MASSACHUSETTS DEPARTMENT OF TRANSPORTATION
MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

STATE IMPLEMENTATION PLAN – TRANSIT COMMITMENTS
MONTHLY STATUS REPORT

SEPTEMBER 19, 2013

FOR QUESTIONS ON THIS DOCUMENT, PLEASE CONTACT:
Massachusetts Department of Transportation
Office of Transportation Planning
10 Park Plaza, Room 4150
Boston, Massachusetts 02116
planning@state.ma.us
(857) 368-8855

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 staring November 200*9."

This is the thirty-sixth update of the required monthly status reports, to be presented to the Boston Region MPO at their October 3, 2013 (please note that the Boston Region MPO cancelled its September 19, 2013 meeting). This report builds on the *State Implementation Plan Transit Commitments 2013 Status Report*, submitted to the Massachusetts Department of Environmental Protection on July 2, 2013. This report will be posted on the website of the Massachusetts Department of Transportation.

Following the submittal of the 2012 *Agency Response to Public Comments,* MassDOT is no longer reporting on the 1,000 Parking Space requirement, as that project is complete.

I. FAIRMOUNT LINE IMPROVEMENT PROJECT

Project Description

The 9.2-mile Fairmount commuter rail line runs from South Station, previously serving four stations (Uphams Corner, Morton Street, Fairmount, and Readville) in the communities of Dorchester, Mattapan, and Hyde Park, and terminating 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 enhance service, and allow 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 Fairmount project includes replacing three bridges over the Neponset River. All three bridges are now complete. Construction took place between January 2011 and 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 and **Newmarket Station** opened for service on July 1, 2013. Punch-list construction items are near completion at both stations. Four Corners Station began construction in January 2010, while Newmarket Station began construction in December 2010.

Talbot Avenue Station opened in November 2012. Final work was completed in June 2013 to address neighborhood privacy concerns. The **Talbot and Woodrow Avenue Bridges Rehabilitation** projects began construction in November 2010. 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.

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, however, continues to encounter opposition from some abutters 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.

The MBTA and MassDOT made a final determination on the Blue Hill Avenue station in May 2011. Design of the center-island station concept is continuing, as is ongoing discussion with the opposing abutters about appropriate mitigation. The redesign of the station has reached the 60% level. In addition, MassDOT has agreed to fund peer review on the 60% center-island design specifications and drawings, noise and vibration analysis, site alternatives analysis, feasibility study and needs assessment, to be performed by a firm selected by the abutters (Polaris Consultants). Peer review is expected to be completed within the next month. 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. 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 Charles/MGH Station on the Red Line station. 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, 2012, 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.

On August 23, 2013, EPA sent a letter to FHWA providing an update on Massachusetts Air Quality Conformity. In that letter, EPA noted the Red Line/Blue Line Connector Design project has not met the SIP completion date of December 31, 2011, but that MassDOT is not obligated to implement interim emission reduction offset projects because no emission reductions are associated with the design project.

III. 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. The project is a collaborative effort of MassDOT and the MBTA, with the MBTA taking the lead in design, engineering, construction and project management.

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 be built 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 Brick Bottom, Inner Belt, and Cobble Hill

neighborhoods. The station platform will be located south of the MBTA Lowell Line bridge over Washington Street. 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 would 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.

Vehicle Storage and Maintenance Facility (VSMF)

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. The facility will be constructed on an L-shaped parcel in the Inner Belt area of Somerville that is adjacent to the Boston Engine Terminal. 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 this location. The project is progressing through the steps required to make these acquisitions and relocations.

Somerville Community Path Extension

The Green Line Extension project also includes the design of the proposed extension of the Somerville Community Path from south of Lowell Street to the Inner Belt area of Somerville. Additional designs are being developed for south of the Inner Belt area. The Path Extension is not part of the SIP commitment.

Project Funding & Cost

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.

The Green Line Extension project is, in many ways, an excellent candidate project for the New Starts program. The FTA issued a preliminary guidance and thresholds policy in December, 2012 which laid out how projects would be measured and rated. That guidance was subjected to public comment and FTA has now issued a final guidance document. [The project team is evaluating these guidelines rating criteria in order to move forward toward submittal of the New Starts application].

