Proposed Section 61 Finding

In accordance with the requirements of the Massachusetts Environmental Policy Act (MEPA), this Proposed Section 61 Finding describes the environmental impacts for the Silver Line Phase III Project, based upon the evaluation and determination of the impacts on the environment presented in this Supplemental Draft Environmental Impact Statement/Supplemental Environmental Impact Report (SDEIS/SEIR). As required by the statute, the Proposed Section 61 Finding details the measures that the Massachusetts Bay Transportation Authority (MBTA) will implement to avoid, minimize, and mitigate impacts and prevent environmental damage from the Silver Line Phase III Project.

Subsequent to the Secretary's determination that the SEIR is adequate, the final Section 61 Finding will be adopted by the MBTA and filed with the Secretary of Environmental Affairs. The MBTA and other state agencies may not take any final agency action on this project until the Final Section 61 Finding has been adopted.

1. Introduction

The Silver Line is a bus rapid transit (BRT) project comprised of two formerly separate MBTA projects: the South Boston Piers Transitway (EOEA #6826 -- now Silver Line Phase II), and the Washington Street Replacement Transit Service (EOEA #11707 -- now Silver Line Phase I). The Silver Line Phase III project involves the construction of a tunnel between the South Station starting point of Phase II (the first element of the Transitway project), and the Phase I corridor service currently in operation along Washington Street between Dudley Station and Downtown Crossing. By integrating these previously separate planning and project development efforts into the Silver Line, the MBTA is improving the service it will provide and is creating substantial new opportunities for people living in the Lower Roxbury and South End neighborhoods (as well as improved service for the Back Bay and Chinatown neighborhoods) to access the downtown financial district, new development in the South Boston waterfront area, including the Boston Convention and Exhibition Center (BCEC), and Logan International Airport.

These Section 61 Findings for the proposed Silver Line Phase III Project have been prepared to comply with the requirements of Massachusetts General Laws, Chapter 30, Section 61. The statute requires state agencies and authorities to review, evaluate and determine the impacts on the environment of all projects or activities requiring funding, permits, or other actions by the state, and to issue findings describing the environmental impacts, if any, and certifying that all feasible measures have been taken by the project proponent to avoid these impacts, or, to the extent they cannot be avoided, to minimize and mitigate the impacts to the maximum extent practicable. As described below, the MBTA has reviewed the environmental effects of the proposed Silver Line Phase III Project. Following that review, the MBTA finds below that all feasible measures have been taken first to avoid, and then to minimize and mitigate those effects to the maximum extent practicable.

2. Phase III Project Description

The Silver Line Phase III project involves the construction of a tunnel between South Station, the current starting point for the Phase II service to the South Boston waterfront area and residential areas, and the Phase I service currently in operation along Washington Street between Dudley Station and downtown. The MBTA has identified a core tunnel segment (“Core Tunnel Segment”) for Silver Line Phase III that follows an alignment along Essex and Boylston Streets, with two new Silver Line stations at Boylston Street (connecting to the Green Line) and at Chinatown (connecting to the Orange Line). In the SDEIS/SEIR the MBTA has analyzed alternative alignments for the tunnel connection from the Core Segment to the portal that will provide access to the Phase I Washington Street service.

The Core Tunnel Segment is substantially similar to the project that was reviewed in the prior
The SDEIS/SEIR has analyzed the following portal alignment alternatives, in response to criteria that include satisfying the project purpose and need; reducing environmental impacts; meeting project standards for design, construction, and operational concerns; and cost-effectiveness:

- Tremont Street alignment to a New England Medical Center (NEMC) Portal
- Charles Street alignment to a NEMC Portal
- Stuart Street alignment to a NEMC Portal
- Columbus Avenue alignment and portal

3. History of MEPA Review for Silver Line and predecessor projects

This section summarizes the prior history of MEPA review for Phases I and II (and their predecessors), as well as for Phase III.

- Transitway, Environmental Notification Form (ENF). An ENF for public transit service alternatives serving the South Boston Piers area was prepared by the MBTA and submitted for EOEA review in November 1987. The Secretary's December 28, 1987 certificate on that ENF determined that an Environmental Impact Report (EIR) would be required.

- Transitway, Draft Environmental Impact Report (DEIR). A DEIR was submitted in September 1989. Five alternatives – including some that were developed in the feasibility study – were analyzed in the DEIR: No Action, Bus/Transportation System Management (TSM), At-Grade Light Rail, Elevated People Mover, Fort Point Channel Underground Transitway, and Red Line Loop. Based on analysis conducted for the DEIR, the Underground Transitway using either trackless trolleys or dual mode buses was designated as the locally preferred alternative.

