garage at Wonderland Station. MassDOT believed that the delay in the Wonderland parking garage caused no measurable loss of air quality improvement at the opening date, but nonetheless provided interim offset mitigation during the delay, in the form of increased Saturday bus service on MBTA Route 111—the highest ridership route serving the communities to the northeast of Boston.

¹ Massachusetts Opportunity Relocation and Expansion Jobs Capital Program

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 Government Center 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 relocate 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/MGH 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

Refinement of Alternatives/Conceptual Engineering

- Refinement of potential alternatives was performed for three options: (1) a no-build option, (2) a tunnel option with a relocated Bowdoin Station, 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 DEIR.

Real Estate Requirements

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

Potential Challenges

MassDOT has made a good faith effort to meet the commitment to complete final design of the Red Line/Blue Line Connector, including the accomplishments listed above. However, 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 last 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 that end, MassDOT has officially sought approval from DEP to support a SIP amendment process, which will include public input and discussion. MassDOT is not proposing 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.

On September 13, DEP held two public hearings (at 1pm and 5pm) to take public comment on MassDOT's proposed amendments to 310 CMR 7.36, Transit System Improvements, including the elimination of the requirement to complete final design of the Red Line/Blue Line Connector. Between the two hearings there were 16 attendees, 10 of whom gave oral testimony. All those who spoke at the hearings spoke in favor of DEP not removing the commitment. DEP accepted written testimony until September 24, 2012.

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 and with a connection to the station, and an electrical substation needed to support the Extension will also be installed adjacent to the Community Path on the south side of the corridor.
- **Washington Street, Somerville** – Located within the footprint of the Washington Street Bridge, proximate to Somerville’s Brickbottom, Inner Belt, and Cobble Hill neighborhoods. 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 more fully developed. The MBTA completed two rounds of public design workshops in order to engage the public in developing the 'look and feel' of the stations and the areas around the stations. These workshops occurred in late spring/summer of 2011 and then again in the winter/spring of 2011-2012. The MBTA has used the information and input collected at the workshops and from the Green Line Extension Design Working Group to inform the ongoing station design and to complete the Advanced Conceptual Design work done to date.

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 has completed the programming of the facility – the general plan for the layout of and maintenance activities to be housed within the facility – and has advanced the design of its civil/site components and those of its associated vehicle storage areas to an Advanced Conceptual Design stage. The MBTA must acquire certain parcels of private property and relocate select businesses in order to clear the site and construct the vehicle facility at the Option L location. The schedule and budget commitments associated with the next steps to acquire these parcels are under review now that the prerequisite FONSI was received from the Federal Transit Administration

Somerville Community Path Extension

In addition, the Green Line Extension project includes the design of the proposed extension of the Somerville Community Path from south of Lowell street to the Inner Belt area of Somerville (not part of the SIP commitment).

Project Funding & Cost

As mentioned above, MassDOT is pursuing federal funding – through the competitive New Starts program managed by FTA – to support the design and construction of the Green Line Extension project. MassDOT and the MBTA are honored that the Green Line

Extension project has been selected by the FTA for approval into Preliminary Engineering.

The Green Line Extension project is, in many ways, an excellent candidate project for the New Starts program. The project rates well in terms of: anticipated ridership; environmental benefits; the extant policies and programs in the corridor and region that encourage public transit usage; and the strong and sustained support for the project from elected officials and the public. However, the fundamental financial realities facing the MBTA – a substantial annual operating deficit as well as a multi-billion-dollar backlog in maintenance and upgrade needs – pose a real challenge to the completion of the application for Entry into Final Design and ultimate approval of New Starts funds for the Green Line Extension project that will require a collective effort to address and resolve.