The FTA requires that a project receive a rating of "Medium" or better in both the Project Justification and the Financial Commitment evaluation criteria. Based on the updated guidance document, the GLX project is expected to rate at least a "Medium" under the Project Justification criterion (i.e., anticipated ridership, mobility, cost effectiveness, 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). In regard to the Financial Commitment evaluation criteria, additional revenue is now available to MassDOT to support the improvements to the Commonwealth's transportation program with the passage of the reconciled Transportation Bond Bill in July 2013. As the allocation of that revenue is finalized, this information will be important for the update of the GLX financial plan, which will be critical to the project's financial rating. The plan can be updated, hopefully resulting in a higher rating by the FTA and agreement to enter into a Full Funding Grant Agreement (FFGA) for the project.

As part of Governor Patrick's *The Way Forward* Plan completed earlier this year, the target budget for the Green Line Extension project, inclusive of all capital costs, new vehicles, design costs, and real estate acquisitions, was determined to be $1.33 billion.[1] All appropriate steps are being taken to value-engineer the project to find ways to reduce costs without reducing the project scope or its benefits and to stay within budget. In addition, anecdotal information from other projects across the country suggests that the use of CM/GC as the project delivery method can also reduce costs. The MBTA will work closely with the CM/GC team to find creative ways to maintain costs so as to deliver the project at or below the $1.33 billion cost estimate.

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. At present, MassDOT has $370 million available in active Transportation Bond Bill authorizations for the SIP projects. With the passage of the reconciled transportation funding bill by the Legislature, MassDOT will now update stakeholders on the available funds to cover the remaining costs of the Green Line Extension project, as well as other SIP projects.

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 and 2.) The Green Line Union Square spur of the Green Line Extension.

Project Status

Project Team:

The MBTA has procured an experienced project team to manage the design and complete the construction of the Green Line Extension project. These team members are referenced throughout the remainder of this report:

- Program Manager / Construction Manager (PM/CM): HDR/Gilbane; will function as an extension of MBTA staff.

[1] This cost estimate is presented in year of expenditure dollars and does not include spending prior to the FTA approval to enter preliminary engineering.

- Advanced Preliminary Engineering / Final Design (APE/FD): AECOM/HNTB; responsible for advanced preliminary engineering and final design.
- Phase 1 Contractor (Design-Bid-Build): Barletta Heavy Division.
- Construction Manager / General Contractor (CM/GC): WSK (JF White/Skanska/ Kiewit); will provide preconstruction support services to the MBTA and will be responsible for the Construction of Phases 2/2A, 3 and 4 of the GLX program.
- Owner's Representative: Hatch Mott MacDonald; Commonwealth-required position for projects of this size.
- Relocation Consultant: Peter W. Sleeper Associates; reports to MBTA Real Estate preparing Relocation Plans for those properties that require relocation.
- Independent Cost Estimator (ICE): The MBTA is currently procuring these services. ICE proposals were received on June 4th. Based on the interviews and presentations conducted on June 18, 2013, a team that best met the qualification was identified. The ICE is scheduled for approval by the Secretary in the September timeframe.

Environmental Approvals:
State-level environmental review (Massachusetts Environmental Policy Act [MEPA]) was completed in July 2010. Federal-level environmental review (National Environmental Policy Act [NEPA]) documents were submitted to the Federal Transit Administration (FTA) 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 FTA on July 9, 2012. The July 2012 release of a FONSI completed the federal-level environmental review process. This date was approximately seven months later than anticipated based on the schedule developed for the Green Line Extension project.

Funding Approvals:
As discussed above, 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 2013, the project's schedule for seeking federal funding was revised to reflect MassDOT and MBTA's understanding of the significant changes to the New Starts program that Congress enacted as part of the Moving Ahead for Progress in the 21st Century (MAP-21), the most recent federal transportation funding authorization. Per MAP-21, the GLX project is now considered to be in the Engineering phase of the New Starts process.

Typically, the FTA releases their MAP-21/New Starts guidance update in early June; this year, however, the guidance was not received until mid-August. This delay affected all New Starts projects nationwide. Based on the updated MAP-21/New Starts guidance and subsequent discussions with the FTA, the project team will make a late September update submittal to FTA using the best information available at that time. FTA is being

asked to review certain elements of the project prior to the filing of the FFGA application which will hopefully expedite the approval of the FFGA application which is slated for submission in early 2014.

