



U.S. Department
of Transportation
**Federal Transit
Administration**

REGION I
Connecticut, Maine,
Massachusetts,
New Hampshire,
Rhode Island, Vermont

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617-494-2055
617-494-2865 (fax)

Mr. Richard Davey
Secretary of Transportation
MassDOT
Ten Park Plaza
Boston, MA 02116

JUL 09 2012

**Re: Green Line Extension - Environmental Assessment
Finding of No Significant Impact**

Dear Secretary Davey:

Based upon a review of environmental documentation submitted by the Massachusetts Department of Transportation (MassDOT), the Federal Transit Administration (FTA) has issued a Finding of No Significant Impact (FONSI) for the Green Line Extension project (attached). The purpose of this project is to extend light rail transit service to College Avenue in Medford and Union Square in Somerville using a two branch operation, both within existing commuter rail rights of way. The 3.4 mile long Medford Branch would operate from a relocated Lechmere Station to College Avenue. The 0.9 mile long Union Square Branch would begin at the relocated Lechmere Station and terminate at Union Square in Somerville. With the issuance of this FONSI, MassDOT has complied with the National Environmental Policy Act (NEPA) for improvements for this project defined in the Environmental Assessment.

Please be advised that in accordance with 23 CFR 771.121, MassDOT is required to transmit a notice of availability of this FONSI to all affected Federal, State and Local governmental entities. In addition, in accordance with Section 106 of the National Historic Preservation Act, the FTA, in consultation with the Massachusetts Historical Commission (MHC), has determined that an adverse effect exists for this project. A Memorandum of Agreement (MOA) has been executed which identifies mitigation measures. Additionally, we have reviewed the Section 4(f) evaluation incorporated into the Green Line Extension Environmental Assessment and determined that there are no reasonable and prudent alternatives to the use of Section 4(f) protected properties that meet the project Purpose and Need, and all possible planning has been done to minimize harm.

Sincerely,

Mary Beth Mello,
Regional Administrator

Attachment

CC: Jonathan Davis, MBTA
Andrew Brennan, MBTA

**FEDERAL TRANSIT ADMINISTRATION
REGION I**

Finding of No Significant Impact

Project: Green Line Extension Project

Applicant: Massachusetts Department of Transportation (MassDOT)
and Massachusetts Bay Transportation Authority (MBTA)

Project Location: Cambridge, Medford, & Somerville, Massachusetts

Introduction

The MassDOT and MBTA are undertaking the Green Line Extension Project (Project) to provide improved public transit service to the Cambridge, Somerville and Medford areas in metropolitan Boston, Massachusetts. The goals of the Project are to extend light rail service to underserved areas of Cambridge, Somerville, and Medford, MA.

The Federal Transit Administration (FTA) serves as the lead agency under the National Environmental Policy Act (NEPA) for the proposed Project. The MassDOT and the MBTA prepared an Environmental Assessment (EA) in conformance with the NEPA, 42 USC Section 4321 et seq., and with FTA's regulations, 23 CFR Part 771. The MassDOT and MBTA issued the EA for public comment on October 3, 2011 and held a public hearing on October 20, 2011 pursuant to 23 CFR 771.119. The EA analyzed and described the Project's potential significant impacts. The EA considered a No-Build Alternative, a Base Line Alternative, and six Build Alternatives. The Locally Preferred Alternative (Build Alternative 1) consists of an extension of light rail transit service to College Avenue in Medford and Union Square in Somerville using a two branch operation that are both within the existing commuter rail rights of way. The 3.4 mile Medford Branch would operate from a 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, and terminate at College Avenue in Medford. The 0.9 mile Union Square Branch would operate within the MBTA Fitchburg Line from a relocated Lechmere Station to a terminus at Union Square in Somerville. Additionally, the Project includes a proposed maintenance and storage facility.

Alternatives Considered

The EA evaluated a No-Build Alternative, a Base Line Alternative and six Build Alternatives:

Alternatives Evaluated

- No-Build - No changes to existing service
- Enhanced, limited stop MBTA bus service in the project study area (Base Line)
- Green Line Extension to College Avenue in Medford and Union Square in Somerville (Locally Preferred Alternative)
- Green Line Extension to Mystic Valley Parkway / Route 16 and Union Square (using commuter rail rights of way)
- Green Line Extension College Avenue in Medford (using commuter rail right of way) and Union Square in Somerville (using McGrath Highway / Somerville Avenue)
- Green Line Extension to Mystic Valley Parkway / Route 16 (using commuter rail right of way) and Union Square (using McGrath Highway / Somerville Avenue)
- Green Line Extension to Mystic Valley Parkway Route 16 (using commuter rail right of way)
- Green Line Extension to Union Square in Somerville (using commuter rail right of way)

The EA also evaluated site alternatives for the proposed maintenance and storage facility required to support the Green Line Extension and determined that the preferred location of the maintenance and storage facility would be immediately adjacent to and northwest of the existing MBTA Boston Engine Terminal commuter rail maintenance facility located in the City of Somerville.

Agency Coordination and Public Opportunity to Comment

MassDOT hosted a series of Land Use Planning Workshops associated with the Green Line Extension project in Medford on May 19, 2010, in Cambridge on May 26, 2010, and in Somerville on June 12, 2010. These public meetings were publicized through a variety of means including newspaper advertisements, website postings, press releases in multiple languages, citywide mailing, email distributions and postcard mailings to a database of over 4,500 people, consisting of individuals who had attended meetings, requested information, signed up online, written a comment letter, talked to a staff member, or are abutting property owners to the Green Line Extension project. An EA for the Project was published on October 3, 2011 and a public hearing was held on October 20, 2011 at Somerville High School Auditorium to discuss the EA. Comments were accepted by MassDOT through November 18, 2011. Approximately 450 written comments for the proposed Project were accepted and responded to by MassDOT. In addition to the general public, MassDOT sought and received comments from various public agencies. A summary of these comments and responses are detailed in the Public Hearing and Documentation and Comments Section of the EA and included in Appendix A of the FONSI.

Mitigation Measures to Minimize Harm and Permits

The mitigation measures and other features of the Project that reduce adverse impacts, to which the FTA, the MassDOT and the MBTA have committed to in the EA and FONSI, are included in Table 7.4-1 and 7.5-1 of the EA and incorporated in Appendix B of the FONSI. FTA will monitor compliance with these mitigation measures. Additionally, the MassDOT and the MBTA shall be required to obtain all necessary permits and approvals prior to construction of this Project.

New Starts Process and Rating

FTA determined that the Project, as a candidate for New Starts funding, meets all requirements for entry into Preliminary Engineering (PE) and approved the Project into the PE phase of the New Starts program on June 11, 2012. The Project received a Medium overall project rating against the New Starts criteria. A more detailed breakdown of the rating process and the Project's evaluation is detailed in Appendix C.

Federal Uniform Relocation Act Compliance

The Uniform Relocation Assistance and Real Property Acquisitions Policies Act of 1970, as amended, ensures the fair and equitable treatment of persons whose real property is acquired and persons who are displaced as a result of a Federal or Federally-assisted project.

It is anticipated that the Project, as currently designed, would require approximately 15.2 acres of land acquisition from 40 properties and would require relocating four active businesses. These businesses are located at Ball Square (two businesses – Ball Square Auto Repair and Ball Square Bowling Alley), Union Square Station (Empire Marble and Granite), and the Inner Belt District (M.S. Walker Wholesale Distribution). In accordance with Federal and State guidelines, the MassDOT will pay fair market value for all parcels in private ownership that need to be acquired. No residences will be displaced.

Determinations and Findings

Air Quality Conformity

The air quality study undertaken for the Project includes a local and regional air quality analysis that demonstrates compliance with the State Implementation Plan (SIP) and Transportation Conformity provisions. The local (microscale) analysis evaluated carbon monoxide (CO) and particulate matter (PM), including PM less than 10 microns aerodynamic diameter (PM10) and less than 2.5 microns aerodynamic diameter (PM2.5). The regional (meoscale) analysis evaluated ozone precursors (VOC's), oxides of Nitrogen, and the greenhouse gas carbon dioxide, in addition to CO and PM.

National Environmental Policy Act (NEPA) Finding

FTA serves as the lead agency under NEPA for this project. MassDOT prepared an EA for the Project that complied with NEPA. The EA, dated October 2011, analyzes and describes the Project's potential significant impacts.

After reviewing the EA and supporting documents and public comments, FTA determined that the proposed Project will have no significant adverse impact on the environment. The record provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required.

Section 106 Compliance

Section 106 of the National Historic Preservation Act requires the review of Federally-assisted

projects for impacts to districts, sites, buildings, structures and objects listed in, or eligible for inclusion in the National Register of Historic Places. Federal agencies must coordinate with the State Historic Preservation Officer (SHPO) and potentially affected Tribes to make this determination. The Advisory Council on Historic Preservation (ACHP) has established procedures for the protection of historic and cultural properties in, or eligible for the National Register (36 CFR Part 800).

Acting as the SHPO, the Massachusetts Historical Commission (MHC) was consulted regarding this Project and concurred in a letter dated April 2, 2012 with FTA's determination that the Project will have an adverse effect on historic resources. All parties to the project subsequently executed a Memorandum of Agreement (MOA) on July 5, 2012, which is included in Appendix D.

On December 14 2010, ACHP was provided documentation specified in 36 CFR 800.11(e) and afforded the opportunity to participate in the consultation process to resolve the adverse effects. By letter dated November 15, 2011 ACHP determined that their participation in the consultation process was not needed.

Section 4(f) Findings

Section 4(f) of the Department of Transportation Act of 1966, codified as 49 U.S.C. 303, declares a national policy that a special effort should be made to preserve the natural beauty of the countryside, public park and recreational lands, wildlife and waterfowl refuges, and historic sites. The Secretary of Transportation may not approve the use of land from a significant publicly owned park, recreation area, or wildlife and waterfowl refuge, or any significant historic site unless a determination is made that there is no prudent and feasible alternative to the use of land from the property and the action includes all possible planning to minimize harm to the property resulting from such use.

The Project will use four Section 4(f) properties: 1) Lechmere Viaduct; 2) Lechmere Station and Bus Shed; 3) Somerville Automobile Company; and 4) Reid and Murdock Company Warehouse. In accordance with 23 CFR 774.3, the FTA has approved the use of the 4(f) properties since there is no prudent and feasible alternative and as stipulated in the executed MOA the action includes all possible planning to minimize harm. Project documentation including a Section 4(f) evaluation as it appears on pages 8-1 through 8-23 in the EA, was submitted to the Department of Interior (DOI) for review and comment. Via a letter dated November 15, 2011, the DOI commented that there are no prudent and feasible alternatives to the proposed Project, if Project goals are to be met.

Incorporation by Reference

The full text of the EA and 4(f) Evaluation for the Project dated October 2011 and Public Comment Summary dated December 7, 2011 as prepared by MassDOT, are hereby incorporated by reference into this FONSI.

Finding

The FTA finds under 23 CFR 771.121 that the proposed Project, with the mitigation to which MassDOT and the MBTA have committed, will have no significant adverse impacts to the environment. The record provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required.

Approved: Mary Beth Mello Date: 7/9/12
Mary Beth Mello
Regional Administrator
FTA, Region I