Indeed, MassDOT was required as part of the application for Preliminary Engineering to identify hypothetical policies that would solve the MBTA's structural deficit and provide the capital funds for the Project that, in turn, would allow FTA to participate in funding the Green Line Extension project. However, it is clear that in order to complete the aforementioned application for Entry into Final Design and to garner FTA's financial participation in the project, Massachusetts must move from hypothetical proposals to concrete steps for a long-term fix for the MBTA. The application is scheduled to be completed in the late spring /early summer of 2013 for submittal to the FTA in September 2013 to match the federal review cycle of New Starts applications. Without progress on this issue, in this time frame, the application cannot be completed and the review cycle may be missed delaying project approvals and the corresponding start and finish dates for Final design and Construction. It is also virtually certain that without substantial progress on the identification of new revenue sources and the completion of the financial plan the FTA will decline providing financial assistance to the project.

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 \$624 million available in active Transportation Bond Bill authorizations for the SIP projects. This number does not include the monies encumbered to support current 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 cost of the Green Line Extension project is estimated at

approximately \$1.115 billion.² This estimate was generated by an initial project cost/schedule risk analysis which indicated that, based on the then current design status and the identified 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. Now that the Advanced Conceptual design has been completed, the MBTA is developing a new estimate of the scope of work to complete the project and is working to identify new cost and schedule risks, and to mitigate or accept those previously identified, in order to complete the project for an amount less than the \$1.115 billion estimate.

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

Environmental and Funding Approvals: State-level environmental review (MEPA) was completed in July 2010. Federal-level environmental review (NEPA) documents were submitted to the Federal Transit Administration in September 2011, and a public hearing was held on October 20, 2011 (to accompany a 45-day public comment period). A Finding of No Significant Impact (FONSI) was issued by the Federal Transit Administration on July 9, 2012. The July 2012 release of a FONSI completed the federal-level environmental review process, approximately seven months beyond what was anticipated in the 2011 Status Report.

As stated above, MassDOT and the MBTA continue to work with the Federal Transit Administration to seek funding for the Green Line Extension project under the FTA New Starts capital funding program. A draft New Starts submittal was first presented to FTA in September 2011 for its review. A second, near final, New Starts submittal, including updated Operations & Maintenance (O&M) modeling information, was submitted to FTA for formal evaluation and rating on December 27, 2011. The last remaining O&M information, completing the application package, was submitted in late January 2012. On June 11, 2012, the MBTA received approval from the FTA for the Green Line Extension project to enter Preliminary Engineering. This approval represents the culmination of this portion of the New Starts application process. Approval into the New Starts pipeline means that the MBTA may be able, in the future, to seek reimbursement from FTA for expenditures incurred after this date associated with the Green Line Extension project. However, final authority to seek such reimbursements depends upon the Green Line Extension project being able to successfully continue to

² This cost does not include finance charges on bonds that would need to be sold and serviced for the project. Including the cost of those finance charges would increase the total project cost to approximately \$1.3 billion.

compete against other public transit projects within the New Starts program. For that to happen, the Green Line Extension project must reach and clear three additional obstacles – approval by FTA for entry into Final Design, early approvals for Construction (Letters of No Prejudice) as applicable, followed by the execution of a Full Funding Grant Agreement – before the MBTA can secure federal participation in the costs of the project.

Therefore, entry into Preliminary Engineering is a critical step for the Green Line Extension project and a necessary precondition for receiving federal support; however, it does not guarantee that federal funding will ultimately be available for the project. It does, however, make any design costs going forward eligible for federal reimbursement, should the MBTA ultimately succeed in obtaining a Full Funding Grant Agreement.

Project Delivery: The MBTA and its Program Management/Construction Management (PM/CM) team completed Advanced Conceptual Engineering for the Green Line Extension project while awaiting approval from FTA to enter into the Preliminary Engineering phase. The team is advancing the project in accordance with a revised project delivery approach which will divide the project into multiple phases (described in more detail below).

The MBTA has also completed the process to procure an Advanced Preliminary Engineering/Final Design team that began with the issuance of a Request for Qualification Statement in March 2012. This new team, led by a joint venture of AECOM and HNTB, will extend the design through Advanced Preliminary Engineering (APE) and, upon approval from FTA, through Final Design. Final selection was made in late June 2012, with MBTA Board approval received on September 12, 2012, and the Notice to Proceed issued on September 20, 2012. The PM/CM team held a kick-off with the design team on September 27, 2012 and conducted a series of Knowledge Transfer sessions through the month of October to bring the APE/FD team up to speed on the many elements of the project and in preparation of advancing the next phase of design. It is anticipated that the APE/FD team will hold an internal kick-off meeting in early November prior to commencing the advanced preliminary design process. The PM/CM team will continue to act as Program Managers and provide services as extension of staff to the MBTA.