- Transitway, Draft Environmental Impact Statement/Supplemental Draft Environmental Impact Report (DEIS/SDEIR). In August 1990, the Federal Transit Administration (FTA) approved the MBTA’s application to advance the South Boston Piers/Fort Point Channel Transit Project into the federal National Environmental Policy Act (NEPA) review process. Given the two years that had lapsed since publication of the DEIR, the MBTA and MEPA Unit agreed that the DEIS would also serve as a supplement to the earlier DEIR. The alternatives analyzed in the DEIS/SDEIR included a No Action Alternative, a Bus/TSM Alternative, and three termini options for the Underground Transitway Alternative advanced as part of the DEIR process. These termini options were a Full Build alignment extending from the existing Boylston Green Line Station to a new station at the World Trade Center in the Piers area; Minimum Operable Segment (MOS) 1, which extended from South Station to the Fan Pier; and MOS-2 extending from South Station to the World Trade Center. The FTA approved the DEIS/SDEIR in November 1992. On January 13, 1993, the Massachusetts Secretary of Environmental Affairs issued a Certificate finding the DEIS/SDEIR adequate and in compliance with the MEPA.

- Transitway Elements in C11A1: Environmental Assessment/Notice of Project Change. While work was proceeding on a Final Environmental Impact Statement/Final Environmental Impact Report, the opportunity arose to jointly construct portions of the
Transitway Project with the northbound Central Artery. Because the schedule for a joint Central Artery/Transitway construction package required plans, specifications, and estimates (PS&E) for the Transitway elements by July 31, 1993, an Environmental Assessment (EA) / Notice of Project Change (NPC) was submitted in April 1993. A Finding of No Significant Impact (FONSI) was received from the FTA on June 17, 1993, and a Phase I Waiver was received from EOEA on July 15, 1993.

**Transitway, Final Environmental Impact Statement/Final Environmental Impact Report (FEIS/FEIR).** The FEIS/FEIR for the Transitway Project was submitted in December 1993. The FEIS/FEIR responded to all comments received on the DEIS/SDEIR, and selected trackless trolleys as the vehicle technology for Transitway operation. The Secretary of the EOEA issued a Certificate on February 16, 1994 finding that the FEIS/FEIR for the entire Transitway adequately and properly complied with MEPA and its implementing regulations. On May 12, 1994, FTA issued its ROD for the Full Build Transitway Project, which completed the federal environmental review process for the Transitway.

**Transitway, Draft Section 61 Finding.** As directed by the Secretary of EOEA in the FEIS/FEIR Certificate, a Draft Section 61 Finding was prepared and circulated for public review, demonstrating that the MBTA had taken all feasible measures to avoid or minimize potential adverse impacts of the project. The Draft Section 61 Finding also addressed two issues that were left unresolved at the conclusion of the FEIS/FEIR: 1) whether to take or underpin the New England Seafood Center, and 2) the location of the Transitway maintenance facility. Comments received from reviewers were transmitted from the Secretary of EOEA to the MBTA in a letter dated November 30, 1994.

**Transitway, Final Section 61 Finding.** A Final Section 61 Finding was prepared, responding to all comments and recommendations received from the Secretary of EOEA. The filing of this finding on April 18, 1995 completed the state environmental review process for the Transitway Project.

**Transitway, Environmental Assessment/Notice of Project Change (EA/NPC) for Initial Vehicle Technology and Connector Road.** In February 1998, the MBTA issued an EA/NPC describing the environmental impacts and mitigation for a change in the vehicle technology to be operated as part of the first phase of the Transitway – proposed to be a dual mode vehicle, rather than the low-floor trackless trolley originally selected as part of the FEIS/FEIR process and for construction of a “Connector Road” from the Transitway portal at D Street to the Massport Haul Road.

**Washington Street / Silver Line Transit Service, Environmental Notification Form (ENF).** The MBTA issued an ENF on July 15, 1998 describing two phases of the Silver Line. Phase I would provide a surface transit connection along Washington Street between Dudley Square and Downtown Crossing. In Phase II, a tunnel and portal would be constructed to connect the Washington Street service to the South Boston Piers Transitway. On August 21, 1998, the Secretary of EOEA issued a certificate that allowed the MBTA to prepare a combined NPC to address issues raised in relation to both phases.

**Washington Street / Silver Line Transit Service and South Boston Piers Transitway, Notice of Project Change and Response to Comments (NPC).** In response to the August 1998 EOEA certificate, the MBTA issued a combined NPC document in May 1999, with the first part addressing the combined Silver Line, and the second part responding to comments on the February 1998 Transitway EA/NPC. On August 9, 1999, the Secretary of EOEA issued a certificate that concluded MEPA
review of the Phase I Washington Street Service. The certificate also required the MBTA to prepare annual informational updates on the Silver Line (see further discussion below).