Concur: Wendy A. Lee Date: 7/9/12
Wendy A. Lee
Regional Counsel
FTA, Region I

Appendix A
Summary of Public Comments and Responses

**Green Line Extension Project Environmental Assessment
Inventory of Public Commentors**

Date	Affiliation	First Name	Last Name	Address	City	State	Zip	Email
11/18/11		Diane	Andronica	BLOG ENTRY	Somerville	MA		
10/20/11		Anonymous	Anonymous		Somerville	MA	02144	jlauspitz@comcast.net
11/18/11		Joshua Lee	Auspitz	17 Chapel Street	Somerville	MA		
11/18/11		Elizabeth	Bayle		Medford	MA		ebayle@comcast.net
11/18/11		Jocelyn	Berger	BLOG ENTRY				
10/20/11		Jane	Bester	Lowell Street	Somerville	MA		
11/18/11		Connie	Biasczyk	Brickbottom Artists Building, 1 Fitchburg Street, B15	Somerville	MA	02143	cbzyk@yahoo.com
11/18/11		Reza	Blatman	42 Bartlett Street	Somerville	MA	02145	resablatman@gmail.com
10/20/11		Connie	Biasczyk	Brickbottom Condominiums	Somerville	MA		
10/20/11		Ron	Bonney		Somerville	MA		
10/20/11		Ellie	Boston	28 Jay Street	Somerville	MA	02144	
11/18/11	Brickbottom Condominium Trust	Raymond	Bueno, Trustee et al	Brickbottom Artists Building, 1 Fitchburg Street, C12	Somerville	MA	02143	
10/27/11	U.S. Congress, House of Representatives	Representative Michael	Capuano	110 First Street	Cambridge	MA	02141	
11/17/11		Mart	Cary	58 Summit Road	Medford	MA		matycell@gmail.com
10/20/11		Mark	Chase		Somerville	MA		
10/20/11		Jack	Connolly	17 Winslow Avenue	Somerville	MA		
11/18/11	Emerald Necklace Conservancy	Julie	Crockford	125 The Fenway	Boston	MA	02115	
11/17/11	City of Somerville	Mayor Joseph	Curatone	City Hall, 33 Highland Avenue	Somerville	MA	02143	
10/20/11		Dave	Dalbeck	25 Hancock Street	Somerville	MA		
11/18/11	Mass Central Rail Trail Coalition	Craig	Della Penna	P.O. Box 60211	Florence	MA	01062	
11/17/11	A Better City	Richard	Dinno	33 Broad Street, Suite 300	Boston	MA	02109	
10/20/11		John Roland	Elliot	34 Emery Street	Medford	MA	02155	
10/20/11		Alex	Felman					
10/20/11		Ann	Franzen		Arlington	MA		
11/17/11		Rachel	Gordon	28 Metcalf Street	Medford	MA		Rachel.Gordon@tufts.edu
10/20/11		Vanessa	Green					
11/18/11		Val	Grimm	BLOG ENTRY				
11/18/11	MASCO - Medical Academic and Scientific Community	Bethsheba	Grossman	28 Madison Street	Somerville	MA		
11/18/11	Organization							
10/9/11	City of Medford Historical Commission	Sarah	Hamilton	375 Longwood Avenue	Boston	MA	02215	
10/9/11	City of Medford Historical Commission	Ryan D.	Hayward	City Hall Room 308, 85 George P. Hassett Drive	Medford	MA	02155	
11/21/11	Commission	Ryan D.	Hayward	City Hall Room 308, 85 George P. Hassett Drive	Medford	MA	02155	
11/29/11	City of Cambridge	Robert	Heely	795 Massachusetts Avenue	Cambridge	MA	02139	
11/18/11		Mark	Jacquith	213 Hurley Street	Cambridge	MA	02141	mjaquith@gmail.com
10/20/11		Stephen H.	Kaiser, PhD	191 Hamilton Street	Cambridge	MA	02139	
11/18/11		Stephen H.	Kaiser, PhD	191 Hamilton Street	Cambridge	MA	02139	
10/17/11		Kathleen	Knisely	30 Howard Street, # 30	Somerville	MA	02144	kathleen.knisely@gmail.com
11/18/11		Mike	Korczynski	149 Burget Avenue	Medford	MA	02155	mkorczyk@gmail.com
10/20/11		John K.	Kramer	22 Rayfield Road	Marshfield	MA	02050	
11/18/11		Kenneth	Krause	50 Mystic Street	Medford	MA	02155	kenneth.krause@comcast.net
11/17/11	Sierra Club MA Chapter	John	Kyper	10 Milk Street, Suite 632	Boston	MA	02108	
11/18/11	Walk Boston	Wendy	Landman	45 School Street	Boston	MA	02108	
11/17/11		Thomas	Lincoln	27 Gleason Street	Medford	MA	02155	tlinc02155@aol.com
11/17/11		Linda	Lintz	83 Washington Street	Medford	MA	02155	shlintz@bidmc.harvard.edu
11/18/11		Suzanne	Lipsky					slipsky@comcast.net
10/24/11		Suzanne	Lubeck-Schriener					ss1.brower@rcn.com
10/20/11	Groundwork Somerville	Adam	Machison-Caltier	21 Proper Way, Suite 0	Somerville	MA	02143	

**Green Line Extension Project Environmental Assessment
Inventory of Public Comments**

Date	Affiliation	First Name	Last Name	Address	City	State	Zip	Email
11/18/11	Somerville Chamber of Commerce	Stephen David	Mackey Marcus	2 Alpine Street, P.O. Box 440343 25 Beacon Street, Apt. 16	Somerville Somerville	MA MA	02144 02143	 davidmarcus@alum.mt.edu
11/17/11	Conservation Law Foundation	Rafael Raphael	Mares Mares	62 Summer Street	Boston	MA	02110	
10/20/11	Community Corridor Planning Executive Board	Peter Alissa	Marquez Maxwell	Brickbottom Condominiums	Somerville	MA		peterjohnmarquez@gmail.com
11/17/11	City of Medford	Jim Mayor Michael	McGinnis McGlynn	Union Square City Hall, Rooms 202-204 Porter Square	Somerville Medford Somerville	MA MA MA	02155	
11/18/11	Friends of the Community Path	Alan	Moore & Lynn Weissman	1112 Belmont Street	Somerville	MA	02143	
10/20/11		Steve Ron	Moulder Newman	Union Square Day Street, Davis Square	Somerville Somerville	MA MA		
11/18/11		James Kevin	O'Keefe & Melanie Campbell	25 Moore Street Boston Avenue	Somerville Somerville	MA MA	02144	jpokefe@gmail.com
10/20/11		Jessa	Priala					
11/18/11	The Commonwealth of Massachusetts, House of Representatives	Naftali	Portiz					spacchox7@yahoo.com
11/18/11	United States Department of the Interior	Representative Denise Mary	Provost Racko	Room 473B, State House 132 Auburn Street	Boston Medford	MA MA	02133 02155	 rackco@wilmail.com
11/15/11	Powderhouse Square Condominiums	Andrew	Raddant Reichert	408 Atlantic Avenue, Room 142 618 Boston Avenue, Unit 3A	Boston Medford	MA	02110 02155	
11/18/11	Somerville Transportation Equity Partnership	Ellin	Reisner					reisneres1@gmail.com
10/20/11		Ellin Sylvia	Reisner Romm	5 Vinal Avenue	Somerville	MA	02143	reisneres1@gmail.com syviamromm@gmail.com
11/17/11	Green Line Advisory Group for Medford (GLAM)	Carolyn	Rosen	c/o 25 Bussell Road	Medford	MA	02155	
10/20/11		Carolyn Laurel	Ruma Salvucci	149 Burget Avenue	Medford	MA	02155	
11/17/11		Fred	Salvucci		Brighton	MA		
10/20/11	Massachusetts Historical Commission	Brona	Simon	220 Morrissey Boulevard	Boston	MA	02125	
10/20/11		Brian Julia	Sylvan Thompson	140 Jerome Street	Somerville West Medford	MA MA	02155	
11/18/11		Keja Heather	Valens Van Aelst	24 Wunroe Street Brickbottom Condominiums	Somerville	MA	02143	
10/20/11		Lynn	Weissman					dkvaz@yahoo.com
10/20/11		William	Wood		Medford	MA		
11/18/11		Wig	Zamore	13 Highland Avenue	Somerville	MA	02143	wigzamore@gmail.com
10/20/11		Wig	Zamore	13 Highland Avenue	Somerville	MA	02143	wigzamore@gmail.com

Public Hearing Transcript Comments

Comment Letters Inventory and Issue Summary Matrix

Affiliation		Source	First Name	Last Name	Date	Project Support	Air Quality/SP	Community Path	Cultural Resources & Section 4(f)	Design & Construction	E-/Disability/ Socioeconomic	Funding	Issues Summary			Natural Resources	Noise/ Vibration/ Visual	Schedule	Public Outreach	Summary
			Diane	Andronica	11/18/11	X		X												Build Community Path Extension
			Anonymous		10/20/11					X										Encourage public transportation usage
			Joseph Lee	Ausitz	11/18/11	X	X				X									Geographical basis for SIP offset measures/Medford Hillside
			Elizabeth	Bayle	11/18/11	X					X							X		Build to Medford Hillside/Route 16; TOD potential; Environmental justice
			Elizabeth	Bayle	10/20/11	X	X												X	Build Green Line Extension to Route 16; regional air quality benefits; public involvement benefits to design
			Jocelyn	Berger	11/18/11	X	X	X					X							Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Jane	Bester	10/20/11	X	X	X		X		X								Air quality, economic development, funding sources; gas tax
			Connie	Blaszczk	11/18/11	X	X										X			Brickbatton noise and vibration mitigation/mitigation
			Connie	Blaszczk	10/20/11	X	X			X							X			Brickbatton impacts/mitigation - noise, vibration, air quality, construction; interim offset measures - diesel idling; see Stephen Kaiser's RET and drill track redesign plans
			Ross	Blalman	11/18/11	X	X	X					X							Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Ron	Bonney	10/20/11	X		X		X			X					X		Inner Rail Bridge connection; Community Path Extension with Green Line Extension; build Green Line Extension to Route 16; schedule delay
			Elie	Broshon	10/20/11	X		X									X			Geoeconomics; jobs; acquisitions; mitigation
			Raymond	Buono et al	11/18/11	X	X	X		X							X		X	Schedule delay
			Representative Michael	Capurro	10/27/11	X		X		X			X							Requests mitigated FONS; compensation for cumulative impacts
			Matt	Carry	11/17/11	X	X	X					X							Multimodal connections at Union Square Station; Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension
			Mark	Chase	10/20/11	X	X					X						X		Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Jack	Cornelly	10/20/11	X				X								X		Interim offset measures; funding sources; gas tax, VMT pricing, tolls
			Joie	Croxford	11/18/11	X		X												Schedule delay - delayed economic development
			Mayer Joseph	Curtatone	11/17/11	X	X	X		X										Build Community Path Extension with Green Line Extension
			Dave	Dolbeck	10/20/11	X		X												FRA should issue FONSI; interim offset measures; Community Path Extension with Green Line Extension; Multimodal Center at Union Square; Build Green Line Extension to Route 16; Do not preclude future extension to Foster Square
			Calie	Deila Penna	11/18/11	X	X	X					X							Inner Rail Bridge connection; Air quality mitigation
			Bruce	Demmond	10/20/11	X	X											X		Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Richard	Dinhlo	11/17/11	X	X			X								X		Schedule delay - delayed air quality benefits/SIP commitment
			John Roland	Elliott	11/18/11	X							X							Preserve/build Urban Ring Bridge from Inner Belt Road to NorthPoint
			Alex	Feldman	10/20/11	X												X		Geographical basis for SIP offset measures/Medford Hillside
			Ann	Frazen	10/20/11	X		X					X							Schedule delay
			Rachel	Gordon	11/17/11	X	X	X												Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Vanessa	Green	10/20/11	X	X						X							Air quality impacts from Commuter Rail carbon dioxide and diesel particulates; mitigation - retrofit locomotives or use filters
			Val	Grimm	11/18/11	X		X												Build Community Path Extension with Green Line Extension
			Bathsheba	Grossman	11/18/11	X	X	X					X							Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
			Sarah	Hamilton	11/18/11	X	X													Interim offset measures; Preserve Urban Ring right-of-way along NorthPoint-Inner Belt Connection
			Ryan D.	Hayward	10/19/11	X			X											Requests additional property information/surveys; clarification on surveyed properties

Green Line Extension Environmental Assessment Comment Letters Inventory and Issue Summary Matrix

Affiliation	Source			Issues Summary												Summary	
	First Name	Last Name	Date	Project Support	Air Quality/SP	Community Path	Cultural Resources & Section 4(f)	Design & Construction	EJ/Disability/Socioeconomics	Funding	MVW/Route 16	Mitigation	Natural Resources	Noise/Vibration/Visual	Schedule		Public Outreach
City of Medford Historical Commission	Ryan D.	Hayward	11/21/11	X			X	X						X			Visual impacts with retaining walls in Medford Hillside right-of-way - requests design collaboration; pedestrian bridge at Ball Square Station (Newbern Ave/Winterchester - residential); College Ave Station - supports relocation of water pipe and pedestrian link to Burger Ave neighborhood
City of Cambridge	Robert	Healy	11/19/11	X	X			X				X		X	X		Collaborate on O'Brien Hwy & Lechmere Station design; multi-modal connections (Urban Ring bus/transit connections at Northpoint and Inner Belt); do not preclude Grand Junction multi-use path from Charles River in Cambridge; into Somerville and Community Path; mitigation for Glass Factory; noise and vibration concerns from maintenance and storage facility
Form letter	Mark	Jacynth	11/18/11	X	X	X					X						Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
Transcript	State Senator Patricia	Jehlian	10/20/11	X				X	X	X					X		Schedule delay: Green Line Extension to Route 16; Community Path Extension with Route 16; funding; Economic development - need jobs/infrastructure/educational opportunities
	Stephen H.	Kalser	10/20/11	X	X			X						X			Validate and 22 Water Street design impacts; Brickbottom interchange; Lechmere Station pedestrian crossing
	Stephen H.	Kalser	11/18/11	X				X				X		X			Coordinate intermodal planning with Community Path Extension, Urban Ring, Grand Junction Path, MBTA admin bldg proposal; O'Brien Hwy design/pedestrian crossing/Lechmere Station; review reconfigured Brickbottom interchange - remove drill track; Commuter Rail mitigation- relocate Fitchburg Line, add switches - reduces noise/vibration
Transcript	Steve	Kalser	10/20/11	X	X			X									Elevated highway in Cambridge - visual impacts; Lechmere Station - pedestrian crossing/impacts; interim offset measures; design recommendations for Boston Engine Terminal
	Kathleen	Kinsley	10/17/11	X											X		Schedule delay
	Mike	Korczynski	11/18/11	X	X			X		X		X				X	Geographical basis for SIP offset measures; Medford Hillside (GNS); College Avenue bridge - relocate water main (visual impact); Route 16 TOD opportunities; Burger Ave path through Tuffs - requests additional outreach
	John K.	Kramer	10/20/11	X											X		Schedule delay
Transcript	John	Kramer	10/20/11	X						X					X		Schedule delay; funding
	Kenneth	Krause	11/18/11	X	X		X	X				X		X		X	Non-compliance/geographical basis for SIP offset measures; Medford Hillside (GNS); noise and vibration mitigation for entire corridor; College Avenue Station - air quality study for pickup/dropoff area; platform ramp visual impact; increase bike parking at Ball/Collage Ave Stations; see Stephen Kalser/Alan Moore maintenance and storage facility recommendations; incorrect Ball Square zoning designation; increase public outreach; do not preclude Community Path Extension (see Friends of Community Path recommendations); interim offset projects
Sterra Club MA Chapter	John	Kyper	11/17/11	X					X						X		Schedule delay: Environmental Justice benefits; Option 1 maintenance facility - acquisitions cost
Walle Boston	Wendy	Landman	11/18/11	X			X	X		X					X		Schedule delay: Build Community Path Extension with Green Line Extension; funding; Community Path crossing with Fitchburg Line
Form letter	Thomas	Lincoln	11/17/11	X								X					Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
Form letter	Linda	Libitz	11/17/11	X		X						X					Build Green Line Extension to Route 16; Build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
	Suzanne	Lipsky	11/18/11	X							X		X				Opposes Route 16 extension (pedestrian/traffic impacts, environmentally/park impacts, stormwater impacts)
	Suzanne	Luback-Schirker	10/24/11	X											X		Schedule delay
Groundwork Somerville	Adam	Machison-Carter	10/20/11	X													Air Quality impacts; interim offset measures
Terrie Chamber of commerce	Stephen	Mackey	11/18/11	X				X	X								Interim offset measures; Socioeconomic benefits
	David	Marcus	11/17/11	X		X		X			X					X	Do not preclude future interim stops between Lechmere and Washington and Lechmere and Union Square; do not preclude future extensions between Union Square to Porter and future use of Grand Junction corridor