In addition to the above efforts, the Project team continues to work on the core items necessary for and leading up to the application of a FFGA including:

- Advancement of Design: The Advanced Preliminary Engineering was submitted the first week of September. The PM/CM and MBTA review and comment period has commenced and resolution issues are expected during October and November.
- FTA Risk Workshop (November 2013): The outcome of this follow-on risk workshop is vital, as FTA relies heavily on a successful and well-managed risk assessment process before it will issue an FFGA.
- Updating the Project Management Plan (PMP): As comments are received from FTA, the PMP continues to be updated. As part of the PMP, the Project team has completed the revised Safety & Security Certification Plan (SSCP) and has finalized the Systems Safety Design Criteria (SSDC). The SSDC has been submitted to FTA for review along with the Safety and Security Management Plan (SSMP).
- GLX Project Finance Plan: FTA's acceptance of a viable Finance Plan for the Green Line Extension is critical to filing the FFGA application. The approved transportation bill and the MassDOT allocation of this funding will serve as the basis for the Project team to work with MassDOT and the MBTA to develop the GLX Project's Finance Plan. It is anticipated that this activity will commence shortly.

Project Delivery:
The MBTA and its Program Management/Construction Management (PM/CM) team completed Advanced Conceptual Engineering for the GLX project in August of 2012. The team is now advancing the project in accordance with the revised project delivery approach which divided the project into multiple phases (described in more detail below). The PM/CM team continues to act as Program Managers, providing services as an extension of MBTA staff, with continuing design oversight activities as described below.

In September 2012, the MBTA completed the process to procure an APE/FD consultant and issued an initial NTP to extend the design through Advanced Preliminary Engineering. The APE/FD contract was only fully executed in February 2013, which then also permitted the execution of geotechnical subcontracts – a critical item as the gathering of additional geotechnical information related to proposed retaining walls and viaduct structure is a top priority. Although the geotechnical program is not yet completed, the APE package was submitted to the MBTA during the first week of September 2013. This submittal will be used to update the Program cost estimate and

serve as an input into the risk workshop in November 2013, all leading to the establishment of the budget numbers for the FFGA application.

As discussed further in this report, the majority of the GLX project is anticipated to be constructed using the Construction Manager/General Contractor (CM/GC) delivery method, an integrated team approach to design and construction. Approval to use CM/GC was signed into law by the Governor in June 2012 and approved by the MBTA Board of Directors in July 2012. The Office of the Inspector General then approved the use of CM/GC approach and the procurement procedures in late November 2012. Between December 2012 and June 2013 the Project team issued RFQs, RFPs, and completed the procurement and selection process for the CM/GC contractor. The recommendation to award the CM/GC contract was presented to and approved by the MassDOT Board of Directors at its July 17, 2013 meeting. The Board's approval authorizes a contract for CM/GC preconstruction services up to $7,150,000, for a period of 18 months. A notice to proceed was issued to the CM/GC team on July 19, 2013, and the CM/CG team has mobilized, joining the GLX team in the program office. The CM/GC is working on developing their work plan, reviewing the project design, and kicking off the estimating process on the APE submittal.

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 peer review and value engineering services, and has been participating in weekly project meetings and performing review functions.

The OR team led a value engineering (VE) workshop in early November 2012. The final VE recommendations were then presented to the MBTA Value Engineering Review Committee (VERC) on December 13, 2012. Some of the recommendations accepted by the VERC have been integrated into the overall Program design including: reducing station size by about 10% through various methods, combining certain uses and reducing the size of VMSF, revising the Washington Street Station emergency egress from tunnel to at-grade crossing of the tracks, and using lightweight fill and eliminating beams in the transition from viaduct to at-grade section.