- **Silver Line, Environmental Assessment/Notice of Project Change (EA/NPC) for Maintenance Facility on Southampton Street.** In April 2001, the MBTA issued an EA/NPC describing the environmental impacts of siting the maintenance facility at a new location on Southampton Street, rather than in the South Boston Waterfront neighborhood, as described in the FEIS/FEIR. A certificate on the EA/NPC was issued on May 25, 2001 in which the Secretary determined that no further environmental review of the facility at the Southampton Street location was required.

- **Silver Line Phase III, Notice of Project Change (NPC).** In June 2004, the MBTA filed an NPC proposing modifications to the Phase III segment connecting Phases I and II of the Silver Line. This NPC proposed realignment of Phase III from the originally approved alignment along Essex, Avenue de Lafayette, and Avery Streets, to one that extends from South Station to Boylston Station along Essex and Boylston Streets (the Core Tunnel Segment). Alternative alignment and portal options to connect to Phase I service in operation on Washington Street also were presented. On August 23, 2004, the Secretary of EOEA issued a certificate requiring the MBTA to prepare a Supplemental Environmental Impact Report (SEIR). Concurrent with the filing of the NPC, a Notice of Intent to prepare a Supplemental Environmental Impact Statement (SDEIS) for Phase III was published in the Federal Register by the FTA. The SDEIS/EIR has been prepared as one combined document to satisfy both federal and state requirements.

- **Silver Line Phase III, Supplemental Draft Environmental Impact Statement / Environmental Impact Report (SDEIS/EIR).** In [date] the MBTA submitted the SDEIS/EIR for an extended 60-day public review and comment period. Following the close of that review, the MBTA anticipates that EOEA will issue its certificate on the adequacy of the documents for MEPA purposes. Once MEPA review is complete, the MBTA will adopt its final Section 61 Finding. Separately, the MBTA anticipates submitting the Supplemental Final EIS for NEPA review, followed by adoption of the ROD for Silver Line Phase III by FTA.

4. **Related Phase III Permits and Approvals**

The Silver Line Phase III Project will require permits and approvals from several city, state, and federal agencies. The table below lists the permits and approvals that are anticipated.

Construction Dewatering NPDES Permit (a continuation or amendment of the existing permit used for Silver Line Phase II -- see discussion at Section 6.8.3)
- Construction period stormwater NPDES
- Boston Water and Sewer Commission discharge permit
- Article 97 Approval for parkland use

5. **Overview of Long-term Phase III Project Impacts**

Based on the analysis contained in the SDEIS/EIR, the following sections describe, by type of effect, the principal environmental impacts anticipated for the proposed Silver Line Phase III Project and the strategies to be employed to minimize or mitigate for those impacts.

The Silver Line Phase III Core Tunnel Segment and alignment alternatives have been planned to minimize impacts by providing a tunnel design that is within the right-of-way of major streets. Given that the major portion of the alignment for any of the Build Alternatives is underground in a
tunnel, there are relatively few long-term impacts associated with any of the Build Alternatives. Impacts are predominantly associated with the proposed portal locations (NEMC or Columbus Avenue), where the tunnel alignment interfaces with the surface. Standard, careful construction practices will be used for all work on this project and, when combined with the specific mitigation measures listed below, will limit both short- and long-term environmental effects. Section 6 summarizes the construction phase impacts. Section 7 summarizes measures to be taken by the MBTA to mitigate both long-term and construction period impacts.

5.1 Long-term Impacts of the Core Tunnel Segment

The Core Tunnel Segment, which is common to all Build Alternatives, is a modification of the previously approved full build Transitway alignment. It would result in minimal long-term impacts, since most of the structures (tunnels and stations) are located entirely underground within existing street rights-of-way. Since Silver Line operations within the Core Tunnel Segment will be entirely underground, there are no permanent traffic impacts associated with this segment. Rather, enhancement of the transportation infrastructure will provide a benefit to the existing and future land uses in the corridor, by increasing transportation access and mode choice.

The potential for impacts for the Core Tunnel Segment is largely associated with those project elements that interface with the surface at station areas: the structures associated with passenger access, emergency egress and ventilation. By relocating the turnaround loop to the intersection of Boylston and Charles Streets, the Core Tunnel Segment avoids the extensive construction on and under the Boston Common that would have been required under the 1993 Transitway FEIS/EIR alignment. This modification is consistent with the intent of Section 4(f) to minimize harm to cultural resources and public parks. A Programmatic Agreement (PA) will be executed by the MBTA and FTA with the Massachusetts Historical Commission (MHC), the Boston Landmarks Commission (BLC), and the Advisory Council on Historic Preservation to further define the process for addressing potential impacts on historic and archaeological resources. The MBTA will work with the MHC, BLC, and Boston Parks and Recreation Department as the design progresses to ensure compatibility of Silver Line elements with the cultural resources in the corridor. The PA will also address the accessibility and fire code requirements related to the existing Green Line station area on the Boston Common. These alterations to the Green Line for the purposes of Americans with Disabilities Act (ADA) and National Fire Protection Association (NFPA) compliance are identical in all alternatives. No alternative results in different or greater impacts on the Boston Common.

