

Commonwealth of Massachusetts

ENF

Executive Office of Environmental Affairs ■ MEPA Office

Environmental Notification Form

For Office Use Only Executive Office of Environmental Affairs EOEA No.: <i>14384</i> MEPA Analyst: <i>Anne Canaday</i> <i>617-626-1035</i>
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The information requested on this form must be completed to begin MEPA Review in accordance with the provisions of the Massachusetts Environmental Policy Act, 301 CMR 11.00.

Project Name:		
Longfellow Bridge Rehabilitation Project		
Street: Cambridge Street in Boston; Main Street in Cambridge		
Municipality: Boston and Cambridge	Watershed: Boston Harbor	
Universal Transverse Mercator Coordinates: 15393678 N, 1079704 E	Latitude: 42° 21' 41"	Longitude: 71° 04' 31"
Estimated commencement date: Fall 2010 or Summer 2010 depending on construction phasing	Estimated completion date: 36-48 Months after commencement of construction	
Approximate cost: \$280 million	Status of project design: 25 % complete	
Proponent: MassHighway in Conjunction with the Department of Conservation & Recreation		
Street: 10 Park Plaza		
Municipality: Boston	State: MA	Zip Code: 02116
Name of Contact Person From Whom Copies of this ENF May Be Obtained: Jessica Kenny, Assistant Manager Environmental Programs		
Firm/Agency: MassHighway	Street: 10 Park Plaza, Room 4260	
Municipality: Boston	State: MA	Zip Code: 02116
Phone: (617) 973-7633	Fax: (617) 973-8038	E-mail: jessica.kenny@mhd.state.ma.us

Does this project meet or exceed a mandatory EIR threshold (see 301 CMR 11.03)?
 Yes No

Has this project been filed with MEPA before?
 Yes (EOEA No. _____) No

Has any project on this site been filed with MEPA before?
 Yes (EOEA No. _____) No

Is this an Expanded ENF (see 301 CMR 11.05(7)) requesting:

a Single EIR? (see 301 CMR 11.06(B))	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a Special Review Procedure? (see 301 CMR 11.09)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a Waiver of mandatory EIR? (see 301 CMR 11.11)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
a Phase I Waiver? (see 301 CMR 11.11)	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

Identify any financial assistance or land transfer from an agency of the Commonwealth, including the agency name and the amount of funding or land area (in acres):

The construction of this project is being funded as part of the Commonwealth of Massachusetts' Accelerated Bridge Program as signed by Governor Patrick in May 2008. MassHighway will provide 20% of the construction cost for this project; the Federal Highway Administration will provide the remaining 80% of the construction cost for this project through their Bridge Replacement and Rehabilitation Program.

Are you requesting coordinated review with any other federal, state, regional, or local agency?
 Yes (Specify _____) No

List Local or Federal Permits and Approvals:

Federal: A Section 106 Review, a Programmatic Section 4(f) Evaluation, an Environmental Assessment in accordance with the National Environmental Policy Act, a U.S. Army Corps of Engineers Programmatic General Permit, a U.S. Coast Guard Construction Letter. Local: Order of Conditions in accordance with the Wetlands Protection Act.

Which ENF or EIR review threshold(s) does the project meet or exceed (see 301 CMR 11.03):

- | | | |
|---------------------------------|---------------------------------------|---|
| <input type="checkbox"/> Land | <input type="checkbox"/> Rare Species | <input type="checkbox"/> Wetlands, Waterways, & Tidelands |
| <input type="checkbox"/> Water | <input type="checkbox"/> Wastewater | <input checked="" type="checkbox"/> Transportation |
| <input type="checkbox"/> Energy | <input type="checkbox"/> Air | <input type="checkbox"/> Solid & Hazardous Waste |
| <input type="checkbox"/> ACEC | <input type="checkbox"/> Regulations | <input checked="" type="checkbox"/> Historical & Archaeological Resources |