Green Line Extension Environmental Assessment Comment Letters Inventory and Issue Summary Matrix

Source			Issues Summary										Summary				
Affiliation	First Name	Last Name	Date	Project Support	Air Quality/SP	Community Path	Cultural Resources & Section 4(f)	Design & Construction	EJ/Disability/Socioeconomics	Funding	MVP/Route 16	Mitigation	Natural Resources	Noise/Vibration/Visual	Schedule	Public Outreach	
Conservation Law Foundation	Rafael	Mares	11/17/11	X	X				X	X	X						Noncompliance with Transportation Conformity Regulations; SIP contributes to Route 16
Transcript	Raphael	Mares	10/20/11	X	X					X	X				X		Build Green Line Extension to Route 16; SIP commitment; noninterference with transportation conformity regulations; insufficient funding; schedule delay; interim offset measures
Community Corridor Planning Executive Board	Peter	Marquez	11/17/11	X	X							X					Bridgeport mitigation/monitoring of noise and vibration impacts; interim offset measures
Form Letter	Alissa	Maxwell	11/17/11	X	X	X					X						Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
Transcript	Jim	McGinnis	10/20/11	X	X			X	X		X						Geographic definition of Medford Hills/de/SIP: Build Green Line Extension to Route 16; see Stephen Kaiser's Mirror 1 plan - saves jobs; interim offset measures; air quality impacts - Commuter Rail diesel/heavy trucking
City of Medford	Mayor Michael	McGlynn	11/16/11	X				X			X	X				X	Noise and vibration impacts, construction mitigation; Cottage Avenue Station - traffic design collaboration; public outreach; schedule delay; build Green Line Extension to Route 16
Transcript	Alan	Moore	10/20/11	X	X	X		X		X					X		Funding/New Starts; schedule delay; Community Path Extension with Green Line Extension; Maintenance and storage facility; do not preclude Community Path Extension connection with Inner Belt/Urban Ring bridge; interim offset measures
Friends of the Community Path	Alan	Moore & Lynn Weisman	11/18/11	X	X	X		X		X	X				X		Build Green Line Extension to Route 16; Community Path Extension with Green Line Extension; Community Path Extension - Cartegoidal Exclusion, not EA; design recommendations for track layout near Bridgebottom and Fitchburg Line crossing; interim offset measures; Schedule delay
acq/t	Hayes	Morrison	10/20/11	X	X	X		X			X				X		Delay of Air Quality benefits/SIP commitment; Schedule delay; build Inner Belt Access Bridge from Inner Belt Road to Northport for Community Path Extension; Bus line from Kendall along Urban Ring Route into Sullivan Square and Assembly; Multimodal Center at Union Square; do not preclude future extensions to Porter Square; Build Green Line Extension to Route 16; construct Commuter Rail stop at Assembly Square; Relocate/raise Lowell and New Hampshire railroad line that splits Inner Belt.
Transcript	Steve	Muller	10/20/11	X	X										X		Schedule delay; delay of air quality benefits; interim offset measures
Transcript	Ron	Newman	10/20/11	X	X	X		X									Community Path Extension with Green Line Extension; interim offset measures - temporary Commuter Rail stops at Ball Square and Union Square
Form Letter	James	O'Keefe & Melonie Campbell	11/18/11	X	X	X					X						Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Fitchburg Line
Transcript	Kevin	Oliver	10/20/11	X											X		Schedule delay; Add Commuter Rail stop at Porter Square
Transcript	Jess	Pala	10/20/11	X				X						X			Construction phasing - build to Union Square first; schedule interim offset measures
	Nat'l	Portiz	11/18/11	X	X												Build Green Line Extension to Route 16; phase College Avenue Extension before maintenance and storage facility; Acquisition cost/maintenance and storage facility; Community Path Extension with Green Line Extension; Bird habitat mitigation; Stormwater management - add willow/other trees to assist with drainage
The Commonwealth of Massachusetts, House of Representatives			11/18/11	X		X		X			X		X				Schedule delay; Build Green Line Extension to Route 16; Community Path Extension with Green Line Extension
Transcript	Representative Denise	Provost	10/20/11	X			X				X				X		Maintain same level of bus service after Green Line Extension; opposes extension to Route 16 for traffic/environmental; check Route 16 ridership data - seems high
	Mary	Reckto	11/14/11	X				X									Section 4(f) concurrence; SHPO Coordination on MDA
United States Department of the Interior	Andrew	Reddant	11/15/11	X			X				X						Schedule delay; Build Green Line Extension to Route 16; interim Offset Measures
Transcript	Suzanne	Rasmussen	10/20/11	X	X						X				X		Request noise mitigation for outdoor land use; noise measurement calculations incorrect; permanent noise walls in lieu of temporary noise walls
dehuze Square Condominium	Tal	Reichert	11/18/11	X				X				X		X			

Green Line Extension Environmental Assessment Comment Letters Inventory and Issue Summary Matrix

Affiliation	First Name	Last Name	Date	Project Support	Air Quality/ SIP	Community Path	Cultural Resources & Section 4(f)	Design & Construction	El/Disability/ Socioeconomics	Funding	WMP/ Route 16 Mitigation	Natural Resources	Noise/ Vibration/ Visual	Schedule	Public Outreach	Summary
Somerville Transportation Equity Partnership	Elin	Reidner	11/18/11	X		X		X			X					Build Green Line Extension to Route 16; Community Path Extension with Lechmere and Washington Street; Lechmere and Union Square; 2) future extension to Porter Square; 3) use of Grand Junction combine outreach throughout design and construction
Transcript	Elin	Reidner	10/20/11	X	X					X				X		Interim offset measures; funding; Green Line Extension to Route 16; Community Path Extension with Green Line Extension; SIP/TIP priority
Form Letter	Sybil	Rosen	11/18/11	X	X	X					X					Long Range Transportation Plan
Green Line Advisory Group for Medford (GLAG)	Carolyn	Rosen	11/17/11	X	X			X	X					X		Parking issues; Civil Rights Complaint; Social Equity Analysis; El/Disability (Walking); Sensitivity Analysis; Cost benefit analysis; Use of new technology; ridership reduction; mitigation; maintenance facility; capacity concerns for GL Line D; Health Studies; Air Quality assumptions; localized hotspots and dispersion of air quality pollutants; stormwater ditch design; EBNF comments.
Transcript	Carolyn	Rosen	10/20/11	X	X			X	X	X	X	X			X	Environmental justice/disabled communities; air quality impacts; request health studies, retaining walls dispersion; social equity analysis (for fare increases and reduction in service); habitat disturbance (playplace trees, stormwater management); Mystic River; waste management; build only to College Avenue; New Starts Application - Risk Assessment Report
Transcript	Carolyn	Rosen	11/18/11	X				X								Geographical boundaries of Medford Hillside; Schedule delay: concern of Budget Ave pedestrian path acquisition; update cross to 2012; pedestrian safety/dropoffs on Boston and College Avenues; visual/noise impacts from train storage at terminals; requests noise reading from Amtrak & freight trains; define "practical" mitigation; safety/emergency requests; visual impacts; Outreach - 1) have state employee as consultant, 2) weekly construction updates for public; 3) use dashboard to track public complaints free "clicker" note and vibration monitoring; relocate water main with the College Avenue bridge reconstruction - Visual impact
Transcript	Fred	Sawicki	11/17/11	X	X			X	X	X	X					Job growth cost effectiveness; SIP; mitigation; socioeconomics; environmental justice
Transcript	Fred	Sawicki	10/20/11	X	X				X		X					SIP; funding opportunities (MassDOT money for the DGP)
Transcript	Brona	Simon	10/24/11	X			X									MOA citation revision; Section 106
Transcript	Danah	Sullivan	10/20/11	X	X											Schedule delay: delay of air quality benefit
Transcript	John	Sullivan	10/20/11	X				X					X			Proposed of tunneling to avoid construction impacts
Form Letter	Kip	Valens	11/17/11	X	X	X				X						Build Green Line Extension to Route 16
Transcript	Heather	Van Aelst	10/20/11	X	X	X				X	X	X	X			Build Green Line Extension to Route 16; build Community Path Extension with Green Line Extension; Community Path crossing with Rteburg Line
Transcript	Orlando	Ver	11/17/11	X				X			X					Thanked for back-to-back design improvements; schedule delay: build Green Line Extension to Route 16; Community Path Extension with Green Line Extension; Commuter rail diesel emissions/delay; interim offset measures
Transcript	Lynn	Weissman	10/20/11	X	X	X				X			X			Schedule delay
Transcript	Bill	White	10/20/11	X	X						X		X			Community Path Extension with Green Line Extension; funding; SIP commitment; schedule delay
Transcript	William	Wood	10/20/11	X	X				X				X			Schedule delay: Delay of air quality benefit/SIP Commitment; mitigation; economic development
Transcript	Wig	Zamora	11/18/11	X	X				X		X		X			Habitat for outreach; Title VI analysis; schedule delay: air quality build Green Line Extension only to College Avenue
Transcript	Wig	Zamora	10/20/11	X	X				X					X		Cumulative effects of air quality impacts
Transcript	Wig	Zamora	10/20/11	X	X				X							Air quality/SIP; Green Line Extension to Route 16; jobs and environmental justice benefits; interim offset measure; outdated particulate matter data in EA; stop diesel trains in Somerville

Appendix B

Mitigation Measures to Minimize Harm

Table 7.4-1 Project and Mitigation Commitments

Human and Environmental Resources	Mitigation	Implementation Schedule	Cost Estimate	Implementation Responsibility
Traffic and Transportation Systems	Provide roadway and signal modifications at 12 specific intersections in order to prevent adverse traffic impacts from the project (See Section 7.3.3 and Figure 5.6-1):	Within 12 months after revenue service	\$13 M	MBTA D/B Contractor ¹
	<ul style="list-style-type: none"> • Boston Avenue at Winthrop Street • Boston Avenue at College Avenue • Washington Street at McGrath Highway • Prospect Street at Somerville Avenue • Washington Street at Somerville Avenue/Webster Street • Washington Street at Tufts Street • Medford Street at Pearl Street • Broadway at Boston Avenue/Rogers Avenue • Monsignor O'Brien Highway/Route 28 at Third Street • Monsignor O'Brien Highway/Route 28 at Water Street • Monsignor O'Brien Highway/Route 28 at North First Street/East Street/Cambridge Street • Cambridge Street at First Street 			
	Provide pedestrian improvements at 29 specific locations to improve pedestrian flow and safety (See Section 7.3.3, Table 7.3-1 and Figure 5.6-1):	Within 12 months before revenue service	\$1 M	MBTA D/B Contractor ¹
	<ul style="list-style-type: none"> • Boston Avenue at North Street • Boston Avenue at Winthrop Street • Boston Avenue between Winthrop Street and College Avenue (mid-block) • Boston Avenue at Harvard Street • Powder House Rotary • Boston Avenue at Broadway • College Avenue between Boston Street and Frederick Avenue (mid-block) • College Avenue at George Street • Main Street at George Street • Main Street at Harvard Street • Medford Street at Broadway • Main Street at Mystic Valley Parkway Ramps • Main Street at Mystic Avenue • Medford Street at Lowell Street • Medford Street at Central Street • Medford Street at School Street • Medford Street at Pearl Street • Medford Street at Walnut Street • Medford Street at Highland Avenue • Highland Avenue at Lowell Street • Highland Avenue at Central Street • Washington Street at McGrath Highway • Washington Street at Tufts Street 			

Table 7.4-1 Project and Mitigation Commitments (continued)

Human and Environmental Resources	Mitigation	Implementation Schedule	Cost Estimate	Implementation Responsibility
Traffic and Transportation Systems (continued)	<ul style="list-style-type: none"> Washington Street at Inner Belt Road Medford Street at Somerville Avenue /McGrath Highway Washington Street at Somerville Avenue/Prospect Street Washington Street at Somerville Avenue/Webster Street Washington Street at Kirkland Street Prospect Street at Webster Street 			
	Optimize traffic signal timing and phasing to maximize the efficiency of signalized intersections in the Proposed Action.	Within 12 months before revenue service	N/A	MBTA D/B Contractor ¹
	Work with cities to develop station-area parking enforcement plans.	Within 12 months before revenue service	N/A	MBTA
	Work with the MBTA to evaluate opportunities to improve connections between the new stations and existing bus connections.	During design and construction	N/A	MBTA D/B Contractor ¹
	Work with cities and applicable emergency personnel during design of intersection mitigation measures, including the development of construction management and detour plans.	During design and construction	N/A	MBTA PM/CM Team ²
Noise	<p>Mitigate noise impacts by providing noise barriers or sound insulation. Provide mitigation for moderate noise impact where existing day-night sound levels (Ldn) are above 65 dBA. Provide mitigation for impacts with no significant outdoor land use if interior noise levels are above 45 dBA from project sources or single-event maximum noise levels (Lmax) are above 65 dBA. Provide 17 noise barriers totaling approximately 12,700 feet in length at the following locations (See Section 7.3.4, Tables 7.3-6 and 7.3-7, and Figures 6.7-1 through 6.7-6.):</p> <ul style="list-style-type: none"> N1 - Glass Factory Condominiums and Hampton Inn Hotel N2 - Brickbottom (Northeast Façade) N3 - Brickbottom (South Façade) N4 - Alston Street N5 - Between Cross Street and McGrath Highway (Avon Place) N6 - Between McGrath Highway and Walnut Street (Gilman Street) N7 - Between School Street and Sycamore Street (Richdale Avenue) N8 - Sycamore Street near Richdale Avenue N9 - Vernon Street N10 - Nashua Street/Henderson Street/Hinckley Street N11 - Trum Playground N12 - Cedar Street and Wilson Avenue 	Early phases of construction, where appropriate	\$4.2 M noise barriers	MBTA D/B Contractor ¹