5.2 Long-term Impacts of Portal Alignment Alternatives

As with the Core Tunnel Segment, each of the portal alignment alternatives would for the most part result in minimal long-term impacts, since the tunnels are located entirely underground within existing street rights-of-way (except for the end of the Charles Street alignment). Permanent impacts would be largely confined to traffic and pedestrian impacts resulting from surface BRT travel between the selected Phase III portal and the Phase I Washington Street service corridor. Other issues of concern include noise and vibration and groundwater.

Traffic and Pedestrian Safety—NEMC Portal

Traffic impact analysis indicates that the Silver Line Phase III project would have a negligible impact to travel times, capacity and congestion within the Washington Street corridor in the NEMC portal area, which is associated with the Tremont, Charles and Stuart Street Alternatives. If the NEMC Portal is selected, a dedicated 11-foot left-turn lane would be provided along Washington Street for the Silver Line vehicle to facilitate access to the portal. This left-turn would be integrated in the Washington Street design in order to avoid the blockage of the Emergency Entrance to NEMC at Nassau Street. The project design would incorporate measures to improve pedestrian safety. Sidewalks on the west side of Washington Street in the vicinity of the portal would be widened, and improvements such as pavement markings, bollards, signs, and audible
warning devices such as those used on parking garage exits would be installed in the vicinity of the portal driveway to enhance pedestrian safety.

**Traffic and Pedestrian Safety—Columbus Avenue Portal**

The Columbus Avenue portal is associated with the Columbus Avenue Alternative. Implementation of this Build Alternative would result in the elimination of the westbound travel lanes on Columbus Avenue between Arlington and Berkeley Streets. Inbound Silver Line vehicles originating in Dudley would use East Berkeley and Berkeley Streets to access the portal. Outbound Dudley service would use Berkeley, Stuart, Arlington and Herald Streets to access Washington Street. Inbound Back Bay service would use Columbus Avenue to access the portal; the outbound service would use Berkeley Street and St. James Avenue to initiate the outbound Back Bay route.

Area intersections affected by this alternative would still continue to operate at or near the same Levels of Service (LOS) as they would under the 2013 No-Build condition, while some intersections improve. The project would provide an opportunity to improve pedestrian and vehicular safety at the Arlington / Stuart / Columbus intersection, through roadway layout and signal phasing improvements. The location of the portal on Columbus Avenue and the proposed Phase III operations are not anticipated to substantially affect operations at the Boston Fire Department station located on the corner of Columbus Avenue and Isabella Street. The current fire pre-empt signal would be modified to ensure that fire trucks can effectively exit the station and travel in both directions on Columbus Avenue.

**Noise and Vibration**

Silver Line Phase III will operate rubber-tired vehicles, with the majority of the vehicles operating in the Core Tunnel Segment. The noise analysis conducted in accordance with the FTA *Transit Noise and Vibration Assessment Manual* indicates that, based on FTA noise criteria, there would be no impact to the noise-sensitive receptors during operation of Silver Line Phase III. No vibration impacts are anticipated from operation of the project, based on the FTA's Vibration Screening Procedure.

**Groundwater**

The MBTA will install observation wells along the selected portal alignment to provide a means to collect groundwater data before and during construction and to monitor groundwater levels on a regular basis after construction has been completed. The MBTA will coordinate with the Boston Groundwater Trust on the location of the monitoring wells. Upon completion of the project, the MBTA will turn over control of the wells to the Trust.

The tunnel will be designed and constructed to eliminate any free water leakage and to minimize and mitigate seepage to the maximum extent feasible. Typical post-construction seepage rates through tunnel walls are projected at approximately 1 gallon per minute per 1,000 linear feet of tunnel. Three general waterproofing methods will be used to minimize and mitigate seepage: waterproofing membrane around mined tunnels, waterproofing membranes for tunnel slabs and roofs in slurry wall sections, with grouting if needed in the slurry walls; and, special detailing at the connection of mined tunnels to tunnels constructed inside slurry walls (cut-and-cover sections). Based on these proposed design and construction methods, no significant permanent groundwater impacts are anticipated from Phase III.

6. **Overview of Construction Period Phase III Project Impacts**

The tunnel design for all Build Alternatives has been developed to avoid and minimize impacts during construction to the greatest extent feasible. The tunnels will be located within roadway
rights-of-way below ground, and in some cases will be stacked to avoid adjacent structures and buildings. For the most part, construction of any of the Silver Line Phase III Build Alternatives would result in similar temporary impacts, to be mitigated through implementation of a comprehensive Construction Management Plan.