A second VE workshop is scheduled for September 2013 to further explore options to reduce costs without compromising the project scope or its benefits. The project team will then evaluate the recommendations produced from the VE workshop along with the CM/GC generated ideas, looking to incorporate those ideas that can be implemented without jeopardizing the schedule for design and construction. The project baseline documents were established in the fall of 2012 and any changes to the

baseline, including associated cost and schedule adjustments, are monitored and reviewed through the formal GLX configuration management process.[2]

New Green Line Vehicles:
Procurement of 24 new Green Line vehicles needed to support the operation of the Green Line Extension is ongoing. 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 have been reviewed by the MBTA Technical Selection Committee. To date, pricing in the proposals has been extended month to month by both proposers. In March 2013, the MBTA requested the two proposing teams update and re-submit their proposals as a Best and Final Offer to the MBTA; these are now anticipated in September 2013. A MassDOT Board decision is anticipated at their January 2014 meeting, with a Notice to Proceed expected to be issued in April 2014. The MBTA is also proceeding with the plan to rehabilitate eight currently out-of-service cars to support the Phase 2/2A opening of the extension to Washington Street and Union Square.

Real Estate:
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. The listing of the potential property impacts is being confirmed and updated as part of the APE design, as small design changes may have minor impacts on the initially identified property impacts. The MBTA will continue to review the previously identified property impacts and update the list as necessary, including further definition of temporary easements that may be needed to support construction. Work is underway to survey property boundaries of parcels for both the full property takings and those needed for smaller "sliver" property takings. The Project Team continues to issue Rights to Entry notices[3] to support both the survey and geotechnical boring activities and to coordinate with the property owners at those locations.

A relocation consultant, retained by the MBTA Real Estate Department, is assisting with the real estate elements of the Green Line Extension project. The GLX Relocation Plan,

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[2] Configuration Management is a process for defining, evaluating, identifying, controlling and recording the status of a project and changes to the baseline scope and budget. It uses a uniform, well-documented path from the establishment of the project's baseline (GLX uses the Advanced Conceptual plans and the fall 2012 estimate) to monitor and record design, schedule and cost changes in order to maintain project integrity throughout.

[3] A Rights to Entry notice is sent via certified mail as notification to property owners that the MBTA needs to enter property to obtain information or to expedite construction. This notice requirement is a requirement under Chapter 161.a of the Massachusetts General Laws, and should be presented to the property owner some 30 days prior to the date that MBTA needs to enter the property. In 2013, dozens of certified letters have been sent informing landowners of proposed survey or geotechnical boring activity on their property as part of the GLX project.

a document requiring approval by the Commonwealth of Massachusetts Bureau of Relocation before any business relocations can commence, has been prepared, reviewed, and approved at the state level. The FTA reviewed and commented on the Real Estate Acquisition Management Plan (RAMP) and is also reviewing the Relocation Plan along with the initial approvals and relocation estimates for certain properties located at the Vehicle Maintenance and Service Facility. In the time since this plan was reviewed, the relocation plan for one of the properties has been revised; thus, a modified plan will be re-submitted to the Bureau of Relocation for review. A schedule to implement the real estate acquisition process is being updated to give precedence to activities needed to support the early packages, followed by the balance of the Project. This list is being developed in conjunction with the MBTA's Real Estate department and has been incorporated into the overall Program schedule, allowing the simultaneous tracking of real estate needs and GLX construction activities.

The MBTA has executed a July 26, 2012 Memorandum of Understanding (MOU) with the City of Somerville to convey the necessary land parcels at the proposed Union Square Station site to the MBTA. These parcels are being acquired by the City of Somerville and are currently expected to be conveyed to the MBTA in fall 2013.

Completion of the Pan Am Railways agreement in March 2011 allowed the Commonwealth to acquire land and tracks vital to the construction of the project. The date for the formal closing on this agreement is scheduled for October 8, 2013. In order to commence the geotechnical investigation on this property (a critical path schedule item), the MBTA entered into two license agreements (Pan Am and HYM/Pan Am) allowing for property access ahead of the October closing date.

Relatedly, coordination meetings continue to be held with Pan Am/HYM and the City of Cambridge in regard to Lechmere Station and the adjacent area, roadway design and project phasing plans. Coordination has also been ongoing with the residential Avalon Bay building (formerly known as Archstone) and the developer for the residential project at 22 Water Street in this area regarding the sequencing of construction and the anticipated utility and streetscape improvements.

The phasing of the roadway improvements at Lechmere Station (O'Brien Highway, North First Street and Water Street) which are the responsibility of the NorthPoint Development project (managed by HYM), continue to be an item of discussion and coordination, along with the design of O'Brien Highway improvements. Discussion of these roadwork issues involves the NorthPoint developers, the City of Cambridge, and the members of the East Cambridge neighborhood association.