Table 7.4-1 Project and Mitigation Commitments (continued)

Human and Environmental Resources	Mitigation	Implementation Schedule	Cost Estimate	Implementation Responsibility
Noise (continued)	<ul style="list-style-type: none"> • N13 - Between Cedar Street and Broadway (Boston Avenue) • N14- Newbern Ave/Morton Ave/Granville Ave • N15 - Burget Avenue • N16 - Horace Street • N17 - Walnut Street Center 			
Vibration	<p>Provide sound insulation improvements at the following locations (See Section 7.3.4 and Figures 6.7-1 through 6.7-6):</p> <ul style="list-style-type: none"> • Pearl Street Apartment building • Powderhouse Condominiums • Outside the Lines Studio building • Tufts University Science and Technology Center • V10 - Lowell Street/Nashua Street/Hinckley Street/Berwick Street (Lowell Street to Charles E Ryan Road) • V11 - Murdock Street (south of Cedar Street) • V12 - Cedar Street (north of Cedar Street) • V13 - Newbern Avenue/Morton Avenue/Granville Avenue/Winchester Place/Wareham Street (Broadway to Warren Street) • V14 - Tufts University Science and Technology Center • V15 - Tufts Bacon Hall • V16 - Outside the Lines Artist Studio • V17 - Tufts Bray Laboratory • V18 - Tufts Curtis Hall • V19 - Horace Street 	<p>Early phases of construction, where appropriate</p> <p>Within 12 months before revenue service</p>	<p>\$2.4 M sound insulation</p> <p>\$3.9 M if ballast mats or resiliently supported ties</p> <p>\$6.5 M if resilient fasteners</p>	<p>MBTA D/B Contractor¹</p> <p>MBTA D/B Contractor¹</p>
	<p>Relocate specially engineered trackwork to further minimize or mitigate potential vibration impacts at the following crossover and turnout locations (See Section 7.3.5, Table 7.3-10 and Figures 6.7-1 and 6.8-1 through 6.8-5.):</p> <ul style="list-style-type: none"> • A – Brickbottom Artists Building South Façade Green Line Turnout (Union Square Outbound Mainline to Union Square Outbound Yard Lead) • B - Brickbottom Artists Building South Façade Green Line Turnout (Union Square Inbound Mainline to Union Square Inbound Yard Lead) • C - Brickbottom Artists Building South Façade Two Commuter Turnouts (Fitchburg Mainline to BET Drill Track and to Spur Line) • D – Granville Avenue / Winchester Place Commuter Interlocking (two double crossovers) • E – College Avenue Green Line Number 8 Double Diamond Crossover 	PE Design Phase	N/A	MBTA PM/CM Team ²

Table 7.4-1 Project and Mitigation Commitments (continued)

Human and Environmental Resources	Mitigation	Implementation Schedule	Cost Estimate	Implementation Responsibility
Hazardous Materials	Consult with MassDEP during design and construction to ensure planning and implementation of demolition and management of contaminated soils is consistent with applicable MassDEP regulations and recommendations.	During design and construction	N/A	MBTA Environmental Team ³
Socioeconomics	In accordance with Uniform Act procedures, work with property owners to provide fair market value of acquisition and job relocations.	Prior to beginning of construction	N/A	MBTA Real Estate Team ⁴
Land Use	Work with the community in the area of the future Mystic Valley/Route 16 to consider land use and station design elements.	Prior to beginning of construction	N/A	MassDOT/MAPC
	Complete the final design for the proposed Somerville Community Path between Lowell Street and the Inner Belt area. Work with City of Somerville to identify opportunities for state and Federal funding for construction of Community Path.	Within 12 months before revenue service	\$2 M	MBTA PM/CM Team ²
Water Quality/ Stormwater	Update the Operation and Maintenance 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.	Within 12 months before revenue service	N/A	MBTA D/B Contractor ¹
	Implement all aspects of the SWPPP including recommendations in annual updates based on new or improved procedures or changes to operations.	Within 12 months after revenue service	N/A	MBTA D/B Contractor ¹
Visual Environment	Provide vegetation on and/or above retaining walls to minimize visual changes.	During design and construction	TBD	MBTA D/B Contractor ¹
	Work with affected communities on design of noise barriers and vegetated walls.	PE Design Phase	N/A	MBTA PM/CM Team ²
Cultural Resources and Section 4(f) Resources	Perform archival photographic and written documentation of historic structures to be removed or altered (Lechmere Station/Lechmere Viaduct, Somerville Automobile Company Building)	Prior to beginning of construction	\$45,000	MBTA PM/CM Team ²
	Following MBTA design protocol review, develop interpretative displays of Lechmere Station/Lechmere Viaduct and the Somerville Automobile Company Building, in consultation with the FTA, the MHC and relevant historical commissions.	Prior to beginning of construction	N/A	MBTA PM/CM Team ²
	Submit design plans and construction specifications for project elements that affect above-ground historic properties for review by MHC, local historical commissions, and the Design Working Group.	Prior to beginning of construction	N/A	MBTA PM/CM Team ²
	Construct noise barrier adjacent to historic Susan Russell House with context-sensitive materials and colors.	During design and construction	N/A	MBTA D/B Contractor ¹

Table 7.4-1 Project and Mitigation Commitments (continued)

Human and Environmental Resources	Mitigation	Implementation Schedule	Cost Estimate	Implementation Responsibility
Public Involvement	Continue civic engagement opportunities during the design process. Provide transparent public information and outreach process through construction.	Duration of project	N/A	MassDOT/MBTA
	Engage interested parties through the Design Working Group.	Duration of project	N/A	MassDOT/MBTA
	Conduct land use workshops with affected communities to further identify community needs and issues near the proposed station areas.	Completed in May/June 2010	N/A	MassDOT
Design	As design advances, facilitate future transit/transportation projects such as light rail expansion or connections to existing infrastructure to the extent possible.	Prior to beginning of construction	N/A	MBTA D/B Contractor ¹
	Implement "green" design elements (recycled or recyclable materials or incorporate vegetation) in design of proposed retaining walls, stations and maintenance and storage facility.	During design and construction	N/A	MBTA D/B Contractor ¹
	During design, refine project designs to further minimize temporary and permanent impacts on local neighborhoods and property owners.	Prior to beginning of construction	N/A	MBTA D/B Contractor ¹
	Design all stations in compliance with ADA standards, Massachusetts AAB standards; MBTA's settlement agreement with the Boston Center for Independent Living (BCIL) and applicable National Fire Protection Association standards.	Prior to beginning of construction	N/A	MBTA D/B Contractor ¹

- 1 MBTA D/B Contractor = Contractor selected and coordinated by the MBTA to handle Design and Build phase of the project
2 MBTA PM/CM Team = Team selected by the MBTA to handle Program Management, Contract Management and oversight of Preliminary Engineering.
3 MBTA Environmental Team = MBTA Environmental Department Staff
4 MBTA Real Estate Team = MBTA Real Estate Department Staff and asset manager Transit Realty Associates (TRA)
TBD = To be determined during final design
N/A = Cost not applicable for this item

Table 7.5-1 Summary of Construction Mitigation Commitments

Environmental Categories	Mitigation	Implementation Schedule	Implementation Responsibility
General	Prior to construction, prepare a detailed plan to address various construction period impacts to various environmental resources (vehicular traffic, pedestrian and bicycle, on-street parking, public access, emergency access to local businesses and residences, dust, noise, odor, rodents, construction-related nuisance conditions) through coordination with cities and appropriate emergency personnel.	Prior to construction	MBTA PM/CM Team ¹
Traffic and Transportation Systems	Establish temporary detours to minimize traffic disruptions due to construction.	During construction	MBTA D/B Contractor ²
	Stage bridge construction to ensure that adjacent bridges are not closed simultaneously.	During construction	MBTA D/B Contractor ²
	Work with cities and applicable emergency personnel to ensure that appropriate safety measures are incorporated throughout construction.	During construction	MassDOT
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.	During construction	MBTA D/B Contractor ²
	Follow existing MassDEP's Solid Waste and Air Quality Control regulations and MBTA retrofit procedures for construction equipment to reduce emissions.	During construction	MBTA D/B Contractor ²
	Comply with MassDEP's idling regulations. Post idling restriction signage on project construction sites.	During construction	MBTA D/B Contractor ²
Noise	Prepare a Noise Control Plan in conjunction with the contractor's specific equipment and methods of construction.	During construction	MBTA D/B Contractor ²
	Use specially quieted equipment with enclosed engines and/or high-performance mufflers.	During construction	MBTA D/B Contractor ²
	Perform construction equipment noise certification testing.	During construction	MBTA D/B Contractor ²
	Avoid nighttime construction in residential neighborhoods.	During construction	MBTA D/B Contractor ²
	Require ambient-adjusting or manually adjusted backup alarms set to 5 dBA over background levels.	During construction	MBTA D/B Contractor ²
	Keep truck idling to a minimum.	During construction	MBTA D/B Contractor ²
	Set acoustic shield requirement for jackhammers, chainsaws, and pavement breakers.	During construction	MBTA D/B Contractor ²
	Develop methods for projecting construction noise levels.	During construction	MBTA D/B Contractor ²
	Develop methods for responding to community complaints.	During construction	MBTA D/B Contractor ²

Table 7.5-1 Summary of Construction Mitigation Commitments (continued)

Environmental Categories	Mitigation	Implementation Schedule	Implementation Responsibility
Noise (continued)	Establish a protocol for reporting noise monitoring results, noise reduction measures used, and responses to the community.	During construction	MBTA D/B Contractor ²
	Use shields, shrouds, or intake and exhaust mufflers to control construction noise level.	During construction	MBTA D/B Contractor ²
	Apply noise deadening materials to chutes or storage bins.	During construction	MBTA D/B Contractor ²
	Install temporary noise barriers.	During construction	MBTA D/B Contractor ²
	Apply acoustic enclosures.	During construction	MBTA D/B Contractor ²
	Implement specialized back-up alarms.	During construction	MBTA D/B Contractor ²
	Limit the size of generators and the duration of their use.	During construction	MBTA D/B Contractor ²
	Develop truck routes that minimize exposure to noise-sensitive sites.	During construction	MBTA D/B Contractor ²
	Develop other detailed engineering noise control measures, as appropriate.	During construction	MBTA D/B Contractor ²
	Route construction equipment and vehicles through areas that would cause the least disturbance to nearby receptors where possible.	During construction	MBTA D/B Contractor ²
	Fit any air-powered equipment with pneumatic exhaust silencers.	Prior to construction	MBTA D/B Contractor ²
	Locate stationary construction equipment as far as possible from noise-sensitive sites.	During construction	MBTA D/B Contractor ²
	Construct noise barriers, such as temporary walls or piles of excavated material, between noisy activities and noise-sensitive receivers.	Prior to construction	MBTA D/B Contractor ²
Vibration	Monitor noise after service starts (with the proposed mitigation in place) to evaluate whether the actual noise levels correspond with the modeled values and take appropriate corrective actions if the actual values are found to be higher than the projections.	Within 12 months after revenue service	MBTA PM/CM Team ¹
	Configure truck routes that minimize exposure to vibration sensitive receptors and maintain smooth roadway surfaces.	During construction	MBTA D/B Contractor ²
	Avoid nighttime construction in residential neighborhoods.	During construction	MBTA D/B Contractor ²
	Use alternative construction methods to minimize the use of impact and vibratory equipment (e.g., pile drivers and compactors).	During construction	MBTA D/B Contractor ²
	Monitor vibration after service starts (with the proposed mitigation in place) to evaluate whether the actual vibration levels correspond with the modeled values and take appropriate corrective actions if the actual values are found to be higher than the projections.	Within 12 months after revenue service	MBTA PM/CM Team ¹

Table 7.5-1 Summary of Construction Mitigation Commitments (continued)

Environmental Categories	Mitigation	Implementation Schedule	Implementation Responsibility
Water Quality/ Stormwater	Install detention and infiltration systems to infiltrate peak runoff and to prevent any increase in peak flows to municipal stormwater drainage systems and to remove TSS from stormwater runoff prior to discharge.	During construction	MBTA D/B Contractor ²
	Install hydrodynamic particle separators to treat pavement runoff.	During construction	MBTA D/B Contractor ²
	Use Low Impact Development practices, where feasible, to maintain natural hydrology (e.g., raingardens to treat disconnected roof drainage and/or parking runoff).	During construction	MBTA D/B Contractor ²
	Develop and implement a SWPPP in accordance with NPDES and MassDEP standards.	Prior to construction	MBTA Design Team ³
	Stabilize any highly erosive soils with erosion control blankets and other stabilization methods, as necessary.	During construction	MBTA D/B Contractor ²
	Reinforce slopes using a hydroseed mix with a resin base, native vegetation, or other approved methods.	During construction	MBTA D/B Contractor ²
	Use dewatering controls, if necessary.	During construction	MBTA D/B Contractor ²
	Install a gravel entrance at construction sites to prevent sediment from being tracked onto roadways and potentially discharged to surface waters.	During construction	MBTA D/B Contractor ²
	Maintain construction equipment to prevent oil and fuel leaks and install catch basin protection as needed.	During construction	MBTA D/B Contractor ²
Hazardous Materials	Consult with MassDEP to ensure planning and implementation of demolition and management of contaminated soils is consistent with applicable MassDEP regulations and recommendations.	During design and construction	MBTA Environmental Team with D/B Contractor ^{2, 4}
	Follow all protocols to adequately characterize, stockpile and dispose of materials encountered during construction.	During design and construction	MBTA D/B Contractor ²
Outreach	Establishing a project construction office.	During construction	MBTA D/B Contractor ²
	Establishing a Green Line Extension project Ombudsman position who would field all construction-period comments and complaints, coordinate with the cities, and respond to public concerns.	During construction	MBTA D/B Contractor ²
	Establish a Construction Working Group to advise MassDOT and the MBTA.	During construction	MBTA D/B Contractor ²
	Establish a project email address and 24-hour phone hotline for public concerns.	During construction	MBTA
	Provide frequent website updates of construction activities at www.mass.gov/greenlineextension	During construction	MassDOT/MBTA
	Host neighborhood construction kick-off meetings.	During construction	MBTA D/B Contractor ²
	Produce quarterly construction updates.	During construction	MBTA D/B Contractor ²
	Develop a business outreach plan to assist local businesses during construction.	During construction	MBTA D/B Contractor ²

¹ MBTA PM/CM Team = Team selected by the MBTA to handle Program Management, Construction Management and oversight of Preliminary Engineering.

