6

Draft Section 61 Findings and Mitigation Commitments

6.1 Introduction

This chapter presents the proposed mitigation program of the Executive Office of Transportation (EOT) to address adverse environmental impacts associated with construction and operation of the proposed Green Line Extension Project. This chapter also provides draft Section 61 Findings for the Proposed Project.

6.2 Project Benefits

The Proposed Project is expected to generate 52,000 new daily boardings and alightings at the Project's seven stations and generate new systemwide transit ridership of 7,900 boardings per day and a reduction of 25,018 Vehicle Miles Traveled (VMTs) per day (projected to the year 2030). The increased transit access and ridership will improve corridor mobility, improve traffic conditions, improve regional air quality, increase services to environmental justice populations, and support future smart growth initiatives and sustainable development.

6.3 Project Mitigation

Potential permanent impacts resulting from constructing the Proposed Project would be mitigated to the extent practicable, as described in Chapter 5 of this Draft Environmental Impacts Report/Environmental Assessment (DEIR/EA) and summarized in Table 6-1.

Table 6-1 Project Mitigation Commitments

Environmental Categories	Mitigation Measure	Implementation Schedule	Implementation Responsibility
Traffic	Provide roadway and signal modifications at six specific intersections in order to prevent adverse traffic impacts from the Project.	Completion of construction	EOT/MBTA
	Provide pedestrian improvements at 29 specific locations to improve pedestrian flow and safety.	Completion of construction	EOT/MBTA
	Work with cities to develop station-area parking enforcement plans.	Completion of construction	EOT/MBTA
Noise	Provide noise mitigation in the form of noise barriers, home sound insulation, and rail lubrication to mitigate all moderate and severe noise impacts.	Completion of construction	EOT/MBTA
	Install continuously welded rail for light rail tracks.	Completion of construction	EOT/MBTA
Vibration	Provide vibration mitigation in the form of ballast mats and special trackwork to mitigate vibration impacts.	Completion of construction	EOT/MBTA
Water Quality/ Stormwater	Prepare a Stormwater Pollution Prevention Plan (SWPPP).	Prior to construction	EOT/MBTA
	Implement all aspects of the SWPPP including recommendations in annual updates based on new or improved procedures or changes to operations.	Ongoing	EOT/MBTA
	Update the Operation and Maintenance (O&M) plan in the SWPPP to include a detailed outline of inspection and cleaning schedules for stormwater management practices, including detention areas and deep sump catch basins.	Ongoing	EOT/MBTA
	Install detention and infiltration systems to prevent any increase in peak flows to municipal stormwater drainage systems and to remove TSS from stormwater runoff prior to discharge.	During construction	EOT/MBTA
Visual Environment	Provide vegetation on and/or above retaining walls to minimize visual changes.	Completion of construction	EOT/MBTA
	Work with affected communities on design of noise barriers and vegetated walls.	Prior to construction	EOT/MBTA
Historical and Cultural Resources	Perform archival documentation of historic structures to be removed or altered.	Prior to demolition	EOT/MBTA
	Construct noise barriers with materials and colors compatible with adjacent historic properties.	Completion of construction	EOT/MBTA
	Provide noise mitigation (sound insulation) for sensitive historic structures that cannot be protected using noise barriers.	Completion of construction	EOT/MBTA
	Perform intensive archaeological survey before disturbing any archaeologically-sensitive areas.	Prior to construction	EOT/MBTA

6.4 Construction Period Mitigation

Temporary, short-term impacts from construction activities would be mitigated to the extent practicable. Appropriate construction mitigation measures would be incorporated into the contract documents and specifications governing the activities of contractors and subcontractors constructing elements of the Project. On-site resident engineers and inspectors will monitor all construction activities to ensure that mitigation measures are properly implemented. The construction mitigation measures are summarized in Table 6-2, and described in detail in Section 3.7.6 of this DEIR/EA.