The team is also negotiating a Memorandum of Understanding (MOU) with the City of Somerville to use the Homans Building site (an underutilized building adjacent to the proposed station and bridge) to support construction at the Medford Street Bridge and for the construction of Gilman Square Station. Design coordination and resolution of

conflicts between the project and the City's "Somervision" planning process/conceptual design is ongoing. Based on this coordination effort, revised property plans are being prepared for parcels at Gilman Square Station and Ball Square Station in order to support the real estate acquisition process.

An appraisal has been completed for the NStar property on the Somerville High School side of the Gilman Square Station area required to be purchased by the project. Discussions with NStar are ongoing, on both the value of the property and the schedule and cost to off load the existing substation at Gilman Square. The Project team is also coordinating with NStar on the design for the provision of power to the traction power substations at Red Bridge, the VMSF and Gilman Square Station, as well as the utility issues related to the overall improvements at the Lechmere Station area. An agreement is being prepared between both parties documenting cost and schedule.

Design Progress:
The Advanced Preliminary Engineering/Final Design (APE/FD) team continued to advance design on all portions of the program, consistent with the Program schedule. However, work to the full APE level of design on three project items (Ball Square Station, Gilman Square Station, the Vehicle Maintenance and Storage Facility) will be completed 1-2 months later due to design revisions related to recently identified utility conflicts, changes resulting from the Value Engineering process, and late input from the City of Somerville. However, it is still anticipated that design will be sufficiently advanced to support the update of the estimate and the follow-on FTA Risk workshop scheduled for November 2013, both of which support the plan to commence discussion on a FFGA with FTA in early 2014.

The APE/FD team and the PM/CM are now working on the scope, schedule and budget for final design of the early construction packages and the advancement of design for the remainder of the program elements. The Project team's goal is to have the construction documents completed to commence construction of the early packages in May/June 2014 and the design of the Phase 2/2A balance of work at a 90% stage by May 2014.

The PM/CM continues to coordinate the geotechnical field investigation effort with MBTA Real Estate, MBCR flagmen, Pan Am flagmen and MBTA Signal and Power Departments. Field surveys are advancing in preparation for the property acquisitions of several individual properties within the Phase 2 and 2A area, in addition to the Union Square Station area. Field survey is also ongoing to develop existing conditions plans for the Millers River drainage work and to provide expanded survey information for the commuter rail track to support braking distance design.

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. Meetings have been held with a broad variety of groups, including two different project advisory committees – the former Project Advisory Group and the current Design Working Group – and their subcommittees; 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.

As the details of the design of the stations, including the relationship of the stations to the pedestrian, bicycle, and bus networks are now more fully developed, additional meetings were held this spring. A Design Working Group/open house meeting was held in early May at the new Project Office to update the Design Working Group and the public on the status of the project's design since its last meeting. An additional round of station workshops including Ball Square Station, Gilman Square and Lowell Street Stations, Washington and Union Stations, Lechmere Station, and College Avenue Station were held in June 2013, where the progress of station design to date was presented.

The Project Team has continued to meet and coordinate design issues with representatives from the three municipalities and stakeholder groups including, most recently: (1) the City of Somerville and Friends of the Community Path on the Path connections in the Red Bridge area, (2) the City of Cambridge on interim parking near Lechmere Station and Lechmere Station design, (3) the Cities of Medford and Somerville on the revised Ball Square plans and (4) the City of Somerville, the City of Medford, and other local abutters on the Phase 1 (see below) construction plans. As a follow-up to the January 2013 coordination meeting with the Massachusetts Historic Commission (MHC) on the details of the viaduct demolition limits and reconstruction, a draft Historical American Engineering Report (HAER) was submitted in March 2013. Edits to the HAER were completed and the final report was submitted to MHC in late May; this report was approved in July.

Project staff continues to meet with the abutters to the Phase 1 construction work, around Harvard Street, as well as representatives of Tufts University, the City of Medford, and the City of Somerville. The Project Team also continues to respond to inquiries to the project website with regard to scope, schedule, and overall coordination.