Summary of Project Size & Environmental Impacts	Existing	Change	Total	State Permits & Approvals
LAND				<input checked="" type="checkbox"/> Order of Conditions <input type="checkbox"/> Superseding Order of Conditions <input type="checkbox"/> Chapter 91 License <input checked="" type="checkbox"/> 401 Water Quality Certification <input type="checkbox"/> MHD or MDC Access Permit <input type="checkbox"/> Water Management Act Permit <input type="checkbox"/> New Source Approval <input type="checkbox"/> DEP or MWRA Sewer Connection/Extension Permit <input checked="" type="checkbox"/> Other Permits (including Legislative Approvals) – Specify:
Total site acreage	11.90			
New acres of land altered		None		
Acres of impervious area	3.50	0.10	3.60	
Square feet of new bordering vegetated wetlands alteration		None		
Square feet of new other wetland alteration		None		
Acres of new non-water dependent use of tidelands or waterways		None		
STRUCTURES				
Gross square footage	None	None	None	
Number of housing units	None	None	None	
Maximum height (in feet)	94	None	94	
TRANSPORTATION				
Vehicle trips per day	28,000	0	28,000	
Parking spaces	None	None	None	
WATER/WASTEWATER				
Gallons/day (GPD) of water use	None	None	None	
GPD water withdrawal	None	None	None	
GPD wastewater generation/treatment	None	None	None	
Length of water/sewer mains (in miles)	None	None	None	

Other State Permits and Approvals: NPDES General Permit for Stormwater Discharges for

Construction Activities.

CONSERVATION LAND: Will the project involve the conversion of public parkland or other Article 97 public natural resources to any purpose not in accordance with Article 97?

Yes No. Areas of public parkland, namely undeveloped sections of the Charles River Reservation on the Boston side of the bridge, will be occupied by a slightly widened sidewalk at the approaches to the bridge. On the north side of the bridge, about 350 square feet of parkland will be used to widen the sidewalk and bike lane; on the south side of the bridge about 1,200 square feet will be used for the sidewalk improvements. The sidewalk changes will be within the area presently used for pedestrian/vehicular traffic and that use will not be changed. A walkway is consistent with parkland use and does not require Article 97 approval. The Department of Conservation and Recreation will retain care and custody of both the bridge and the park. The Commonwealth of Massachusetts will retain ownership of the Bridge.

Will it involve the release of any conservation restriction, preservation restriction, agricultural preservation restriction, or watershed preservation restriction?

Yes (Specify__ No

RARE SPECIES: Does the project site include Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities?

Yes (Specify) No

The project is in an urban area of riverfront parklands and arterial roads. Massachusetts Natural Heritage and Endangered Species Program Certified Vernal Pool Mapping (Data Layer CVP), Priority Habitat Mapping (Data Layer PHAB), and Wetland Estimated Habitat Mapping (Data Layer WHAB) show no Estimated Habitat of Rare Species, Vernal Pools, Priority Sites of Rare Species, or Exemplary Natural Communities in the project area. The Charles River is a significant warm water fisheries resource and an anadromous fish run.

HISTORICAL /ARCHAEOLOGICAL RESOURCES: Does the project site include any structure, site or district listed in the State Register of Historic Place or the inventory of Historic and Archaeological Assets of the Commonwealth?

Yes (Specify) No

The Longfellow Bridge is a contributing element in the State Register-listed Charles River Basin Historic District. The bridge and the district are each listed in the Inventory of Historic and Archaeological Assets of the Commonwealth.

No listed or inventoried archaeological sites are included in the project site.

If yes, does the project involve any demolition or destruction of any listed or inventoried historic or archaeological resources?

Yes (Specify____) No

The deteriorated elements of the bridge that are critical to its historic/architectural character will be restored in accordance with the Secretary of the Interior's Standards for Restoration. Deteriorated elements of lesser (or no) historic/architectural significance will be treated in accordance with the Secretary of the Interior's Standards for Rehabilitation.

No listed or inventoried archaeological sites will be destroyed.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN: Is the project in or adjacent to an Area of Critical Environmental Concern?

Yes (Specify____) No

The project area is not within any Area of Critical Environmental Concern according to the "ACEC Statewide

Map”, Executive Office of Environmental Affairs, Department of Environmental Management, March 2003.

PROJECT DESCRIPTION: The project description should include (a) a description of the project site, (b) a description of both on-site and off-site alternatives and the impacts associated with each alternative, and (c) potential on-site and off-site mitigation measures for each alternative (You may attach one additional page, if necessary.)

The Existing Bridge and the Surrounding Area

The Massachusetts Highway Department (MassHighway) and the Massachusetts Department of Conservation and Recreation are undertaking a major project for the rehabilitation of the Longfellow Bridge across the Charles River between Boston and Cambridge. The main goals of this federally funded project are to repair deteriorated parts of the structure and to make improvements to its ramped approaches. All repairs and modifications will be consistent with the historic character of the bridge.