Table 6-2 Summary of Construction Mitigation Measures

Mitigation Measures
Traffic ■ Temporary detours would be established to minimize traffic disruption due to construction. ■ Bridge reconstruction would be timed so as to minimize temporary bridge closures and to ensure that adjacent bridges were not closed simultaneously.
Air Quality ■ Apply water to dry soil to prevent dust production. ■ Use water for compaction in the fill areas and as a dust retardant in both the soil cut areas and haul roads. ■ Follow existing MBTA retrofit procedures for construction equipment to reduce emissions.
Noise ■ Use specially quieted equipment with enclosed engines and/or high-performance mufflers. ■ Avoid nighttime construction in residential neighborhoods. ■ Keep truck idling to a minimum. ■ Route construction equipment and vehicles through areas that would cause the least disturbance to nearby receptors where possible. ■ Fit any air-powered equipment with pneumatic exhaust silencers. ■ Locate stationary construction equipment as far as possible from noise-sensitive sites. ■ Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.
Vibration ■ Avoid nighttime construction in residential neighborhoods. ■ Use alternative construction methods to minimize the use of impact and vibratory equipment (e.g. pile drivers and compactors).
Water Quality/Stormwater ■ Develop and implement a SWPPP in accordance with NPDES and MA DEP standards. ■ Stabilize any highly erosive soils with erosion control blankets and other stabilization methods, as necessary. ■ Reinforce slopes using a hydroseed mix with a resin base, native vegetation, or other approved methods. ■ Use dewatering controls, if necessary. ■ Install a gravel entrance to prevent sediment from being tracked onto roadways and potentially discharged to surface waters. ■ Maintain construction equipment to prevent oil and fuel leaks.

Table 6-2 Summary of Construction Mitigation Measures (continued)

Mitigation Measures
Hazardous Materials and Solid Waste ■ Implement special management procedures for any hazardous, contaminated or special wastes generated during construction, including special handling, dust control, and management and disposal of contaminated soil. Procedures should protect both workers and nearby receptors. ■ Perform subsurface investigations for any planned excavation to test for possible contamination. ■ Prepare a site-specific Health and Safety Plan. ■ Conduct pre-demolition inspections to identify any hazardous materials such asbestos and lead-based paint.

6.5 Proposed Section 61 Findings

These Proposed Section 61 Findings for the Project have been prepared to comply with the requirements of Massachusetts General Laws, Chapter 30, Section 61, and in accordance with the Massachusetts Environmental Policy Act (MEPA) regulations at 301 CMR 11.07(6)(k), which requires state agencies and authorities to review, evaluate, and determine the impacts on the natural environment of all projects or activities requiring permits issued by the state, and to issue findings describing the environmental impacts, if any, and certifying that all feasible measures have been taken by the Project Proponent to avoid or minimize these impacts. As described below, EOT has reviewed the environmental effects of the Proposed Project. Based on the review, EOT finds that all feasible measures have been taken first to avoid and then minimize those effects.

6.5.1 Project Description

Alternative 1, Green Line Extension to Medford Hillside and Union Square (using commuter rail rights-of-way), has been selected as the "Proposed Project" for the Green Line Extension Project, as it provides a balance of cost, ridership, and environmental impacts. EOT also believes that this alternative will help the Commonwealth achieve its goal of providing expanded transportation services and improve regional air quality. This alternative extends to Union Square via the MBTA Fitchburg Line right-of-way, which would require fewer acquisitions of private property, have more operational reliability, and have a lower capital cost than the Somerville Avenue option. Alternative 1 would meet all project goals, would be operationally practical, and would generate a high number of new systemwide transit trips. This is the project for which EOT is currently seeking approval by the FTA.

A total of seven stations are included in the Proposed Project: Lechmere, Brickbottom, Gilman Square, Lowell Street, Ball Square, College Avenue and Union Square. The route length would be about three miles to Medford Hillside with an approximately one-mile spur to Union Square. The primary infrastructure improvements of the Proposed Project would include relocating existing commuter rail lines, and constructing approximately four miles of new light rail track and systems, 11 bridge structures and a maintenance facility to support the extension service. The environmental impacts of the Proposed Project have been fully evaluated and are described in detail in this DEIR/EA.