In addition, a complaint had been filed in federal court against MassDOT and the FTA which challenges the determination of a FONSI under the National Environmental Policy Act. This suit had the potential to impact the project schedule and cost. MassDOT filed a motion to dismiss the lawsuit for failure to state a claim. The motion argued that the

lawsuit should be dismissed in its entirety for lack of subject matter jurisdiction because the plaintiffs lack standing. On August 2, 2013 the U.S. District Court dismissed the case and has found in favor of the FTA and MassDOT.

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 which has divided the project into four phases.

Phase 1 Early Bridge/Demolition is using the traditional Design-Bid-Build approach for (1) the widening of two railroad bridges (Harvard Street Bridge in Medford, and Medford Street Bridge in Somerville) to accommodate the additional Green Line tracks and (2) the demolition of the MBTA tire storage building at 21 Water Street in the Lechmere Station area to provide parking and staging areas for the Phase 2/2A work.

The MBTA General Manager awarded the Phase 1 contract on December 13, 2012 and the MBTA issued a Notice to Proceed to Barletta Heavy Division on January 31, 2013.

At the Harvard Street Bridge, support of excavation work is complete, allowing subgrade preparation and commencement of construction of retaining walls north and south of the bridge. Utility relocation and coordination is continuing in advance of the installation of new storm drainage system elements in Harvard and Winchester Streets. At 21 Water Street in Cambridge, soils storage activities continue in support of the construction of the Harvard Street Bridge walls. Sandblasting, priming, and intermediate painting of the existing Medford Street Bridge structure has been completed and Medford Street was reopened to traffic on July 19, 2013. Follow-on bridge widening and final painting of the entire bridge will occur in 2014.

Phase 2/2A will extend service from the (new) Lechmere Station to the Washington Street and Union Square Stations and relocate the bus facility and vehicle storage at Lechmere Station. MBTA's construction phasing plans are developed so as to complete construction on this phase by late 2016 with testing and start up in early 2017. This schedule assumes that the FTA approves the Project team's plans to advance certain project activities ahead of the FFGA, with the bulk of construction starting in 2015 after receipt of the FFGA.

Phase 3 will construct the VMSF. As the full storage 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 completed some six months ahead of the date for revenue service to the Gilman Square, Lowell Street, Ball Square, and College Avenue Stations. It is anticipated that the relocation activities of the current occupants of the VMSF site will be completed by the end of 2015, such that site cleanup and demolition will commence shortly thereafter. The property acquisition and relocation activities (described earlier) are critical to the start of construction and completion of this facility.

Phase 4 will provide service beyond Washington Street Station (completed as part of Phase 2 above) to College Avenue Station. It is currently targeted to be completed by the end of July 2019. Completion of Phase 4 also represents completion of the Green Line Extension project. As stated, the GLX Project team targets completion of this phase (at a 50% probability of occurring) on or before July 2019, based upon a risk evaluation process conducted in 2011. An updated risk evaluation process, based on the APE design submittal, will be conducted in November 2013.

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 has begun 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 to College Avenue/Union Square. 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, Office of the Inspector General and MBTA Board of Directors authorization to use the CM/GC delivery method described above, which is expected to aid in meeting the dates above and overcoming some of the delays that were encountered related to the FONSI and the approval to enter into the Preliminary Engineering stage of the FTA New Starts program.

A major critical path item to the introduction of passenger service is the completion of the next steps in the New Starts process, including (1) submission of a viable Finance Plan as part of the application for the FFGA for the Green Line Extension project to the FTA, (2) any required approvals from FTA to start construction of early work contracts

on utilities and critical items by May/June 2014 (3) favorable rating by the FTA and completion of the package for initiation of the negotiations for a FFGA, and (4) receipt of a FFGA by February 2015. The receipt of the FFGA is a key milestone, as it restricts the start of construction for the bulk of the Phase 2/2A and Phase 4 work.

Finally, although the goal of the phased project delivery approach is to complete components in an incremental way, 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 have initiated 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 have sought 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 and received in the summer and fall of 2012, MassDOT solicited public comments on these potential measures. Since that time, the MBTA has created an internal working group to determine a final portfolio of interim mitigation measures to implement by December 31, 2014, the legal deadline for the implementation of the Green Line Extension. The products of that effort will be submitted to DEP and released for final public review in October 2013, for final approval by December 2013 in time for implementation by December 31, 2014.