6.1 Construction Period Impacts of the Core Tunnel Segment

The Core Tunnel Segment would be mined except for the station areas, and a section on Essex Street adjacent to the Phase II tunnel in Atlantic Avenue. Cut-and-cover sections will be stabilized with slurry walls, and covered over with decking to minimize impacts on the surface. Access will be maintained to business and residential buildings at all times. A Construction Management Plan will be developed that will address all aspects of construction including potential impacts and mitigation commitments.

6.2 Construction Period Impacts of Portal Alignment Alternatives

Construction of the selected portal alignment alternative would be subject to the Phase III construction management plan, and the PA for historic resources. Cut-and-cover sections will be stabilized with slurry walls, and covered over with decking to minimize impacts on the surface. Access will be maintained to business and residential buildings at all times. As described below, there is the potential for more significant traffic, community, and historic resource impacts associated with construction of the Tremont and Stuart Street alternatives, because of the greater degree of cut-and-cover versus mined construction. The Charles Street Alternative would have greater construction period impacts on parkland than the other alternatives. There are no differential construction period impacts associated with the Columbus Avenue alternative.

Tremont and Stuart Street Alternatives

These alternatives cannot be mined due to the presence of the abandoned Tremont Street Subway Tunnel Extension, and therefore must be constructed by the cut-and-cover method. The existing tunnel is unsuitable for reuse for the Silver Line since it is too shallow to meet the proposed Silver Line Boylston and Chinatown Station elevations. Therefore this tunnel, which is eligible for listing on the National Register of Historic Places, would need to be demolished before the new Phase III tunnels could be constructed. In addition, the 600 KV line within the existing tunnel that supplies power to the Green Line would need to be relocated prior to any demolition of the tunnel. The Charles Street Alternative would also involve demolition of the southern end of the Tremont Street Tunnel Extension.

Tremont Street is a southbound arterial through the heart of Boston’s Theatre District. Cut-and-cover construction will require the closure of the parking lane on each side of Tremont Street and one travel lane, while maintaining two travel lanes at all times. This would cause significant disruption to traffic during the construction phase. Evening and nighttime construction is typically used to minimize this type of disruption. However, this approach could not be effectively used here, since much of the activity of the theaters along Tremont Street occurs during the evening hours. The cut-and-cover construction and demolition of the tunnel would also increase the potential for noise impacts until such time as the cut-and-cover area was decked over, as well as vibration impacts as a result of tunnel demolition.

Charles Street Alternative

The Charles Street Alternative would be mined from the turnaround loop to Elliot Norton Park. Cut-and-cover construction through Elliot Norton Park for the Charles Street alignment would require that the park be entirely closed during the construction period, and then rebuilt after construction has been completed. Noise impacts would be expected at historic residential structures on Lyndeboro Place that are in close proximity to the proposed tunnel alignment. As a
mitigation measure, a 12-foot high opaque privacy screen, designed to attenuate dust, noise and views of construction, would be erected.

**Columbus Avenue Alternative**

The Columbus Avenue Alternative would be mined from the turnaround loop to the end of Statler Park, east of Arlington Street. Cut-and-cover construction would occur through the Arlington Street intersection to the portal. Construction would be staged to maintain traffic flow through the intersection. Once the slurry walls were in place, decking would be installed to maintain traffic flow and minimize noise impacts from construction.

7. Phase III Mitigation Summary

The MBTA is committed to providing mitigation, where practicable, to mitigate or compensate for unavoidable impacts. This section summarizes the MBTA's mitigation commitments, as described in the SDEIS/EIR that are proposed to offset the permanent and construction-period environmental impacts of the Silver Line Phase III Build Alternatives. Further specific mitigation measures, and an implementation schedule, will be determined and designed during subsequent design process.

**Land Takings and Displacements**

Acquisitions of all real property and easements would be completed in accordance with applicable provisions of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and Part 24 of 49 CFR, as well as M.G.L. Chapter 79A and implementing regulations. All property owners would receive “just compensation” for an easement or fee acquisition of their property. The measure of just compensation is the fair market value of the property acquired at the time just prior to the taking. Any occupant found to be in place at the time of the acquisition would be considered eligible for relocation assistance in accordance with this Act. Relocation assistance measures include relocation advisory services and payments for moving and relocation costs. Relocation measures would be available to all business relocations without discrimination.

If the NEMC Portal is selected, no mitigation is required for the taking of the parking spaces at the Auto Parks Parking Lot because it is leased from the Boston Redevelopment Authority (BRA), pending future development of the parcel. The BRA would be compensated for the property acquisition as stated above. The NEMC portal would not preclude future air-rights development above the portal by the BRA. MBTA would work with Doubletree Hotel to reconfigure parking on the parcel to replace the 14 spaces lost, or provide replacement parking in nearby facilities.