Background

The Longfellow (originally, the Cambridge) Bridge is one of the most architecturally distinguished bridges in Massachusetts. Located on the site of the 1793 West Boston Bridge, this graceful steel and granite structure was completed in 1908, and renamed to honor Henry Wadsworth Longfellow in 1927. The bridge joins Cambridge Street in Boston with Main Street in Cambridge and carries the Massachusetts Bay Transportation Authority (MBTA) Red Line and two way vehicular traffic across the Charles River. The bridge presently carries 28,000 motor vehicles, 90,000 transit users, and significant numbers of pedestrians and cyclists each day.

The 1908 bridge was extended in 1956 and rehabilitated in 1959. The bridge today consists of eleven original open-spandrel steel arch spans plus two later steel girder approach spans at the Cambridge end. The bridge has an overall length of 2,135 feet, and a deck width of 105 feet, which includes a 27-foot fenced median occupied by the Red Line. The existing cross-section provides an upstream 6-foot sidewalk and a 33-foot wide roadway while the downstream side consists of a 10-foot sidewalk and 29-foot wide roadway. The bridge’s substructure is built of granite block masonry and consists of ten hollow piers and two hollow abutments. The two central piers carry the signature pairs of neoclassically inspired dressed granite towers that have given the bridge its popular nickname – the Salt and Pepper Bridge.

The Bridge has been undergoing regular inspections and maintenance since August 2007 and a detailed timeline has been included as Attachment 5.

Proposed Work

MassHighway and the Department of Conservation and Recreation have selected a consultant team led by Jacobs Inc. to provide a preliminary design for the rehabilitation of the Longfellow Bridge. In this design, the bridge’s distinctive architectural features will be preserved or restored, while the deteriorated structural elements of the bridge are carefully rehabilitated. All new elements of the work will be sensitively designed to complement the bridge’s historic character and its prominent position within the historic Charles River basin.

A primary objective of the proposed rehabilitation is to address the bridge’s current structural deficiencies, upgrade its structural capacity (where appropriate), and bring the bridge up to modern code. In particular, the structural steel elements supporting the bridge deck have deteriorated and require upgrading, and the abutments will have to be modified slightly to allow the sidewalk approaches to meet ADA standards. At the same time, the bridge’s ornate pedestrian railings will be restored or replicated, its masonry elements will be cleaned and conserved, and an appropriate new bridge lighting system will be designed. Areas on the riverbanks disturbed by the project will be carefully landscaped to tie the bridge into its historic setting.

Public Involvement

Public informational meetings, which provided attendees with an overview of the project and updated them on progress, were held on September 22, 2005 and May 24, 2006. Advance notices of these public

meetings, which also included mailers with project descriptions, were sent to the circulation list included in Attachment 4.

On May 17, 2006, a detailed presentation on the project was made to the Section 106 Consulting Parties, which comprise the following organizations: Massachusetts Historical Commission, Boston Landmarks Commission, Cambridge Historical Commission, Department of Conservation and Recreation, MassHighway, and Federal Highway Administration. Copies of several technical reports concerning design and construction of the project were provided to the consulting parties at this meeting. A second Section 106 Consulting Parties meeting, to discuss the project's draft ENF and other progress to that point, was held on July 29, 2008.

A project website, which includes a project description and provides links to a slide presentation from the most recent public meeting, is maintained at the following URL:

<http://www.mhd.state.ma.us/default.asp?pgid=longfellowbridge/longfellow&sid=level2>

Parkland Impacts

Areas of public parkland, namely undeveloped sections of the Charles River Reservation on the Boston side of the bridge, will be occupied by a slightly widened sidewalk at the approaches to the bridge. On the north side of the bridge, about 350 square feet of parkland will be used to widen the sidewalk and bike lane; on the south side of the bridge about 1,200 square feet will be used for the sidewalk improvements. The sidewalk changes will be within the area presently used for pedestrian/vehicular traffic and that use will not be changed. A walkway is consistent with parkland use and does not require Article 97 approval. The Department of Conservation and Recreation will retain care and custody of both the bridge and the park. The Commonwealth of Massachusetts will retain ownership of the Bridge.