The Green Line Extension Project is envisioned to provide service to Union Square and to Medford using a two-branch operation, both in existing commuter rail rights-of-way. One branch would operate from Relocated Lechmere Station to Medford along the MBTA Lowell Line. This branch would begin at relocated Lechmere Station and head northwest, meeting the MBTA Lowell Line just south of Washington Street in Somerville. From Washington Street, the alignment would run parallel to the MBTA Lowell Line to Medford, terminating its route at Medford Hillside in the vicinity of College Avenue. The second branch would operate along the MBTA Fitchburg Line from Lechmere Station into a terminus at Union Square in Somerville. The Union Square Branch would begin at relocated Lechmere Station and head northwest, following the MBTA Fitchburg Line to Prospect Street in the Union Square area.

The Project would include one relocated Green Line station, six new Green Line stations, and a maintenance facility. The stations would be:

- Relocated Lechmere Station, Cambridge (relocated to east side of O'Brien Highway);
- Union Square Station, Somerville;
- Brickbottom Station, Somerville;
- Gilman Square Station, Somerville;
- Lowell Street Station, Somerville;
- Ball Square Station, Medford; and
- College Avenue Station, Medford.

6.5.2 History of MEPA Review

An Expanded Environmental Notification Form (EENF) was submitted to the Executive Office of Energy and Environmental Affairs (EEA) on October 10, 2006. The Secretary of EEA issued a Certificate on the EENF on December 1, 2006, requiring a Draft Environmental Impact Report (DEIR) for the proposed Project.

Since the submission of the EENF, the Project area has been expanded to include the relocation of Lechmere Station. Relocating Lechmere Station was previously reviewed under MEPA as part of the NorthPoint development project (EEA 12651), but has not been reviewed under National Environmental Policy Act (NEPA). This DEIR/EA includes an evaluation of relocating Lechmere Station to the location and in the same configuration previously reviewed under MEPA.

6.5.3 Related Permits and Approvals

The Proposed Project will require permits and approvals from several local, state and Federal agencies. Table 6-3 below lists the permits and approvals that are anticipated for the Proposed Project.

Table 6-3 Possible Permits or Approvals

Agency	Approval or Permit
FTA	Finding of No Significant Impact Section 4(f) Determination Section 106 Finding Federal funding approval
U.S. Environmental Protection Agency Region I	NPDES Permit for stormwater discharges and construction period
EOT	State funding approval Section 61 Finding
MassHighway	Access permits
City of Medford	Approval for reconstruction of bridges and associated temporary closings/detours for construction Building permits as needed for construction
City of Somerville	Approval for reconstruction of bridges and associated temporary closings/detours for construction Building permits as needed for construction
City of Cambridge	Building permits as needed for construction

6.5.4 Overview of Project Impacts and Mitigation Measures

This section summarizes the impacts to environmental resources and the mitigation measures proposed to prevent or reduce these impacts.

6.5.4.1 Environmental Justice

Transit ridership modeling results indicate a substantial increase in transit access for the local area under the Project, including equal or greater benefits for disability and environmental justice populations. The increase in transit access is expected to promote economic development and provide economic benefits for the region.

Five buildings would be purchased and demolished for the Proposed Project that located within environmental justice areas. These areas have similar racial demographics to the rest of the local area, and the impacts to environmental justice areas are not disproportionate. An estimated 18 jobs could be displaced due to building acquisition located in environmental justice areas. The displacement of these jobs does not represent a substantial or disproportionate economic change for the local area.

With no mitigation, the Proposed Project would result in moderate to severe noise impacts on 84 buildings in environmental justice areas. Approximately 58 percent of the noise impacts would be in environmental justice areas. Given that 60.0 percent of the combined populations of Medford, Cambridge, and Somerville live in environmental justice areas, there would be no disproportionate impact to environmental justice populations. After mitigation through measures such as noise barriers and sound insulation, there would be no residual impacts to these areas.