In accordance with state requirements, the MBTA has also procured an Owner's Representative (OR) to support and guide the MBTA throughout the implementation of the project. The OR provides oversight services to the Commonwealth, as well as structural peer review and value engineering services on the project, and has been participating in weekly project meetings and performing review functions. A formal value Engineering Workshop, led by the OR is scheduled for the first week of November.

New Green Line Vehicles: Procurement of 24 new Green Line vehicles needed to support the operation of the Green Line Extension continues. 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 two potential builders of the new Green Line vehicles on June 13, 2011, and are now under review by the MBTA Technical Selection Committee. Approval by the MBTA Board has been pushed out until late fall 2012. Pricing in the proposals has been held and extended month to month by both proposers.

Real Estate: Completion of an agreement with Pan Am Railways in March 2011 allowed the Commonwealth to acquire land and track vital to the construction of the project. MassDOT and the MBTA are presently collaborating on background and support tasks associated with the balance of the real estate work for the Green Line Extension project. A confirmatory survey of the right-of-way limits and adjacent property lines is now complete and the data was used in the Advanced Conceptual design efforts and as confirmation for typical sections, track layouts, and an update to the listing of the potential property impacts. These revised impacts will be confirmed as part of the follow-on Advanced Preliminary design work. MassDOT and the MBTA were granted approval from FTA to begin certain pre-acquisition activities ahead of the completion of the NEPA process. Those activities will continue, including the work associated with the title surveys for the anticipated full-property acquisitions. A relocation consultant, retained by the MBTA Real Estate Department, is assisting with the real estate elements of the Green Line Extension project. With receipt of the FONSI, the next steps of the real estate acquisition processes are now underway. Schedules to implement the real estate acquisition process are being developed by the MBTA's Real Estate arm for incorporation into the overall program schedule.

Specifically, in order to support the Phase 1 construction work described below, title reports have been generated for the required temporary easements, and appraisals for those easements are complete. No permanent takings are required. Discussions to determine compensation are complete with all of the property owners affected by the Phase 1 construction and the necessary temporary construction access licenses have been executed.

In addition, the MBTA executed a July 26, 2012 Memorandum of Understanding (MOU) with the City of Somerville. Under this MOU, the City will convey the necessary land parcels at the proposed Union Square Station site to the MBTA. These parcels will be acquired by the City of Somerville and will be conveyed to the MBTA in spring 2013.

Design Progress: Many project milestones have already been reached on the Green Line Extension project, including: completion of the Advanced Conceptual Engineering for the 7 stations, the bridges, viaducts, the corridor and the maintenance facility, update of the design criteria, the preparation of the design definition report, preparation of an accessible access report for each of the station sites, roadway plans and the functional

design report for the roads and intersections. Also completed has been the programming for the maintenance facility and development of the traction power, communications and security systems concepts and designs, initial cost and schedule reviews, and the development of revised program delivery plans along with project phasing plans.

The final volume of the Advanced Conceptual Engineering plans was submitted to the MBTA on August 15, 2012. These submittals were made in phases, with the in-progress Advanced Conceptual designs for the seven stations submitted in late May, the design submittals for the bridges and roadways in late June, and the viaduct, track and guideway components submitted in mid-August. Comments on the design submittals continue to be issued and will be addressed/incorporated into the Advanced Preliminary design in the coming months. In addition, a week-long Value Engineering session on the entire Advanced Conceptual Engineering plans is scheduled for early November.