Boston Approach Modifications

The above parkland impacts are caused by proposed modifications to the connection of the Longfellow Bridge to the inbound and outbound approaches on the Boston side of the Charles River. The Boston connections are complicated by the fact that the available space between the MBTA Reservation and the outside of the bridge has been constricted by the Charles/MGH Station platform extensions. There is currently no sidewalk to the east of the Boston abutment. This project must restore an ADA compliant sidewalk across the entire bridge while satisfying MassHighway design standards and maintaining the historical character of the bridge.

The typical roadway cross section across the bridge which must be incorporated into the approach design measures 37.5 feet. The available space to fit the approach alignment varies, but at the narrowest location, the "pinch-point" at the intersection of Span 1 and the abutment, the existing dimension from the bridge railing to the Jersey barrier at the MBTA reservation is 30.5 feet. Based on the total desirable width, it is clear that to provide the elements required for the bridge cross-section, we must either: (i) widen the bridge; (ii) accept dimensions lower than desirable; or (iii) modify the MBTA reservation to create more space.

We evaluated several alternatives for widening the bridge including dismantling, moving and rebuilding the entire abutment tower and staircase to the south. Since the current available space at the tower itself does not impose a major constriction, the tower re-location was considered unwarranted both from historical impacts and a cost perspective. We considered a more limited bridge widening scheme that provides additional space at the pinch-point by widening Span 1 between the Boston abutment and Pier 1 by around 2 feet.

We have discussed alternatives with the MBTA for modifying their platform area to provide more space to accommodate the revised roadway and we are continuously looking for ways to improve safety and add space for the MBTA reservation. Although the existing station has been rebuilt and the entrances have been moved to the east, for reasons associated with the start of a track curve, the location where the train stops at the platform could not be changed. Also the platform area cannot be reduced for safety reasons. We evaluated an alternative which modified the platform while maintaining the MBTA platform criteria, but

this involved significant construction at the station, major modification to the station canopy, which is also a historic structure, and gained less than 12 inches at the “pinch-point”. We considered other alternatives to have greater advantages and rejected this alternative.

Complete replacement of the existing Longfellow Bridge was considered as an alternative to rehabilitation during the earliest stages of project development. The existing, National Register-listed Bridge, however, is an icon – a powerful symbol of metropolitan Boston’s civic pride in the opening years of the 20th century. Full replacement would also face permitting delays in other areas – particularly historic approvals as well as those involving water, hazardous materials, and parkland approvals. Finally, the design and construction of a full replacement bridge would make it difficult to maintain adequate vehicular, bicycle, pedestrian, and Red Line service on this crossing throughout the construction period – a major advantage of the proposed rehabilitation alternative.

The No Build Alternative was considered but due to public safety concerns from the deteriorating condition and the fact that recent repairs will only sustain service ability for a limited number of years, it was then determined that a more thorough rehabilitation scheme be proposed.

The three alternatives that we considered most appropriate for further consideration and discussion are presented in the attached figures and are summarized as follows:

Alternative 1: The available right-of-way at the pinch-point is increased by widening the bridge by 2 feet over the most easterly span, Span 1. East of the abutment tower, the existing granite wall will be dismantled and re-built approximately 12 feet to the south of the existing location. The sidewalk width provided is 5 feet and the bike lane is also generally 5 feet except that it is reduced to 4 feet for a short distance on either side of the pinch point. To the east of the tower, three travel lanes that meet MassHighway design criteria are provided, with the left roadway lane transitioning to a left turn lane, and the right roadway lane transitioning to two through lanes.

Alternative 2: The Bridge is not widened at the “pinch point” and the dimensions of the various roadway elements are locally reduced below desirable widths. The roadway lanes are reduced to 10.5 feet while both the sidewalk and bike lane are only 3.5 feet wide. East of the abutment tower, the existing granite wall will be dismantled and re-built approximately 12 feet to the south of the existing location. To the east of the tower, three travel lanes that meet MassHighway design criteria are provided, with the left roadway lane transitioning to a left turn lane, and the right roadway lane transitioning to two through lanes. The bike lane merges with the through lane. We also developed an Alternative 2A which instead of 10.5 feet travel lanes provides the more desirable 11 foot wide lanes with the additional foot required to achieve this taken from the sidewalk and the bike lane.

Alternative 3: The Bridge is not widened at the “pinch point” and the dimensions of the various roadway elements are locally reduced below desirable widths. The roadway lanes are 11 feet wide while both the sidewalk and bike lane are locally only 3 feet wide. Outside of the pinch point, the bike lane and sidewalk are maintained at 5 feet. East of the abutment, only two travel lanes are provided, with the existing granite wall remaining in its current location.