The maintenance facility proposed at Yard 8 would require acquiring two pieces of land adjacent to Inner Belt Road. Like the other maintenance facility sites considered, this site is within a designated environmental justice area. However, no buildings would be acquired or demolished, and no residential land would be acquired, resulting in no direct effect on local environmental justice populations. The proposed maintenance facility site is located in an existing industrial area next to the MBTA Fitchburg and Lowell Lines. There would be no moderate or severe impacts from noise after mitigation was implemented. Therefore, there would be no disproportionate noise impacts to environmental justice populations from the proposed maintenance facility. The maintenance facility would not affect air quality as it would be servicing Green Line trains, which are electrically powered and have no emissions.

Overall, none of the impacts to environmental justice populations would be disproportionate. These populations would also stand to gain an equal or greater share of the transit access improvements expected under the Proposed Project.

6.5.4.2 Traffic

The Proposed Project would improve existing traffic conditions at eight signalized intersections. Without mitigation, the Project would result in adverse traffic impacts

and would increase existing traffic problems at five signalized intersections. Traffic mitigation is proposed at six intersections for the Proposed Project:

- Boston Avenue at Winthrop Street;
- Boston Avenue at College Avenue;
- Washington Avenue at McGrath Highway;
- Prospect Street at Somerville Avenue;
- Washington Street at Somerville Avenue/ Webster Street; and
- Medford Street at Pearl Street.

With this mitigation in place, the Proposed Project would improve existing traffic conditions at three additional signalized intersections and one unsignalized intersection and would cause no net adverse impact on traffic operations in the region.

Pedestrian traffic will increase as a result of the Project. Pedestrian mitigation is proposed at 29 locations to improve pedestrian flow and reduce delays. With this mitigation in place, the Proposed Project would improve pedestrian traffic conditions and would have no adverse impacts on pedestrians.

6.5.4.3 Air Quality

On a mesoscale (regional) level, the Project would decrease the emission of volatile organic compounds (VOCs), nitrogen oxides (NO_X), particulate matter (PM_{10}), and the greenhouse gas carbon dioxide (CO_2) relative to the No-Build Alternative. On a microscale (local) level, the Project would decrease carbon monoxide (CO) and PM_{10} over existing conditions and would cause some localized decreases or increases in CO, PM_{10}, and $PM_{2.5}$. These increases would not exceed the National Ambient Air Quality Standards (NAAQS) and would not threaten human health or require mitigation.

6.5.4.4 Noise

A total of 161 noise-sensitive receptors would be exposed to noise impact in the absence of mitigation for the Proposed Project. These include 120 moderate impacts and 41 severe impacts at single-family and multi-family residential buildings, moderate impact at three institutional buildings (Science and Technology Center, Outside the Line Artist's Studio and Bacon Hall at Tufts University), moderate impact at Trum Playground and severe noise impact at the Walnut Street Center (a non-profit support center for adults with developmental disabilities) near Union Square.

Noise mitigation including noise barriers, potential sound insulation treatments, and rail lubrication would be feasible, reasonable, and effective in mitigating all potential noise impact due to the Proposed Project. The noise barriers would be effective in reducing noise levels from transit sources generally seven to 11 decibels and would result in substantial reduction in future noise levels in comparison to existing noise levels. With mitigation, there would be no severe noise impacts from the Proposed Project.

6.5.4.5 Vibration

The Proposed Project is projected to cause vibration impacts at 90 single-family and multi-family residential buildings and at three institutional buildings (Science and Technology Center, Outside the Line Artist's Studio and Bacon Hall at Tufts University). A total of 19,700 track-feet of vibration mitigation is proposed to mitigate potential impact. In addition, 12 segments of special trackwork (turnouts and crossovers) will need to be relocated away from sensitive receptors or implemented with specially-engineered solutions (flange-bearing or moveable-point frogs) to minimize potential vibration impact at some locations. These mitigation measures would be effective in keeping future vibration levels at or below existing levels for commuter trains and reducing future vibration from Green Line trains below the impact criterion. (Note: This criterion is for human annoyance, not structural damage.)