As the station and bridge design has continued, new questions and design challenges have developed. Some of these new issues relate to emergency egress and accessibility requirements, while others are linked to the receipt of new, more detailed survey information and recently identified utility conflicts. For instance, the MBTA anticipates appealing a decision by the State Building Inspector in regard to the design of the emergency egress from the end of four station platforms (College, Ball, Lowell and Union). Additional studies are also now being wrapped up in order to provide options for resolution of the other issues as quickly as possible. Of particular note--(1) concurrence with the City of Somerville is needed on which of a series of design options should be selected that will allow the MBTA paratransit service to safely and conveniently access the new Green Line station at Gilman Square, (2) coordination continues with NStar and MWRA with regard to revised station layouts at Ball Square, (3) drainage issues and solutions at Washington Street Station and the Redbridge-Northpoint area are being evaluated, (4) alternative methods to provide Traction Power are under study, (5) a design for a relocated 2nd entrance at Lechmere is under review, and (6) options of how a future 2nd head house could be added at the Union Square station have been developed and are ready for review by the City of Somerville. The phasing of the roadway improvements at Lechmere (O'Brien Highway, North First Street and Water Street) which are the responsibility of the NorthPoint development project, continue to be an item of discussion between the GLX team and the NorthPoint developer and the design of O'Brien highway an item of discussion between NorthPoint, the City of Cambridge, and the members of the East Cambridge neighborhood. The project also continues to coordinate the Viaduct design with the Archstone II development and the 22 Water Street developer.

Detailed design work on the Phase 1 Early Bridge/Demolition³ package is complete. This package includes (1) the widening of two railroad bridges to accommodate the additional Green Line tracks and (2) the demolition of the MBTA tire storage building at 21 Water Street in the Lechmere area to provide parking and staging areas for the Phase 2/2A work. This construction package was advertised for bids on July 16, 2012, following receipt of the July 9th FONSI from FTA. Bids were taken on September 6, 2012 and a pre-award meeting was held with the apparent low bidder. A request for a Letter of No Prejudice which would maintain eligibility for reimbursement from FTA for the Phase 1 work scope was submitted to FTA on July 19, 2012 but early indications are that this request will not be approved. Consequently, this Phase of the GLX Project will be funded completely by the Commonwealth of Massachusetts. The General Manager is expected to award the contract for the Phase 1 work in November, with NTP and construction anticipated in late fall 2012.

Public Outreach: Public outreach on the project has included hundreds of meetings and other events over multiple years. 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 current Design Working Group. Meeting types have included meetings of those groups and their subcommittees, station workshops, design review sessions with right of way abutters, 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. A meeting to introduce the new design team to the Design Working Group was scheduled for October 30th; however, this meeting was postponed due to Hurricane Sandy and is now planned for November 15th. Project staff has also met with the all of the abutters to the Phase 1 construction work, including the area around Harvard Street, as well as representatives of Tufts University, the City of Medford and the City of Somerville. In the coming months, separate public meetings will be held to introduce the Phase 1 contractor to the communities, and to present the current design of the Community Path.

Project Phasing and Delivery: To tailor the project delivery method to best mitigate the larger project risks, MassDOT and MBTA are implementing a phased project delivery plan. This delivery plan recommends dividing the project into (at least) four phases.

Phase 1 will rely on the traditional Design-Bid-Build approach to deliver the contract for the widening of the Harvard Street and Medford Street railroad bridges and the demolition of 21 Water Street. As noted above, the contract award is anticipated in November and the NTP and date for construction start of this phase is late fall 2012.

Subsequent phases currently envision a tailored Construction Manager/General Contractor (CM/GC) approach. CM/GC is a project delivery method that incorporates an

³ Background on the Project Phasing is found below in this section of the report.

integrated team approach to design and construction. Using the CM/GC model, the MBTA has engaged a separate design team (discussed above), through a quality-based selection process. A separate Construction Manager/General Contractor will be selected through a qualifications-and price-based process. Since the design team is under contract to the MBTA in a CM/GC project delivery approach, the traditional owner-designer relationship is maintained, thereby allowing the MBTA to control and own the design. The CM/GC model would provide some overlapping of design and construction phases, thereby shortening overall program delivery time. CM/GC project delivery also affords the ability to resolve property acquisition and relocation issues while advancing other areas of the work that are not restrained by property availability.