Based on our evaluation of these alternatives, we recommend implementation of Alternative 1. This alternative provides the most satisfactory solution for the vast majority of bridge users, and most closely conforms to current MassHighway design criteria. Although the bridge structure will be modified, the span widening can be designed in an architecturally sensitive manner. The re-location of the retaining walls will involve taking a narrow section of parkland, but this area currently provides very limited use, and the improvements in pedestrian access incorporated into the approach re-construction will create an overall enhancement to this section of the Esplanade.

The Construction Approach

MassHighway and the Department of Conservation and Recreation are currently investigating two options for the construction approach.

Option 1 Phases: This phasing option allows the bridge superstructure and deck to be restored and rehabilitated more rapidly than Option 2. Stage 1: The deck supporting the eastbound travel lanes and the inbound Red Line will be reconstructed first due to utility relocations. Westbound traffic will be detoured across the Charles River Dam Road (Monsignor O'Brien Highway). The outbound Red Line track will be relocated on to a temporary track on the existing westbound roadway and the inbound Red Line track will be shifted to the existing outbound side. The eastbound traffic will then be relocated to the inside westbound travel lane. The existing bridge deck under the eastbound travel lanes and inbound Red Line track will then be demolished and reconstructed. A second temporary Red line track will be constructed on the fast lane of the new eastbound roadway. Stage 2: The deck supporting the westbound roadway and the outbound Red Line track will be reconstructed in Stage 2. Eastbound traffic will be moved back to the inside eastbound roadway lane. The inbound Red Line track will be relocated to the second temporary track on the eastbound roadway, and the outbound Red Line will be relocated to the newly completed inbound track. The deck supporting westbound travel lanes and the outbound Red Line track will be demolished and reconstructed. Stage 3 (final configuration): Westbound travel lanes will be reopened, the inbound and outbound Red Line will be restored on to the new tracks, and both eastbound travel lanes will be re-opened.

Option 2 Phases: Bridge superstructure and deck will be restored and rehabilitated over a period of about 12 months longer than Option 1. The work will take place at only a limited portion of the total bridge width at a time so that transportation functions can be maintained as the work proceeds. There will be four phases to the work: Stage 1 Work below the eastbound fast lane and below the westbound slow lane, stage 2 work below the westbound fast lane and below the eastbound slow lane, stage 3 work below the Red Line inbound track area and stage 4 work below the Red Line outbound track area. Structural rehabilitation and restoration will take place in the area under the usual location of the Red Line Inbound Track. Some weekend shutdowns of the Red Line will be necessary during the course of the shifts and then the Red Line will continue to operate as usual.

In both construction stages, there will be one sidewalk open for use by pedestrians. Bike traffic will follow the roadway traffic detour in each stage.

Traffic Management: The only location that the bridge traffic is controlled by signalization is the approach to Charles Circle for the traffic going from Cambridge to Boston. Police details and traffic flagging personnel will monitor traffic flow throughout the construction period. Emergency vehicles will be given preference in day to day traffic management. Traffic that customarily uses the Longfellow Bridge may seek alternate routes during the construction period. Alternate crossings of the Charles River are the Charles River Dam Road (Monsignor O'Brien Highway) about half a mile to the north and Massachusetts Avenue over the Harvard Bridge about a mile to the south. The work on the spans of the bridge that are over Memorial Drive and over Storrow Drive will require closings of a lane or sometimes two lanes on these roadways. Off peak and nighttime work schedules will be used to reduce the impact of these lane closures. The river in the area of the bridge is the location of recreational boating and rowing. Much of the construction work over the water will involve barge based activities. Specific marine navigational channels may be closed but marine traffic will always be maintained. Notifications of impacts will be communicated to Mariners through the United States Coast Guard.

Construction Impacts: The space available in the immediate area of the bridge is extremely limited but a number of functions are necessary to support an efficient construction process. Employee parking will be discouraged. The removal and the delivery of materials to the site will generate traffic. Off peak and nighttime work schedules will be used to reduce the impact of the introduction of this additional traffic into the project area. There will be nighttime construction activities that will generate noise level concerns; dust generation, abrasive blasting, and painting will all create local air quality concerns. These impacts will be mitigated by performing abrasive blasting and painting within temporary enclosures around the work site. The details will be further refined as plans become more developed.