If the Columbus Portal is selected, access to off-street parking and loading docks from Columbus Avenue for the Salvation Army Headquarters Building (155 Columbus Avenue) and Benjamin Franklin Smith Printers (147 Columbus Avenue) would be replaced with a new access from Stuart Street. The one-story building at 320 Stuart Street would be removed to create an access to allow vehicles to enter the Salvation Army parking lot or to access delivery sites from Stuart Street. The proposed mitigation would allow for redevelopment of the parcel over the access drives.

**Vehicular Traffic**

Mitigation measures for permanent impacts are summarized here; mitigation measures for construction period impacts on vehicular traffic and pedestrians will be addressed as part of the Phase III Construction Management Plan.

If the NEMC Portal is selected, an exclusive left-turn lane for Silver Line vehicles would be provided on Washington Street to manage access to the portal. Sidewalk and pedestrian safety
measures would be installed in the vicinity of the portal.

If the Columbus Portal is selected, proposed intersection improvements at the Arlington / Columbus / Stuart intersection would improve LOS and also improve traffic and pedestrian safety. To ensure Boston Fire Department access at Columbus Avenue, the current fire pre-empt signal operation would be modified to ensure that fire trucks can effectively exit the station and travel in both directions on Columbus Avenue (westbound fire trucks will be allowed to utilize the available bus lanes).

**Pedestrian, Transit and Bicycle**

If the NEMC Portal is selected, pavement markings, bollards, signs, lighting and audible warnings would combine to mitigate risks to pedestrians from transit operations. Sidewalks on the west side of Washington Street in the vicinity of the portal driveway opening would be widened to 16 feet or more, and a parking lane would be removed to increase pedestrian safety. A pedestrian crosswalk would be located at the portal entrance (west side of Washington Street) in order to facilitate pedestrian movement to and from the Silver Line station location within the portal. Improvements to the crosswalk in front of the NEMC parking garage ramps would increase pedestrian safety. The roadway in front of the portal and parking garage exits could also be equipped with traffic calming features with the objective of encouraging lower vehicle speeds. Traffic calming features would be designed around the needs of emergency vehicles. An existing, non-accessible pedestrian path connecting Tremont Street to Washington Street through existing parking lots would be replaced with an accessible and lighted path along the side of the NEMC Parking Garage.

If the Columbus Portal is selected, improvements to the intersection and four street corners of the Columbus Avenue/Berkeley Street intersection would be installed to create a pedestrian-friendly environment. Contrasting pavements would be used through the intersection as a traffic calming measure and to increase driver awareness. Where Silver Line bus stops would be located on three of the four legs of the intersection, well-designed crosswalks, properly timed pedestrian signals, and clear signing would be installed for pedestrian safety and mobility.

**Noise and Vibration**

No long-term noise or vibration impacts are anticipated; therefore no mitigation would be required. Construction period impacts would be addressed through the Construction Management Plan.

**Geology and Groundwater**

To address potential groundwater issues, designers will install observation wells along the proposed alignment and at other selected locations near the alignment. These locations will be determined in coordination with Boston Groundwater Trust. These wells will provide a means to collect groundwater data before and during construction and to monitor groundwater levels on a regular basis after construction has been completed. In addition, the design and construction will avoid any free water leakage and minimize seepage to the maximum extent feasible. Three general waterproofing methods will be used to mitigate seepage: waterproofing membrane around mined tunnels, waterproofing membranes for tunnel slabs and roofs in slurry wall sections, with grouting if needed in the slurry walls; and special detailing at the connection of mined tunnels to tunnels constructed inside slurry walls (cut-and cover-sections).

**Water Quality**

Stormwater runoff from the boat ramp section of the portal would be intercepted prior to the tunnel, routed through a deep-sump catch basin, and then discharged to the City of Boston’s
storm sewer system. Best Management Practices (BMPs) as required by the Boston Water and Sewer Commission (BWSC) for street-maintenance activities, including street sweeping and cleaning of catch basins, would be employed to minimize any potential water quality impacts associated with the runoff. In addition, a drainage system would be constructed within the tunnel to capture any potential intermittent flows generated from such sources as tunnel structure seepage, vehicle drippings, tunnel washing operations, and so forth.

Cultural Resources

The MBTA will work with MHC, BLC, and Boston Parks and Recreation Department to develop a process to ensure compatibility of Silver Line elements with the cultural resources in the corridor through design and construction. This process will be spelled out in the PA signed by all parties. The PA will also address the accessibility and fire code requirements related to the existing Green Line station area on the Boston Common. A Project Conservator will monitor mitigation measures for protecting historic and archaeological resources during construction, in accordance with the PA.