The use of CM/GC on the Project was approved as a pilot project by the legislature and signed into law by the Governor on June 19, 2012. The MBTA Board of Directors also approved this project delivery approach at its July 11, 2012 meeting. Approval is still needed from the Office of Inspector General (OIG). A letter seeking approval of this project delivery approach was sent to the OIG on July 27, 2012, with follow-up sessions held on August 6th, September 21st, and October 16th. It is anticipated that OIG approval will be received shortly on CM/CG project delivery approach.

Phase 2/2A will extend service from the (new) Lechmere Station to the Washington Street and Union Square stations and relocate the bus facility at Lechmere and the ongoing vehicle storage. Completion dates for this phase are based on assumptions related to two key FTA approvals: (1) that the project receives FTA approval to enter Final Design in February 2014, and (2) that FTA agrees to issue a “Letter of no Prejudice” (permitting certain Phase 2/2A activities to proceed into construction prior to the granting of a Full Funding Grant Agreement) for the project. With these assumptions, this phase is anticipated to complete construction in late 2016 with testing and startup in early 2017.

Phase 3 will construct the vehicle maintenance facility and storage yard. As the full yard and maintenance facility are not needed to support initial passenger service to Washington Street and Union Square, this phase has been scheduled to be complete some six months ahead of the date for revenue service to College Avenue.

Phase 4 will provide service from Washington Street Station (completed as part of Phase 2 above) to College Avenue Station by the end of July 2019. The risk evaluation process referenced below indicates that this phase, representing the completion of the Green Line Extension project, has a 50% probability of completing on or before the July 2019 date. It also assumes that the FTA grants the MBTA approval to enter Final Design in February 2014, permits the project to advance certain utility work at the bridges ahead of the full funding agreement, under pre-award authority, and the bulk of construction starts in 2015 after receipt of the Full Funding Grant Agreement.

Potential Challenges

By filing an Expanded Environmental Notification Form, procuring multiple design consultants, and publishing both Draft and Final Environmental Impact Reports, MassDOT has met the first four interim milestones associated with the Green Line Extension project. 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 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.

In the 2011 SIP Status Report, MassDOT reported that the Green Line Extension project would not meet the legal deadline of December 31, 2014. At that time, MassDOT projected a timeframe for the introduction of passenger service on the Green Line Extension. The points within the timeframe are associated with different probabilities, as shown below:

- 10% Probability of Not Exceeding – Autumn 2018
- 90% Probability of Not Exceeding – Summer 2020

This schedule for overall project completion remains in effect.

MassDOT and the MBTA continue to seek measures to accelerate the project timeline wherever possible. The phasing approach discussed above should provide for an accelerated delivery of some portions of the project. In addition, MassDOT and the MBTA have succeeded in receiving legislative and MBTA Board of Directors authorization to use the CM/GC delivery method described above. However, approval is still needed from the State Inspector General. Should this method not receive its final anticipated approvals, a back-up recommendation recognizing the extensive interface coordination and interface risks would be to use a series of Design- Bid -Build packages for Phase 2/2A, Phase 3, and Phase 4 to deliver the program as quickly as possible.

An additional major critical path item is the completion of the next steps in the New Starts process, including being able to complete the design and the finance plan to the extent necessary for completion of the application for FTA approval to enter Final design and obtaining FTA approval to enter Final Design. As the project delivery strategy evolves, the project schedule will be updated and made available to the public.

Finally, although the goal of the phased project delivery approach is to complete components in an incremental manner, the timeline for overall project completion 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 NOx – 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. MassDOT and the MBTA have also worked with the public to develop a portfolio of interim projects and/or measures that may meet the requirements, and are currently seeking input from the public on the portfolio.

In June 2012, MassDOT released a list of potential mitigation ideas received from the public that could be used as offset measures. MassDOT received public comments on the potential measures and is now moving forward with further refining – based on technical analyses and on the public comments received - potential portfolios of measures to present to DEP and the public for implementation in 2015.