² MBTA D/B Contractor = Contractor selected and coordinated by the MBTA to handle Design and Build phase of the project

³ MBTA Design Team = MBTA management team that oversees design and construction projects.

MBTA Environmental Team = MBTA Environmental Department Staff

Appendix C
New Starts Evaluation Process

Background

The Section 5309 “New Starts” program is the Federal government’s primary program for providing financial support to locally-planned, implemented, and operated fixed guideway transit major capital investments. The New Starts evaluation process is used in conjunction with the evaluation process under the National Environmental Policy Act (NEPA), for which this Environmental Assessment (EA) is being prepared. This section describes how the Federal Transit Administration (FTA) evaluates projects for its New Starts funding recommendations. The Green Line Extension Project (Project), which is seeking New Starts funding, will be subject to this evaluation and rating process.

Each year FTA submits its *Annual Report on Funding Recommendations* to Congress as a companion document to the annual budget submitted by the President. The report provides recommendations for the allocation of New Starts funds under Section 5309 of Title 49 of the United States Code. As required by the Safe Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), FTA uses the following project justification criteria to evaluate New Starts projects: mobility improvements; environmental benefits; cost effectiveness; operating efficiencies; transit-supportive land use; economic development effects; and other factors. FTA must also consider the local financial commitment for the proposed project. In total, the criteria are intended to measure the overall merits of the project and the sponsor’s ability to build and operate it.

FTA reviews the project justification and local financial commitment criteria for each candidate project and assigns a rating for each criterion. For some of the project justification criteria, the proposed project is compared against a New Starts “baseline alternative.” The New Starts baseline alternative consists of improvements to the transit system that are relatively low in cost and represent the “best that can be done” to improve transit without major capital investment in new guideway infrastructure. As such, it is usually different than the baseline (represented by the no-build condition) against which environmental impacts are measured in the NEPA document.

A candidate project is given an overall rating of “High”, “Medium-High”, “Medium”, “Medium-Low” or “Low”, based on ratings assigned by FTA to each of the project justification and local financial commitment criteria described above. These ratings are important, as FTA considers them in its decision to recommend projects for New Starts funding. Specifically, FTA will not recommend funding for projects which are rated “Medium-Low” or “Low.” It is important to note, moreover, that a “High”, “Medium-High” or “Medium” rating does not automatically translate into a funding recommendation, although the potential for receiving New Starts funding is much greater.

Project evaluation is an on-going process. FTA evaluation and rating occurs annually in support of budget recommendations presented in the *Annual Report on Funding Recommendations* and when project sponsors request FTA approval to enter into preliminary engineering or final design. Consequently, as proposed New Starts projects proceed through the project development process, information concerning costs, benefits, and impacts is refined and the ratings are updated to reflect new information.

Green Line Extension New Starts Project Rating: Medium

Mobility Improvements

In its evaluation of the mobility improvements that would be realized by implementation of a proposed project, FTA evaluates four measures:

1. User Benefits per Passenger Mile on the Project
2. Number of Transit Dependents Using the Project
3. Transit Dependent User Benefits per Passenger Mile on the Project
4. Share of User Benefits Received by Transit Dependents Compared to Share of Transit Dependents in the Region

User benefits essentially represent all the travel time savings to transit riders in the forecast year that result from the New Starts project as compared to not building the project (the New Starts baseline alternative). They include reductions in walk times, wait times, transfers, and, most importantly, in-vehicle times. In order to rate projects in comparison to other proposed New Starts, this measure is normalized by the annual passenger miles traveled on the New Starts project in the forecast year. The result is a measure of the intensity of the user benefits.

Number of Transit Dependent Individuals Using the Project and Transit Dependent User Benefits per Passenger Mile on the Project These two measures represent the number of transit dependents affected by the project and the intensity of the benefit per passenger. The first is self explanatory while the second is defined identically to the user benefits per passenger mile measure above but for transit dependent passengers.

Share of User Benefits Received by Transit Dependents Compared to Share of Transit Dependents in the Region This measure represents the extent to which the project benefits transit dependents compared to their regional representation. For example, if 10 percent of the user benefits for the project accrued to transit dependents, but they represented 20 percent of the region's population, the measure would be 0.5, indicating that the project did not benefit transit dependents compared to their share of the region's population.

The Project received a **Medium** rating for Mobility Improvements.

Environmental Benefits

In its evaluation of environmental benefits that would be realized through the implementation of a proposed project, FTA considers the current air quality designation by EPA for the metropolitan region in which the proposed project is located, indicating the severity of the metropolitan area's noncompliance with the health-based EPA standard (NAAQS) for the pollutant, or its compliance with that standard.

The Project received a **High** rating for Environmental Benefits.

Operating Efficiencies

For this criterion, FTA considers the incremental difference in system-wide operating cost per passenger mile between the proposed project and the New Starts baseline alternative.

The Project received a **Medium** rating for Operating Efficiencies.

Cost Effectiveness

Cost effectiveness is the annualized capital and operating cost per hour of user benefits. It is an incremental measure that compares the proposed project to the New Starts baseline alternative.

The Project received a **Medium-Low** rating for Cost Effectiveness.

Transit-Supportive Land Use

This criterion addresses the existing conditions in the project corridor. FTA considers the following:

1. Existing corridor and station area development;
2. Existing corridor and station area development character;
3. Existing station area pedestrian facilities, including access for persons with disabilities; and
4. Existing corridor and station area parking supply.

The Project received a **Medium-High** rating for Transit-Supportive Land Use.

Economic Development Effects

This criterion addresses the extent that transit-oriented development is likely to occur in the project corridor. FTA considers the following:

1. Transit Supportive Plans and Policies, including the following factors:
 - Growth management;
 - Transit supportive corridor policies;
 - Supportive zoning regulations near transit stations; and
 - Tools to implement land use policies.
2. Performance and Impacts of Policies, including the following factors:
 - Performance of land use policies; and
 - Potential impact of transit project on regional land use.

The Project received a **Medium-High** rating for Economic Development.

Other Factors

Consistent with SAFETEA-LU Section 5309(d) and (e), FTA also includes any other factor that the project sponsor believes articulates the benefits of the proposed major transit capital investment but is not captured within the other project justification criteria.

Local Financial Commitment

Proposed New Starts projects must be supported by evidence of stable and dependable financing sources to construct, operate and maintain the transit system. The measures FTA uses to evaluate local financial commitment are:

Local Share

FTA examines the proposed share of total project costs from sources other than Section 5309 New Starts, including Federal formula and flexible funds, the local match required by federal law, and any additional capital funding.

The Project received a **Medium-High** rating for Local Share.

Strength of Capital Financing Plan

FTA looks at the stability and reliability of the proposed capital financing plan, including the current capital condition of the project sponsor, the level of commitment of capital funds to the project, the financial capacity of the project sponsor to withstand cost overruns or funding shortfalls, and the reliability of the capital cost estimates and planning assumptions.

The Project received a **Medium** rating for Strength of Capital Financing Plan.

Strength of Operating Financing Plan

FTA looks at the ability of the sponsoring agency to fund operation and maintenance of the entire system (including existing service) as planned, once the proposed project is built. This includes: an examination of the current operating condition of the project sponsor; the level of commitment of operating funds for the transit system; the financial capacity of the project sponsor to operate and maintain all proposed, existing and planned transit services; and the reliability of the operating cost estimates and planning assumptions.

The quantitative measures listed below represent some of what FTA relies on in rating a project's local financial commitment. The data listed below are for the Green Line Extension Project.

Measure (in Year of Expenditure Dollars)	Cost (In Millions)
Total Capital Cost	\$1,334.62
Proposed Federal Section 5309 New Starts Share of Capital Costs	\$557.06
Proposed State Sources of Capital Funding	\$777.55
Estimated Annual Incremental Operating Cost in the Forecast Year	\$47.0

The Project received a **Medium** rating for Strength of Operating Financing Plan.

The Project received a **Medium** rating for Local Financial Commitment.

Other Considerations

While the Project has obtained a medium financial rating, which is satisfactory for entry into Preliminary Engineering (PE) due primarily to the level of committed capital funds to build the Project, the current financial plan assumes several large new, uncommitted funding sources to address MBTA's state of good repair needs and ongoing operations. The new sources include transferring \$1.6 billion of prior MBTA debt obligations to the Commonwealth, implementing a

new \$0.01 per mile statewide tax on vehicle miles traveled dedicated to the Commonwealth Transportation Fund, and allocating casino gaming revenues to MBTA. Other options were also listed in the financial plan as potential new sources if the anticipated funding approaches mentioned above are insufficient or infeasible. These include increasing fares, increasing the motor vehicle registration renewal fee, indexing the \$160 million annual contract assistance from the Commonwealth to growth in sales tax revenue, dedicating a portion of the state motor vehicle sales tax revenue to MBTA, increasing MBTA parking fees, implementing a commercial parking tax and indexing the fuel tax to inflation. Without new sources of revenues, significant negative annual balances in the financial plan could result and the state of good repair backlog would increase. Considerable progress on gaining commitment of new sources of funding will be necessary before FTA will contemplate approval of the project into Final Design (FD). Continued development and strengthening of the financial plan will be a crucial part of the PE effort. FTA's standards for developing financial ratings become more stringent as a project moves from PE to FD. These considerations are consistent with FTA's PE approval letter for the Project dated June 11, 2012.

Appendix D
Section 106 Memorandum of Agreement

MEMORANDUM OF AGREEMENT
AMONG THE FEDERAL TRANSIT ADMINISTRATION, MASSACHUSETTS DEPARTMENT
OF TRANSPORTATION, THE MASSACHUSETTS BAY TRANSPORTATION AUTHORITY AND THE
MASSACHUSETTS HISTORICAL COMMISSION REGARDING THE GREENLINE EXTENSION
PROEJCT, BOSTON, CAMBRIDGE, SOMERVILLE AND MEDFORD,MASSACHUSETTS

WHEREAS, the U.S. Department of Transportation, Federal Transit Administration (FTA) proposes to permit and fund the Green Line Extension Project in Boston, Cambridge, Somerville and Medford, Massachusetts (Project); on behalf of the Massachusetts Department of Transportation (MASSDOT) and the Massachusetts Bay Transportation Authority (MBTA); and

WHEREAS, pursuant to 36 CFR Part 800, regulations implementing Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended, 16 U.S.C. 470F, the FTA is required to take into account the effects of federal undertakings on properties included in or eligible for inclusion in the National Register prior to the issuance of permits for the undertaking and to consult the Massachusetts Historic Commission, which functions as the office of the State Historic Preservation Officer (SHPO) in Massachusetts; and

WHEREAS, the FTA in consultation with the SHPO has defined the Project's Area of Potential Effect as shown on the attached maps (Attachment A); and

WHEREAS, the FTA in consultation with the SHPO concurs that the properties listed in Table 1, Green Line Extension §106 Effects Determinations (Attachment B) are listed in and/or eligible for listing in the National Register of Historic Places (National Register); and

WHEREAS, The Powder House/Winter Hill Industrial Area Historic District in Somerville is considered to meet the criteria of eligibility (36 CFR 60) for listing in the National Register of Historic Places for the purposes of this Agreement; and

WHEREAS, the FTA in consultation with the SHPO has determined that the Project will have unavoidable adverse effects pursuant to 36 CFR 800.5(a)(2)(i) and (v), through demolition or the introduction of visual, atmospheric or audible elements that diminish the property's significant historic features, on the following historic properties:

- a. The Susan Russell House in Somerville
- b. The Gilman Square Historic District in Somerville
- c. The Somerville Automobile Company in Somerville
- d. The Lechmere Viaduct in Cambridge and Boston
- e. The Charles River Basin Historic District in Cambridge and Boston
- f. The MBTA Lechmere Station in Cambridge
- g. The Powder House/Winter Hill Industrial Area Historic District in Somerville

WHEREAS, FTA has invited the Boston Landmarks Commission (BLC), Cambridge Historical Commission (CHC), Somerville Historic Preservation Commission (SHPC) and the Medford Historical Commission (MHC) to participate in this consultation and to sign the Agreement as signatories and consulting parties; and

WHEREAS, in accordance with 36 C.F.R. § 800.6(a)(1), FTA has notified the Advisory Council on Historic Preservation (ACHP) of its adverse effect determination with specified documentation and the ACHP has chosen not to participate in the consultation pursuant to 36 CFR § 800.6(a)(1)(iii);

NOW THEREFORE, the FTA and the SHPO agree that this Project shall be implemented in accordance with the following stipulation in order to satisfy the FTA's Section 106 responsibilities to take into account the effects of the undertaking on historic properties.