For aboveground historical resources, survey and National Register evaluation of any additional properties that appear to be more than 50 years old and that have not been surveyed, as well as National Register evaluation of the previously surveyed historic resources, will be conducted under the PA for the Preferred Alternative alignment corridor.

For archaeological resources, additional research will be conducted under the PA to determine the precise vertical depth of archaeologically sensitive strata within the Silver Line Phase III Preferred Alternative. This research will include a review of all soil borings conducted for the project, current underground utility locations, and street widening plans and profiles. The additional research and any subsequent subsurface testing will be conducted under an archaeological permit issued by the State Archaeologist as part of an intensive (locational) survey.

This intensive survey will be coordinated with the State Historic Preservation Officer (SHPO), FTA, and MBTA and undertaken in accordance with the standards of MHC, the State Archaeologist’s permit regulations, the Secretary of the Interior’s Standards and Guidelines for Identification, and the National Park Service guidelines for assessing eligibility for listing in the National Register. If additional resources identified are determined eligible for listing in the National Register, the SHPO will be consulted to determine where any project effects can be prudently or feasibly avoided, minimized, or mitigated. The findings of the above ground and archeological evaluations of the Preferred Alternative will be presented in the SFEIS, and the Section 4(f) statement will be circulated with the SFEIS.

Parklands

As described above, the MBTA will work with MHC, BLC, and Boston Parks and Recreation Department to develop the design of surface elements in Boston Common required by the Core Tunnel Segment and the associated upgrading of the Green Line station in a manner compatible with the historic character of the resource. To further reduce visual impacts on the Common, the MBTA, in conjunction with the BLC, will seek approval from the Massachusetts Department of Public Safety to allow the use of a pop-up hatch for emergency egress, in place of the open stairwells that are currently proposed. Other than the proposed structures on Boston Common, there would be no long-term impacts to parklands associated with any alternative; therefore, no other mitigation is proposed.

The construction staging plan currently calls for the construction period use of a portion of the Boston Common. There would also be potential construction impacts to Elliot Norton Park caused by the Charles Alternative, which would be entirely mitigated. Once construction was complete, all parklands affected by construction period impacts would be restored to their original
condition, with the possibility of additional improvements to their design, landscaping, and facilities.

**Visual and Aesthetics**

In addition to the design of structures on the Boston Common discussed above, the visual impacts of free-standing structures, catenary and parapet walls associated with the portal at NEMC or Columbus Avenue would be mitigated through careful attention to architectural design, detailing, materials, security and placement relative to adjacent views and structures.

**Safety and Security**

Specific safety and security standards will be incorporated into tunnel and station design which promote the safe movement of passengers through the system. Existing MBTA safety practices and procedures would also be implemented to ensure the safety of employees and patrons in stations and on vehicles.

**Construction Management**

A Construction Management Plan will be developed to address all aspects of construction including potential traffic, noise, and vibration impacts and mitigation strategies. The MBTA will employ a Community Liaison and institute a proactive strategy of building and maintaining ongoing dialogue between the Community Liaison and impacted residents that will ensure that construction-related issues are efficiently addressed. A multi-tiered community involvement plan will be implemented to provide the best possible experience for each impacted residential community and business. This plan will include working with the City of Boston Transportation Department to prepare a comprehensive Construction Management Plan; coordination with the Boston Groundwater Trust; meeting with affected businesses, residents, and institutions in advance of construction to discuss the likely impacts and to obtain feedback and respond to questions and concerns generated by the impacted parties; and providing access to the Community Liaison to respond to questions and concerns. Mitigation requirements will be written into construction contracts. Construction mitigation measures include:

- A Utilities Support, Protection and Relocation plan will be prepared to address subsurface utilities;
- A Traffic Management Plan will be prepared in collaboration with the Boston Transportation Department to identify detours and lane closings;
- A Soils Management Plan will be developed to establish procedures for characterizing, reusing, and disposing soils;
- Measures to minimize construction noise and vibration to the extent possible;
- Impacted parklands will be restored, at a minimum, to their present day condition;
- Impacts to historic and archaeological resources will be minimized and monitored throughout construction in accordance with the PA;
- A program will be established to monitor movements in adjacent structures and provide corrective action;
- A Project Conservator will monitor implementation of mitigation measures for protecting historic and archaeological resources during construction, in accordance with the PA;
• Construction vehicles will have emission-reducing control devices in accordance with the Massachusetts Department of Environmental Protection’s (DEP) Clean Construction Initiative; and

• A rodent control plan will be developed.

In addition, construction of the Silver Line Phase III will be controlled by the MBTA contract specifications and will comply with all local, state and federal standards. These specifications will include provisions to protect abutters and adjacent communities from impacts anticipated during construction.