6.5.4.6 Water Quality/Stormwater

The Proposed Project would require 6.8 acres of new impervious surfaces, including roofs, walkways, platforms, and other pavement for both the maintenance facility and the new stations. New and expanded stormwater management systems would be required to collect the runoff from these areas. These systems would discharge into the existing municipal stormwater drainage systems. The new stormwater systems would include treatment and detention/infiltration structures to prevent any increased risk of flooding downstream and to maintain the existing quality of the rivers that receive discharge from these municipal systems. Proposed stormwater management devices include:

- Deep sump catch basins to collect runoff from paved areas;
- Underdrains beneath the rail ballast to collect runoff within the rail corridor;
- Hydrodynamic particle separators to treat pavement runoff;
- Roof drains from building connected to an underground pipe storm drainage system;
- Underground infiltration/detention chambers to store and infiltrate runoff; and
- Overflow from the underground chambers to municipal storm drainage systems.

With these measures in place, no increases in flooding or impairment of the receiving waters are expected.

6.5.4.7 Historic Resources

Direct permanent impacts from work within the existing railroad right-of-way is not likely to directly affect significant historic resources, as no significant resources are found inside the railroad right-of-way, with the exception of the south end of the Project area which intersects with the Cambridge steel elevated portion of the Lechmere Viaduct, which eligible for listing in the National Register as part of the Viaduct.

A number of historic architectural resources immediately abut the right-of-way, including the Susan Russell House which is listed in the National Register and properties that are eligible for listing in the National Register: Whitehead Metal Products, Jackson and Newton Co., A&P Grocery Warehouse, Hill Michie Co. Auto Garage, Reid & Murdock Warehouse, Somerville High School and Superintendent's Office, Derby Desk Company, Agar Manufacturing Co., Carlisle Ayer Co., Warner and Childs Division Factory Mill and Garage, Tufts University, Bray Memorial Laboratory and Curtis Hall/Commons Building.

Removing the existing Lechmere Station structure and constructing a new station on the east side of O'Brien Highway/Route 28 will affect a property which is recommended as National Register-eligible and will require mitigation as stipulated in the Memorandum of Agreement. Gilman Square Station will have an effect on the Gilman Square area and Central Hill area through the introduction of new visual elements.

The Proposed Project would affect one archaeologically sensitive area, a potential mid-late nineteenth-century worker housing site at the proposed Brickbottom Station. There is also the potential for archaeologically sensitive strata below railroad and upper fill deposits in the Yard 8 support facility area where the new vehicle maintenance building is proposed.

Mitigation will be provided for individual and district historic resources that are listed or eligible for listing in the National Register and that will be adversely affected by permanent aspects of the Proposed Project. Mitigation at Lechmere Station, which is proposed to be demolished, will consist of archival documentation and consideration of salvage of architectural elements. Historic interpretive signage may also be included. Noise mitigation will include noise walls and sound insulation, treatments which in themselves have the potential for adverse effect. Noise walls that are proposed adjacent to the Susan Russell House, Michael Cotter House, and Hill-Michie Co. Auto Garage will be of a material and color that is compatible with the historic character of the properties to minimize any additional

visual affect from noise walls. The introduction of new doors, windows, or other insulating treatments will be appropriate for the historic property and meet the Secretary of the Interiors Standards for Rehabilitation. Affected historic properties proposed to be subject to sound insulation mitigation consist the A & P Warehouse (Brickbottom Lofts) and Warner and Childs Garage (Tufts Bacon Hall). Vibration mitigation will consist of measures incorporated into the rail bed, ballast, and track design and, therefore, there will be no effects and no need for additional mitigation.

For archaeological resources, subsurface testing as part of an intensive (locational) archaeological survey may be warranted in consultation with the Federal Transit Authority (FTA), EOT, and Massachusetts Historic Commission (MHC). The intensive survey would be designed to locate and identify any potentially significant archaeological resources that may be impacted by the Project.

Should any significant and National Register-eligible archaeological resources be identified during the intensive survey or subsequent site evaluation testing, then measures to avoid, minimize, or mitigate any adverse effects of the Project on the National Register-eligible resource(s) will need to be determined by the FTA and EOT, in consultation with the MHC and other consulting and interested parties. Mitigation measures for archaeological sites that will be adversely affected by construction activities will include an archaeological data recovery program designed in accordance with state and Federal guidelines and standards for the excavation of National Register eligible archaeological sites.

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