STIPULATIONS

The FTA will insure that the following stipulations are carried out by MASSDOT and/or MBTA:

I. ARCHIVAL PHOTOGRAPHIC DOCUMENTATION

- a. Prior to the commencement of project construction activities, the FTA, in consultation with MASSDOT, MBTA and the SHPO, shall have a qualified historic preservation consultant produce archival photographic and written documentation of the Somerville Automobile Company in Somerville, Lechmere Viaduct in Cambridge and Boston, and MBTA Lechmere Station in Cambridge. Photographic documentation shall be prepared, including digital photographs and written documentation, according to the attached Photographic Documentation Technical Requirements for Digital Images (Attachment C). Archival documentation shall include photographs keyed by number to a building plan sketch, views of overall exterior elevation/interior spaces and representative views of architectural details, including, but not limited to, windows, doors, entrances, fireplaces and moldings, and at least three context views showing the building in relationship to its current setting. All written recordation shall be printed on archival paper and housed in archival enclosures.
- b. One (1) original archival set of this documentation shall be submitted in an archival envelope or box to the SHPO for transmittal to the Massachusetts State Archives, with a photocopy on plain paper to the BLC, CHC and SHPC unless otherwise requested. The SHPO shall review the archival documentation and, if adequate, recommend that the project construction may proceed.
- c. One (1) original archival set of this documentation shall be submitted in an archival envelope or box to the following repositories: Historic New England, Bostonian Society, Cambridge Historical Society, Boston Public Library, Cambridge Public Library, Somerville Public Library and Medford Public Library. Documentation of receipt by these repositories shall be provided to the SHPO and respective Local Historical Commissions.

II. STANDARDS & PROFESSIONAL QUALIFICATIONS

- a. All work carried out pursuant to this agreement shall be conducted by or under the direct supervision of an individual or individuals who meet, at a minimum, the Secretary of the Interior's Professional Qualifications Standards (48 FR 44738-9, September 29, 1983).
- b. All project design plans and specifications shall be developed in accordance with the *Secretary of the Interior's Standards for the Treatment of Historic Properties* and the *Secretary of the Interior's Standards for Rehabilitation and Illustrated Guidelines for Rehabilitation of Historic Buildings (1992)* and *Preservation Brief 15, Preservation of Historic Concrete (2007)*.

III. ARCHITECTURAL CONSERVATOR

A qualified professional Architectural Conservator shall be appointed for the duration of the project. A copy of the draft scope of work for the Architectural Conservator and the individual's CV shall be submitted to the SHPO, BLC, CHC, and SHPC for review and comment prior to commencement of project construction.

IV. SHPO REVIEW SPECIFICATIONS

- a. All submittals to the SHPO shall be in paper format and shall be delivered to the SHPO's office by U.S. Mail, or by a delivery service, or by hand. Plans and specifications submitted to the SHPO shall measure no larger than 11" x 17" paper format (unless another format is specified in consultation).
- b. Pursuant to 36 CFR 800.3 (c)(4), the SHPO shall review and comment on all adequately documented project submittals within 30 calendar days of receipt. If FTA does not receive SHPO comments within the 30-day comment period, FTA will presume there are no comments on the information provided and proceed with the corresponding construction stage of the project.

V. DEVELOPMENT OF DESIGN PLANS AND SPECIFICATIONS

- a. MASSDOT and/or MBTA shall develop the Project design plans and specifications for the construction of the following four features of the project in close consultation with all consulting parties, and take into account appropriate historic contexts, such as those included in cultural resources surveys conducted for the Project:
 - 1. Noise Wall Design – Adjacent to the Susan Russell Historic House
 - 2. Lechmere Viaduct Design Plans – Within the Charles River Basin Historic District -- replacement of steel spans
 - 3. New Station Design Plans – Gilman Square Historic District
 - 4. New Station Design Plans - Powder House/Winter Hill Industrial Area Historic District

- b. MASSDOT and/or MBTA shall submit from conceptual/schematic design to final design such information, as it becomes available, to all consulting parties for review and comment at the 30%, 60%, and 90% completion stages as the Project design plans and specifications. Upon approval by FTA and SHPO of a design completion stage, the MASSDOT and/or MBTA may proceed with the portion of the Project that relates to those approved design plans and specifications.

VI. HISTORICAL INTERPRETATION

- a. The MBTA shall develop interpretive displays at Lechmere Station and Ball Square Station. Interpretive panels and/or kiosks will meet or exceed National Park Service standards for outdoor interpretive displays.
- b. Draft interpretive panel plans, specifications, text, illustrations and proposed locations shall be submitted to the consulting parties for review and comment. MBTA shall incorporate consulting party comments into the final interpretive panel design and locations.

VII. SOMERVILLE POWDER HOUSE/WINTER HILL INDUSTRIAL AREA HISTORIC DISTRICT CULTURAL RESOURCES SURVEY

- a. A cultural resources survey of the Powder House/Winter Hill Industrial Area Historic District (MHC #SMV.F) shall be conducted by a qualified historic preservation consultant retained by MASSDOT. The results of the survey shall be summarized in a technical memorandum containing the following items: an opinion of the integrity of the district, an opinion of the current district boundaries, and a draft updated MHC Area Form, including an opinion of eligibility for listing in the National Register (36 CFR 60).
- b. The technical memorandum shall be submitted to the FTA SHPO and SHPC for review and comment. If the district is determined to retain integrity, then its historic contexts shall be considered in the development of appropriate Project designs following Stipulations V.a and V.b. above.

VIII. POST-REVIEW DISCOVERIES

- a. The MBTA shall notify MASSDOT, FTA, SHPO and appropriate concurring parties of this Agreement if archaeological resources or human remains are discovered during construction activities. The FTA and SHPO shall consult pursuant to 36 CFR 800.13 and apply the National Register criteria of eligibility (36 CFR 60).
- b. The MBTA, in consultation with MASSDOT, FTA and SHPO shall implement the plan, *Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains Green Line Extension Project April 2011* (Attachment D), including protecting the discovery location, develop and implement a plan to identify and evaluate, and to avoid, minimize, or mitigate any adverse effect to the historic or archaeological property, or to the human

remains, consistent with the Massachusetts Unmarked Burial Law (Massachusetts General Laws, Chapter 38, § 26A and 27C; and Chapter 7, §38A; all as amended).

- c. Any non-Native American human remains shall be treated in accordance with the Massachusetts Historical Commission *"Policy and Guidelines for Non-Native Human Remains Which Are Over 100 Years Old or Older."*
- d. The MBTA shall make all reasonable efforts to avoid disturbing gravesites, including those containing Native American human remains and associated funerary artifacts. The MBTA shall treat all human remains in a manner consistent with the ACHP "Policy Statement Regarding Treatment of Burial Sites, Human Remains and Funerary Objects" (February 23, 2007; <http://www.achp.gov/docs/hrpolicy0207.pdf>).

IX. DISPUTE RESOLUTION

- a. Should any signatory to this Agreement object in writing with regard to any action proposed or taken under this Agreement, the FTA will consult with the objecting party to resolve the objection. If FTA cannot resolve the objection, the FTA will prepare documentation relevant to the objection in accordance with 36 CFR 800.11, and FTA will forward such documentation to the ACHP, including FTA's proposed resolution.
- b. The ACHP will provide FTA with its advice on the resolution of the objection within thirty (30) calendar days of receiving written notice. Prior to reaching a final decision on the dispute, FTA will prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP and the signatories to this Agreement, and provide these parties with a copy of this written response. FTA will then proceed in accordance with its final decision.
- c. If the ACHP does not provide its advice regarding the dispute within thirty (30) calendar days, FTA may make a final decision on the dispute and proceed accordingly. Prior to reach its final decision, FTA will prepare a written response that takes into account any timely comments regarding the dispute from the signatories and provide these parties and the ACHP a copy of FTA's written response.
- d. All signatories' responsibilities to carry out all other actions under this Agreement that are not the subject of the dispute will remain unchanged.

X. AMENDMENTS

The signatories to this Agreement may amend it upon written agreement by all the signatories. The amendment will be effective on the date a copy signed by all of the signatories is filed with the ACHP. If the signatories cannot agree on an amendment, the signatories will follow Stipulation IX, Dispute Resolution, above.

XI. TERMINATION

- a. Any signatory to this Agreement may terminate it by providing thirty (30) days written notice to the other signatories, provided that all signatories to the Agreement consult during the period prior to termination to seek agreement on amendments or other actions that would avoid termination. If within thirty (30) days (or other time period agreed to by all signatories) an amendment cannot be reached, any signatory may terminate this Agreement upon written notification to the other signatories.
- b. Once the Agreement is terminated, and prior to work continuing on the Project, FTA must either 1) execute an Agreement in accordance with 36 CFR 800.6, or 2) request, take into account, and respond to ACHP's comments under 36 CFR 800.7. FTA will notify the signatories as to the course of action it will pursue.

XII. DURATION OF THE AGREEMENT

This Agreement will expire if its terms are not carried out within five years from the date of its execution. Prior to such time, FTA may consult with the other signatories to reconsider the terms of the Agreement and amend it in accordance with Stipulation X, Amendments.

Execution and submission of the Memorandum of Agreement and implementation of its terms evidence that the FTA has afforded the ACHP an opportunity to comment on the proposed undertaking and its effect on historic properties, and that the FTA has taken into account the effect of the undertaking on historic properties.

SIGNATORIES:

FEDERAL TRANSIT ADMINISTRATION

BY: Mary Beth Mello DATE: 7/5/12
Mary Beth Mello, Regional Administrator

Concur: Wendy A. Lee DATE: 6/12/12
Wendy A. Lee, Regional Counsel

**MASSACHUSETTS STATE HISTORIC PRESERVATION OFFICER
MASSACHUSETTS HISTORICAL COMMISSION**

BY: Brona Simon DATE: 4/2/12
Brona Simon, State Historic Preservation Officer

INVITED SIGNATORIES:

MASSACHUSETTS DEPARTMENT OF TRANSPORTATION

BY: [Signature] DATE: 2/2/12
Richard A. Davey, Secretary & CEO

Approved as to Form:

BY: [Signature] DATE: 1/30/12
Rachel Rollins, General Counsel

Rachael

MASSACHUSETTS BAY TRANSPORTATION AUTHORITY

BY: [Signature] DATE: 1-12-2012
Jonathan R. Davis, Acting General Manager and Rail &
Transit Administrator

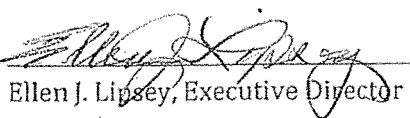
Approved as to Form:

BY: [Signature] DATE: 1-6-12
William A. Mitchell, General Counsel
Acting

CONCUR:

BOSTON LANDMARKS COMMISSION

BY:

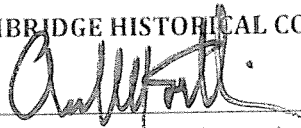

Ellen J. Lipsey, Executive Director

DATE:

2/8/12

CAMBRIDGE HISTORICAL COMMISSION

BY:

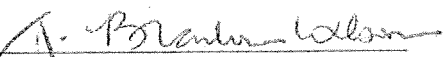


Charles Sullivan, Executive Director

DATE: 2.9.2012

SOMERVILLE HISTORIC PRESERVATION COMMISSION

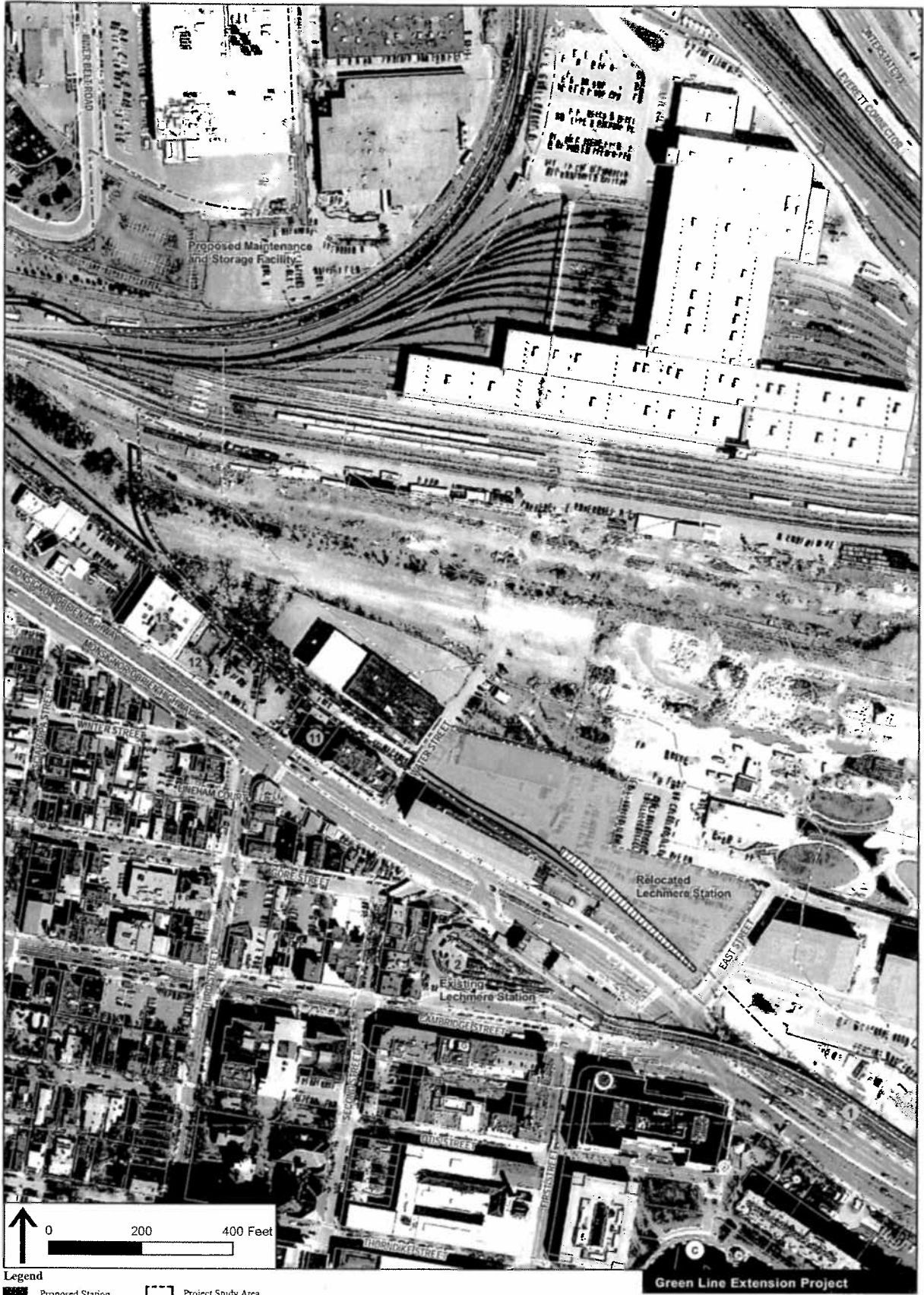
BY:



DATE:

2/16/12

J. Brandon Wilson, Executive Director



- Legend**
- Proposed Station
 - Proposed Platform
 - Proposed Retaining Wall
 - Proposed Noise Barrier
 - Potential Building Noise Impact
 - Sound Insulation Improvements
 - Roadway Improvements
 - Traffic Mitigation Location
 - Project Study Area
 - Area of Potential Effect (APE)*
 - Property Evaluated to be Eligible, Property Determined to be Eligible, or Listed on the National Register
 - Area or District Boundary Evaluated to be Eligible, Determined to be Eligible, or Listed on the National Register
 - Municipal Boundaries
 - Parcels
- * The Area of Potential Effect (APE) is 125 ft from the proposed right-of-way or the limit of adjacent parcel, whichever is greater, and extends to follow historic district boundaries.