Through the Silver Line Communications and Community Development Office (SLCO), the Community Liaison will inform nearby residents and businesses on construction progress and activities as well as to advise the MBTA on community concerns throughout the construction period. More specifically, the SLCO and Community Liaison would:

• Continue to coordinate the community participation process;

• Coordinate with residential communities on plans for Silver Line construction, including construction techniques, schedules, and anticipated impacts;

• Respond to community concerns both before and during construction activities; and

• Develop a mitigation package to minimize serious financial impacts and logistical disruptions impacting the operations of these businesses. Potential strategies include:
  o Meeting with businesses once construction staging areas are selected to determine their access needs and integrating these requirements into the construction plan;
  o Briefing area businesses on the construction management and traffic management plans developed to minimize street level impacts; and
  o Providing an information package to each business owner with pertinent information, names and contact of construction representatives and utility companies to contact in case of an emergency.

8. Silver Line Annual Updates

As noted in Section 3 above, the 1999 NPC Certificate required the MBTA to revise and expand the Section 61 Finding for the Transitway, issued in April 1995, to cover the impacts and mitigation commitments for the full Silver Line project. In addition, the Secretary directed that informational updates to this finding be prepared and circulated for public comment annually. Seven issues to be addressed in the revised Section 61 Finding and annual informational updates were also identified by the Secretary:

• Ridership estimates for the full Silver Line, as well as for each individual first phase component.

• Manufacturer’s design and performance standard for the dual mode vehicle to be used in Phases II and III, and for the clean fuel vehicle used in Phase I service on Washington Street.

• Discussion of the consistency of the vehicle types and performance with any applicable EPA policy and guidelines.
Operations plan for the Silver Line, including full details of coordination with AITC service.
Revised station design for Boylston Station, showing continuation of tunnel.
Final tunnel portal and station design at New England Medical Center, including below-grade connection to Orange Line station, if feasible.
Details of federal funding submission for Silver Line Phase III, and schedule of final design and construction.

In accordance with the Secretary's Certificate, the MBTA has submitted for public review and comment the following four informational Annual Updates on the progress of the Silver Line. The MBTA has incorporated by reference all applicable mitigation commitments described in the Annual Updates and relating to Phases I and II of the Silver Line.

- **Silver Line, 1st Annual Update.** The first Annual Update was filed in April 2001 and described progress made to date on the development of new ridership estimates for the full Silver Line; manufacturer’s design and performance standard of the dual mode vehicle to be used in the Phase II Silver Line as well as the compressed natural gas (CNG) vehicles to be used on the Phase I Washington Street section of the Silver Line; a discussion of the consistency of the vehicle types and performances with any applicable EPA policies and guidelines; and, operations plans of the Silver Line, including the coordination with AITC service to Logan Airport.

- **Silver Line, 2nd Annual Update.** A 2nd Annual Update was filed in October 2002 describing the status of the Silver Line project. This update documented progress made on issues discussed in the previous Annual Update, and reported on the status of Boylston Station design and the tunnel connection from South Station; tunnel portal and station design at New England Medical Center; and the federal funding process. In addition, the 2nd Annual Update documented the establishment of the South Boston Waterfront Transit Advisory Committee, charged with the responsibility of providing input to the MBTA on Silver Line operating plans; the need for a revised opening year operating plan for Phase II service; and a change in the Phase III tunnel alignment between South Station and Boylston Station, with a continuation to New England Medical Center to provide an operational connection with Phase I service. The update also contained an NPC related to the use of dredged contaminated sediment from the Transitway immersed tube tunnel in the Fort Point Channel. Finally, responses to comments received on three previous Silver Line environmental documents were provided: the South Boston Piers Area Transitway Peer Review Final Report, the 1st Annual Update, and the EA/NPC for the Southampton Street maintenance facility.

- **Silver Line, 3rd Annual Update.** A third Annual Update was filed in December 2003. The document focused on a summary evaluation of alignment alternatives under consideration for the Phase III segment of the Silver Line, as well as an informational update on Phases I and II. This document also provided responses to comments submitted on the 2nd Annual Update.

- **Silver Line, 4th Annual Update.** A fourth Annual Update was filed in February 2005. The document was limited in scope to an informational update and response to comments submitted on the 3rd Annual Update with respect to Phases I and II (since comments and outstanding issues relating to Phase III would be addressed in the forthcoming SDEIS/EIR).
9. Findings

The MBTA finds, as required by Massachusetts General Laws, Chapter 30, Section 61, that all feasible measures have been taken to avoid the environmental impacts of the Silver Line Phase III Project, and to avoid any outstanding environmental impacts of Phases I and II of the Silver Line Project required to be addressed by the Secretary’s 1999 NPC Certificate, or, to the extent that such impacts cannot be avoided, to minimize and mitigate those impacts to the maximum extent practicable.