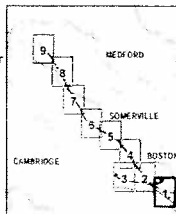


Figure 1
Location of Historic Properties Identified within the Project Area of Potential Effect
Sheet 1 of 9
Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs



Green Line Extension Project

GLX

Figure 2

massDOT

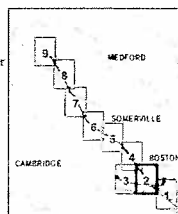
Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 2 of 9



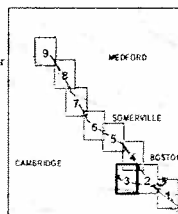
Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs

- Legend**
- Proposed Station
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 - Proposed Noise Barrier
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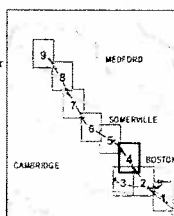
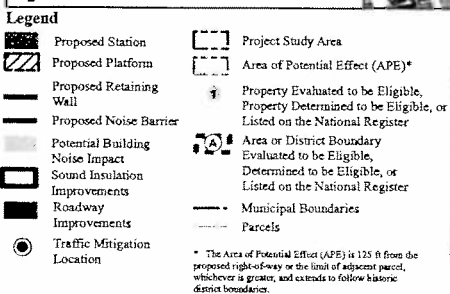


Green Line Extension Project

Figure 3
Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 3 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs



Green Line Extension Project

Figure 4

Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 4 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs



Green Line Extension Project

- Legend**
- Proposed Station
 - Proposed Platform
 - Proposed Retaining Wall
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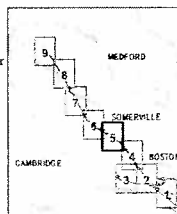


Figure 5

Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 5 of 9

Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Energy and Environmental Affairs

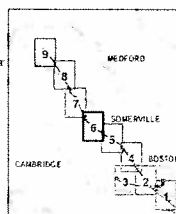
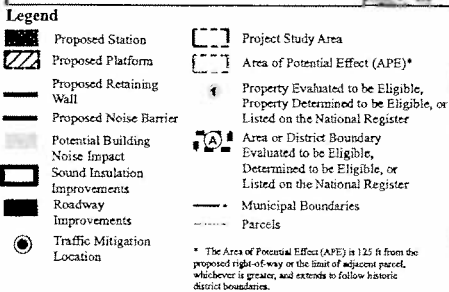


Figure 6

Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 6 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs



Green Line Extension Project

- Legend**
- Proposed Station
 - Proposed Platform
 - Proposed Retaining Wall
 - Proposed Noise Barrier
 - Potential Building Noise Impact
 - Sound Insulation Improvements
 - Roadway Improvements
 - Traffic Mitigation Location
 - Project Study Area
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 - Area or District Boundary Evaluated to be Eligible, Determined to be Eligible, or Listed on the National Register
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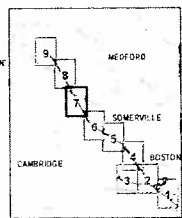


Figure 7

Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 7 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs



Green Line Extension Project

- Legend**
- Proposed Station
 - Proposed Platform
 - Proposed Retaining Wall
 - Proposed Noise Barrier
 - Potential Building Noise Impact
 - Sound Insulation Improvements
 - Roadway Improvements
 - Traffic Mitigation Location
 - Project Study Area
 - Area of Potential Effect (APE)*
 - Property Evaluated to be Eligible, Property Determined to be Eligible, or Listed on the National Register
 - Area or District Boundary Evaluated to be Eligible, Determined to be Eligible, or Listed on the National Register
 - Municipal Boundaries
 - Parcels
- * The Area of Potential Effect (APE) is 132 ft from the proposed right-of-way or the limit of adjacent parcel, whichever is greater, and extends to follow historic district boundaries.

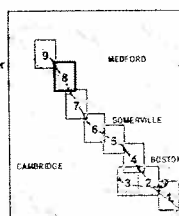


Figure 8

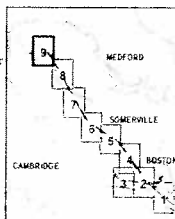
Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 8 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs



- Legend**
- Proposed Station
 - Proposed Platform
 - Proposed Retaining Wall
 - Proposed Noise Barrier
 - Potential Building Noise Impact
 - Sound Insulation Improvements
 - Roadway Improvements
 - Traffic Mitigation Location
 - Project Study Area
 - Area of Potential Effect (APE)*
 - Property Evaluated to be Eligible, Property Determined to be Eligible, or Listed on the National Register
 - Area or District Boundary Evaluated to be Eligible, Determined to be Eligible, or Listed on the National Register
 - Municipal Boundaries
 - Parcels
- * The Area of Potential Effect (APE) is 1/2 mile from the proposed right-of-way or the limit of adjacent parcels, whichever is greater, and extends to follow historic district boundaries.



GLX
massDOT



Green Line Extension Project

Figure 9
Location of Historic Properties Identified within the Project Area of Potential Effect

Sheet 9 of 9

Source:
Office of Geographic and Environmental Information (MassGIS),
Commonwealth of Massachusetts Executive Office of Energy
and Environmental Affairs

Attachment B

Table 1. Green Line Extension Project, Section 106 Determinations.

Figure No.*	ID No. ¹	Property Name	Address	NR Status	Direct	Noise ⁴	Vibration ⁴	Visual	Traffic/ Access	Section 106 Effect	Comments
National Register Listed											
1	C	Charles River Basin Historic District	Charles River Basin, Cambridge	NR-Listed	No	No	No	Low	No	Adverse Effect	Altering Lechmere Viaduct, contribute to District
1-7	F	Somerville Multiple Resource Area Historic District	Various, Somerville	NR-Listed	No	No	No	Low	No	No Adverse Effect	
4	68	Samuel Ireland House	117 Washington St, Somerville	NR-Listed	No	No	No	Low	No	No Adverse Effect	
5	161-1	Central Library	79 Highland Ave, Somerville	NR-Listed	No	No	No	Low	No	No Adverse Effect	
5	162	Somerville City Hall	93 Highland Ave, Somerville	NR-Listed	No	No	No	Low	No	No Adverse Effect	
6	195	Susan Russell House	58 Sycamore St, Somerville	NR-Listed	No	Yes	No	Low	No	Adverse Effect	Noise Impact
National Register Eligible											
5	H	Central Hill Area Historic District	Highland Ave, Somerville	NR-Eligible ³	No	No	No	Low	No	No Adverse Effect	
5	I	Gilman Square Historic District	Gilman Square, Somerville	NR-Eligible ³	Yes	No	No	Low	No	Adverse Effect	New Station Construction and land acquisition for Gilman Sq/ Station; see ID #138
5	J	Stickney Subdivision Area Historic District	Dartmouth St, Somerville	NR-Eligible ³	No	No	No	No	No	No Effect	
6	K	Powder House/Winter Hill Industrial Area Historic District	Vernon St, Somerville	NR-Eligible ³	No	No	No	Low	No	Adverse Effect	New Station Construction
1	1	Lechmere Viaduct	Boston and	NR-	Yes	No	No	Low	No	Adverse	Alteration

Attachment B
Table 1. Green Line Extension Project, Section 106 Determinations.

Figure No.*	ID No. ¹	Property Name	Address	NR Status	Direct	Noise ⁴	Vibration ⁴	Visual	Traffic/ Access	Section 106 Effect	Comments
1	2	MBTA Lechmere Station	Cambridge Lechmere Square, Cambridge	NR- Eligible ²	Yes	No	No	Low	No	Adverse Effect	Demolition
1	11	William L. Lockhart Coffin Factory Main Building	199-201 O'Brien Highway, Cambridge	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	Work adjacent to non-contributing outbuilding
1	12	John Morrell and Company Branch House	221 Monsignor O'Brien Hwy, Cambridge	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
1	13	Whitehead Metal Products Company	225 Monsignor O'Brien Hwy, Cambridge	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
2	18	Jackson and Newton Company	51 McGrath Hwy, Somerville	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
4	69	Buddy's Truck Stop/Sawin's Diner	113 Washington Street, Somerville	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
4	105	McGrath Hwy/Roue 1 Bridge over B&M Railroad	McGrath Hwy, Somerville	NR- Eligible ²	No	No	No	Low	No	No Adverse Effect	
5	130	Hill-Michie Company Auto Garage	295-297 Medford St, Somerville	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
5	136	Litchfield Block	247-251 Pearl St, Somerville	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
5	137	Malta Temple/Signet Commandery #188	339-343 Medford St, Somerville	NR- Eligible ³	No	No	No	Low	No	No Adverse Effect	
5	138	Reid & Murdock Co. Warehouse	350 Medford St, Somerville	NR- Eligible ³	Yes	No	No	Low	Yes	No Adverse Effect	Land acquisition for Gilman Sq.

Attachment B

Table 1. Green Line Extension Project, Section 106 Determinations.

Figure No.*	ID No. ¹	Property Name	Address	NR Status	Direct	Noise ⁴	Vibration ⁴	Visual	Traffic/ Access	Section 106 Effect	Comments
											Station. Removal of non-contributing loading dock. Access to loading dock blocked by station driveway
5	161-2	Somerville High School and Superintendent's Office	81 Highland Ave, Somerville	NR-Eligible ²	No	No	No	Low	No	No Adverse Effect	
6	206	Derby Desk Company	20 Vernon Street, Somerville	NR-Eligible ³	No	No	No	Low	No	No Adverse Effect	
7	280	Hillson Building	693-701 Broadway, 651 Boston Ave, Somerville	NR-Eligible ³	No	No	No	Low	No	No Adverse Effect	
7	288	Somerville Automobile Co.	662-664 Boston Ave, Medford	NR-Eligible ³	Yes	No	No		No	Adverse Effect	Demolition
8	302 and 302.1	Warner & Childs Division Factory Mill and Garage	546 Boston Ave, Medford	NR-Eligible ³	No	No	No	Low	No	No Adverse Effect	
8	305	Tufts University, Bray Memorial Laboratory	504 Boston Ave, Medford	NR-Eligible ³	No	No	Yes	Low	No	No Adverse Effect	No residual vibration with mitigation
8	307	Tufts University, Commons Building/Curtis Hall	474 Boston Ave, Medford	NR-Eligible ³	No	Yes	No	Low	No	No Adverse Effect	No residual ground-born noise with mitigation

*Resources are sequenced south to north along the project corridor, with National Register-listed properties first and districts preceding individual properties.

1 Number identifier indicates individual historic properties and letter identifier indicates historic districts.

2 Previously determined NR-eligible by MHC.

3 Recommended NR-eligible by MassDOT/PAL as part of the Green Line Extension Study.

4 Noise and Vibration analyses in accordance with FTA's *Transit Noise and Vibration Impact Assessment* guidance document dated May 2006.

ATTACHMENT C

MHC Photographic Documentation Technical Requirements for Digital Images

This document addresses technical requirements for digital photographs submitted to the MHC in fulfillment of mitigation measures. Please refer to agreement documents for project/property-specific requirements pertaining to image composition as well as any additional documentation package components.

General Requirements

In all cases, digital images must be submitted with the following elements:

- The original digital data file captured by the digital camera.
- A print of the image – see below for printer/ink/paper requirements.
- A photo submission form and photo log.

Digital Files

- The original, uncompressed digital file must accompany digital prints. That is, submit the digital file in the form originally captured by the digital camera—unedited and not manipulated in any way by image-processing software.
- If your camera takes Tiff format images, submit files in uncompressed Tiff format. If your camera only takes jpeg images, set the camera to its highest quality and submit the original file as described above.
- Minimum image dimensions: 1600x1200 pixels at 300 ppi or larger, 8-bit or larger color format.
- Take black and white images using the black and white setting of your digital camera. If your digital camera doesn't take black and white images—submit color images only. Black and white image files should be stored as RGB files, not as grayscale.
- Submit files on a labeled CD-R or DVD. Do not use a CD-RW.
- Label CD-Rs with a Sharpie-type pen in the label area of the disk, not on the data side.
- Do not affix an adhesive label to the disk.
- Submit CDs in a plastic jewel case—not in a plastic sleeve or paper envelope.
- The file name for each electronic image saved on the CD-R must correspond with the photo log included in the documentation package and the information labeled on the back of each photograph, and it should also reference the state, county, and city or town in which the property is located. For example, the image files for the Samuel Harrison House in Pittsfield, Berkshire County, Massachusetts, would be saved as “MA_Pittsfield (Berkshire County)_Harrison1.tif,” “MA_Pittsfield (Berkshire County)_Harrison2.tif,” and so forth.
- Some image-processing software allows the editing of image file metadata; MHC strongly recommends that the following information be included in image file metadata: photographer name, copyright info, and a brief description of the image.

Digital Prints

- Prints must be 4x6 inches or larger.
- Prints may be black and white or color.

- If submitting black and white prints, the print must have been taken originally in black and white and *not* created by converting a color image to grayscale using an image processing software program (such as Photoshop).
- **Do not mount prints.**
- Label prints on the back with a soft lead pencil. Be sure to include the location, including county and city or town name.
- To ensure archival longevity, prints must be made using a photo-quality printer using appropriate brand name paper and inks. *Printers, paper, and ink must all be from the same manufacturer and must be from the approved list below.* For example, prints made on an Epson printer must be on Epson paper with Epson brand inks. The archival stability of third-party papers and inks cannot be guaranteed and is therefore unacceptable.

Paper and Ink Requirements

The following paper and ink combinations these are approved by the MHC. If you would like to submit images on different printer/paper/ink combinations, proof of the archival stability of the combination must be provided and is subject to approval by MHC. As additional printers, papers, and inks are approved by MHC, they will be added to this list. (For more information on archival stability of image printing papers and inks visit <http://www.wilhelm-research.com/>)

Printer	Inks	Paper
Epson Printers	Epson UltraChrome pigmented inks	Epson Premium Glossy Paper Epson Premium Semigloss Photo Paper Epson Premium Luster Photo Paper Epson Premium Semimatte Photo Paper Epson UltraSmooth Fine Art paper Somerset Velvet for Epson Epson Velvet Fine Art paper Epson Textured Fine Art Paper Epson Enhanced Matte paper
	Epson PictureMate inks	Epson PictureMate Photo Paper
Hewlett-Packard Printers	Hewlett-Packard (HP) 84/85 dye-based inkset	HP Premium Plus Photo and Proofing Gloss HP Premium Plus High Gloss Photo Paper HP Premium Plus Soft Gloss Photo Paper HP Premium Photo Paper, Gloss HP Premium Photo Paper, Soft Gloss
	Hewlett Packard 59 gray photo cartridge	HP Premium Plus and HP Premium Photo Papers (high gloss, glossy, and soft gloss)
	Hewlett Packard 100 gray photo cartridge	HP Premium Plus and HP Premium Photo Papers (high gloss, glossy, and soft gloss)
	Hewlett Packard Vivera inks (95 and 97 tri-color cartridges)	HP Premium Plus and HP Premium Photo Papers (high gloss, glossy, and soft gloss)

(trial guidelines 2-1-06)

(additions by BF 2-9-06, 4-12-06)

Massachusetts Historical Commission Photo Submission Form

Please submit one form for each group of digital images

About your digital files:

Camera Used (make, model): _____

Resolution of original image capture (camera setting including resolution and file format):

File name(s) (attach additional sheets if necessary) check here ☐ to refer to attached photo log:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

About your prints:

Printer make and model: _____

Paper: brand & type (i.e., Epson Premium Glossy Photo)

Ink: _____

Signature: (By signing below you agree that the information provided here is true and accurate.)

Signature: _____ Date: _____

Attachment D

Procedures Guiding the Discovery of Unanticipated Cultural Resources and Human Remains

Green Line Extension Project

April 2011

Introduction

The Massachusetts Department of Transportation (MassDOT) and the Massachusetts Bay Transportation Authority (MBTA) are committed to the protection and preservation of cultural resources, in accordance with federal and state legislation, and is continuing that commitment as part of the proposed Green Line Extension Project (Project") in Medford, Somerville, Cambridge and Boston, MassDOT and the MBTA recognize that cultural resources may be discovered during Project construction or maintenance activities, particularly during excavation. MassDOT and the MBTA also recognize the requirement for compliance with federal and state regulations and guidelines regarding the treatment of human remains, if any are discovered.

As such, the procedures guiding the unanticipated discovery of cultural resources and human remains detailed herein were developed in consultation with the Massachusetts Historical Commission (MHC), the office of the State Historic Preservation Officer (SHPO), pursuant to Massachusetts General Laws Chapter 7, §38A; Chapter 9, §§26A and 27C; Chapter 38, §6; Chapter 114, §17; and Chapter 272, §§71 and 73, as amended.

The purpose of identification efforts during project is to determine the presence or absence of historic properties within a project area. These identification efforts are conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (NHPA) (16 USC 470f), as amended, and implementing regulations of the Advisory Council on Historic Preservation (Advisory Council) (36 CFR 800), specifically, those procedures regarding "post-review discoveries" as outlined in 36 CFR 800.13. All work is undertaken pursuant to the *Secretary of the Interior Standards for Archaeology and Historic Preservation* (48 Federal Regulations 44716-42 [1983]) and the applicable laws and regulations pertaining to the cultural resources of Massachusetts.

Identification/Training

The identification of cultural resources requires basic training in order to recognize archaeological sites. MBTA inspectors and construction contractor personnel will be given basic training in cultural resource site recognition. The purpose of this training will be to review MassDOT and MBTA commitments regarding cultural resource compliance and to provide an overview of the general cultural history of the

Project area, so that the construction personnel will be aware of the kinds of archaeological resources that may be encountered in the field. In addition, the training program will emphasize the exact procedures to be followed, as outlined in this plan, regarding actions to be taken and notification required in the event of a significant site discovery, such as a discovery of human remains, during construction. The MHC's fact sheet entitled "Know How #4 -- *What to do when Human Burials are Uncovered*" will be distributed.

The training will be designed to ensure that MBTA personnel and construction contractors understand the extent of the archaeological survey program that has been performed for the Project and are fully aware of the distinction between sites that have been located and "cleared" under the cultural resource program (*i.e.*, determined to be non-significant after different levels of investigation or sites that have already undergone data recovery) and new discoveries during the construction process.

Notification Procedures

During Construction

The following details the plan that will be followed in the event that new cultural resource sites or human remains are discovered during the construction process.

Archaeological Discoveries

The following procedures will be adhered to in the event of a potential discovery of archaeological remains during construction.

1. Possible archaeological remains may be discovered by MBTA or contractor construction personnel. In the event that suspected artifacts are uncovered during a construction activity, that activity shall immediately be halted until it can be determined whether that materials are cultural and, if so, whether they represent a potentially significant site.

If artifacts are identified by contractor construction personnel, activities that could affect the integrity of the deposit(s) will be suspended immediately and the contractor's construction foreman will be notified immediately. The foreman, in turn, will notify the MBTA Resident Engineer. Notification will include the specific construction area (*e.g.*, trench wall, spoil pile, foundation excavation) in which the potential site is located.

If deposits are identified by MBTA personnel, they will direct the contractor to stop work on activities that could affect the integrity of the resource.

2. Upon notification or discovery of a possible site, MBTA will contact its cultural resource consultants who will in turn be responsible for determining whether a visit to the area is required. If a site visit is necessary, the archaeologist will have a crew on site within 24 hours after notification.

The location of any site-related materials, features, *etc.*, will be identified on MBTA maps, along with the date on which they were identified.

Note: Cultural material or features discovered within a previously recorded site location can be unrelated to the originally identified deposit and therefore have the potential to be classified as a new site, requiring new survey investigations.

If on-site archaeological investigations are required, the MBTA Resident Engineer will inform the construction contractor. No construction work at the site that could affect the artifacts will be performed until the archaeologists review the site. The site will be flagged as being off-limits for work, but will not be identified as an archaeological site *per se* in order to protect the resources.

4. The archaeologists will conduct a review of the site and, in consultation with the SHPO, and Tribal Historic Preservation Officer (THPO), will survey the site as necessary, in accordance with Massachusetts SHPO standards and guidelines. Since the area will have already been partially disturbed by construction activities, the objective of any cultural resource investigations will be to evaluate data quickly so that SHPO/THPO(s) notifications are made and consultation can proceed.
5. The archaeologists will determine, based on the deposits found and on the cultural sensitivity of the area in general, whether the site is potentially significant and whether the Massachusetts SHPO require immediate notification by telephone. If not, data regarding the site will be faxed or sent by express mail to the Massachusetts SHPO in order to ensure a quick site clearance.
6. MBTA and its archaeologists will work with the SHPO to ensure that a treatment plan for the site is developed and implemented in as timely a fashion as possible.

Human Remains Discoveries

If any human remains are to be encountered, they will likely be discovered in excavations, possibly below areas tested by standard survey techniques.

The treatment of any human remains encountered during MBTA projects will be guided by the policy statement adopted by the Advisory Council on Historic Preservation ([Advisory Council]; see *Policy Statement Regarding Treatment of Burial Sites, Human Remains, and Funerary Objects*, Advisory Council February 23, 2007), and by the relevant state laws and guidelines. The Advisory Council policy statement recommends that, when burial sites, human remains, or funerary objects will be or are likely to be encountered in the course of Section 106 review, a federal agency should adhere to the following principles:

Principle 1: Participants in the Section 106 process should treat all burial sites, human remains, and funerary objects with dignity and respect.

Principle 2: Only through consultation, which is the early and meaningful exchange of information, can a federal agency make an informed and defensible decision about the treatment of burial sites, human remains, and funerary objects.

Principle 3: Native Americans are descendants of original occupants of this country. Accordingly, in making decisions, federal agencies should be informed by and utilize the special expertise of Native American tribes in the documentation and treatment of their ancestors.

Principle 4: Burial sites, human remains, and funerary objects should not be knowingly disturbed unless absolutely necessary, and only after the federal agency has consulted and fully considered avoidance of impact and whether it is feasible to preserve them in place.

Principle 5: When human remains or funerary objects must be disinterred, they should be removed carefully, respectfully, and in a manner developed in consultation.

Principle 6: The agency is ultimately responsible for making decisions regarding avoidance of impact to or treatment of burial sites, human remains, and funerary objects. In reaching its decisions, the agency must comply with applicable federal, tribal, state, or local laws.

Principle 7: Through consultation, agencies should develop and implement plans for the treatment of burial sites, human remains, and funerary objects that may be inadvertently discovered.

Principle 8: In cases where the disposition of human remains and funerary objects is not legally prescribed, agencies should proceed following a hierarchy that begins with the rights of lineal descendants, and if none, then the descendant community, which may include Native American tribes.

The procedures that will be followed in the event that human remains are discovered during construction of MBTA projects are as follows:

1. If any personnel on the construction site identify human remains, all construction work in the immediate vicinity of the site that could affect the integrity of the remains will cease immediately. The remains should not be touched, moved, or further disturbed.
2. MBTA Resident Engineer will be informed immediately and notified of the exact location of the remains, as well as of the time of discovery, and in turn will be responsible for immediately contacting MBTA's cultural resource consultant.
3. The archaeologist and MBTA will be responsible for notifying appropriate company personnel as well as the SHPO, the Office of the Chief Medical Examiner (OCME) and the State Police. If the cultural resources consultant determines that the remains are obviously human and recent, this should be indicated to the contact, including the OCME. If the cultural resources consultant considers that the remains appear to be over 100 years old, this should also be indicated to the OCME, and the cultural resources consultant should also inform the State Archaeologist so that these two officials can coordinate and respond.
4. MBTA and the SHPO will consult with the property owner and the Commission on Indian Affairs if the remains are Native American, to discuss whether there are prudent and feasible alternatives to protect the remains. The results of this consultation will be made in writing. If it is not possible to protect the remains, they may be excavated only under a Special Permit (950 CMR 70.20[2]) granted by the State Archaeologist after review of an adequate data recovery plan that specifies a qualified research team and an appropriate research design (950 CMR 70.11[2]), including a proposal for disposition of the remains. Analyses to be performed on Native American remains will be discussed in consultation with the Commission on Indian Affairs.

After analyses, Native American remains will be returned to the Commission on Indian Affairs for disposition. Non-native remains will be treated in accordance with MHC's policy and guidelines of February 14, 1990.

5. In all cases, due care will be taken in the excavation and subsequent transport and storage of the remains to ensure that the sacred meaning of the remains for Native Americans are respected and protected, as required.

Applicable State Laws

Massachusetts General Laws, Chapter 38, Sections 6B & 6C; Chapter 9, Sections 26-27C (950 CMR 70-71); Chapter 7, Section 38A; Chapter 114, Section 17; all as amended.

List of Contacts

Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, Massachusetts 02125

Contact: Brona Simon, State Archaeologist/State Historic Preservation Officer
Tel: (617) 727-8470
Fax: (617) 727-5128

Commission on Indian Affairs
Massachusetts Commission on Indian Affairs
1 Congress Street, 10th Floor
Boston, MA 02114

Contact: Jim Peters, Executive Director
Tel: (617) 573-1292
Fax: (617) 573-1515

Wampanoag Tribe of Gay Head (Aquinnah)
20 Black Brook Road
Aquinnah, Massachusetts 02535

Contact: Bettina Washington, Acting Tribal Historic Preservation Officer
Tel: (508) 645-9265
Fax: (508) 645-3790

Mashpee Wampanoag Indian Tribal Council, Inc.
483 Great Neck Road South
Mashpee, Massachusetts 02649

Contact: George Green, Jr., Tribal Historic Preservation Officer
Tel: (508) 477-0208
Fax: (508) 477-1218

State Office of the Chief Medical Examiner
720 Albany Street
Boston, Massachusetts 02118
Contact: Dr. Henry Nields, Chief Medical Examiner
Tel: (617) 267-6767
Fax: (617) 266-6763

Massachusetts State Police Barracks
Contact: Tel: 911