2. Mitigation and Draft Section 61 Findings

2.1 Introduction

The Massachusetts Environmental Policy Act (MEPA) regulations at 301 CMR 11.07(j) outline mitigation measures to be addressed in the Environmental Impact Report (EIR) process, including an "assessment of physical, biological and chemical measures and management techniques designed to limit negative environmental impacts or to cause positive environmental impacts during development and operation of a Project." The Secretary of the Executive Office of Energy and Environmental Affairs' (EEA) Certificate on the Draft Supplemental EIR (DSEIR) for the South Coast Rail (SCR) Project (the Project) included requirements for the scope of the Draft Supplemental EIR (DSEIR) required that this document provide a mitigation chapter that:

- Includes an updated and revised chapter that summarizes mitigation measures associated with Phase 1 including a summary table of all mitigation commitments.
- Includes proposed mitigation measures for Phase 1, contains clear commitments to implement mitigation measures, estimates of the individual costs of each proposed measure, identifies the parties responsible for implementation, and contains as schedule for implementation.
- Notes any changes to mitigation and/or draft Section 61 findings since issuance of the Certificate on the DSEIR.

This chapter provides the requested information.

2.2 Proposed Section 61 Findings

Massachusetts General Law Chapter 30, Section 61 authorizes state agencies with permitting responsibilities to make an official determination regarding potential impacts from a proposed project and whether impacts have been avoided, minimized, and/or mitigated for appropriately. The Law requires agencies/authorities to issue a determination that includes a finding describing the environmental impact, if any, of the project and whether all feasible measures have been taken to avoid or minimize said impact. Changes to the draft Section 61 Findings are limited to specific provisions for Threatened and Endangered Species protection and are shown in bold in the summary and Table 2-2.

This section provides a brief overview of the proposed SCR Project and the Phase 1 Project; explains the history of the MEPA review process for the Project; outlines required state and federal permits and their authorities; summarizes mitigation commitments for permanent and construction-related impacts; and provides draft Section 61 determination language for state agencies.

2.2.1 Project Description

The Commonwealth of Massachusetts is committed to moving forward with the SCR Project and to doing so in a manner that provides long-awaited commuter rail service for the South Coast region as soon as possible. For this reason, MassDOT is proceeding with permitting and early actions on the Stoughton Straight Electric Alternative already reviewed under MEPA while also proposing to adopt a phased approach that will provide service years before revenue service is possible at Full Build. MassDOT has advanced the option of an interim service extending to both New Bedford and Fall River using the existing Middleborough Main Line, while work simultaneously proceeds to design, permit and fund the Full Build Project. Phase 1 (the Phase 1 Project) will provide service from New Bedford, Fall River and Taunton to Boston using the existing Middleborough Secondary Line and the existing Middleborough Main Line.

The majority of the Phase 1 corridor will consist of the Southern Triangle, which has already been reviewed as part of the FEIS/FEIR. The Southern Triangle extends from Cotley Junction in Taunton to Fall River (using the Fall River Secondary Line) and to New Bedford (using the New Bedford Main Line). The Southern Triangle is an existing active freight rail corridor, and the Project will improve the track infrastructure and add stations and overnight layover facilities for commuter rail service. The new element to be included in the Phase 1 Service is the use of the Middleborough Secondary to connect to the Middleborough Main Line.

The DSEIR analyzed new elements being proposed as part of Phase 1 (new Phase 1 elements), which include:

- Improvements to track infrastructure on the Middleborough Secondary, an active freight line;
- A new station at Pilgrim Junction in Middleborough;
- A new station in East Taunton south of Cotley Junction; and
- Modifications to previously studied stations at Freetown and Fall River.

2.2.2 History of MEPA Review

The SCR Project has been extensively studied in different configurations for over 25 years. In 2002, a FEIR, prepared by the Massachusetts Bay Transportation Authority (MBTA), concluded that the Stoughton Alternative was the most practicable and feasible of the alternatives and identified it as the preferred route. On August 30, 2002, the MEPA Secretary of Environmental Affairs (now the Secretary of Energy and Environmental Affairs) issued a Final Certificate (Executive Office of Environmental Affairs [EOEA] File # 10509) stating that the FEIS/FEIR adequately and properly complied with MEPA and its implementing regulations. The Certificate authorized MassDOT to proceed with planning for the SCR Project as an extension of the existing Stoughton Line. However, further planning was delayed until April 2007, when the Commonwealth of Massachusetts released *South Coast Rail: A Plan for*

Action, and the Project became a priority transportation initiative for the Commonwealth under the Patrick Administration.

For the Project to proceed to construction it will be necessary for MassDOT to obtain a permit for the discharge of dredged or fill material in waters of the United States under Section 404 of the Clean Water Act from the U.S. Army Corps of Engineers (USACE). This requires the USACE to conduct a federal environmental review in accordance with the National Environmental Policy Act (NEPA). The USACE and MEPA agreed to coordinate the environmental review for the Project. As the lead federal agency for the environmental review pursuant to NEPA, the USACE prepared a federal Environmental Impact Statement (EIS), which MassDOT reviewed and adopted as its state-required EIR.

The coordinated environmental review process began with a joint federal/state scoping process. Key milestones included:

- MassDOT, as the lead state agency, submitted an Environmental Notification Form (ENF) to EEA on November 15, 2008 for public review under MEPA, concurrent with the USACE's public scoping process under NEPA.
- The Secretary of EEA reviewed the Project (EEA No. 14346) and issued a Certificate on the ENF, with a Scope for the Draft EIR (DEIR), on April 3, 2009.
- A combined DEIS/DEIR was filed with the MEPA Office on March 15, 2011, and the Secretary issued a Certificate on the DEIR, with a Scope for the FEIS/FEIR, on June 29, 2011.
- The FEIS/FEIR was released in September 2013. The Secretary issued a Final Certificate in November 2013, indicating that the FEIR adequately and properly complied with MEPA and its implementing regulations and that the Project could proceed to permitting, thus completing the MEPA process.

To date, the USACE has not issued the Record of Decision needed to complete the NEPA process for the Full Build. USACE will be conducting additional NEPA review of Phase 1 as part of its Section 404 process.

Since the 2013 FEIS/FEIR, MassDOT has advanced the design of the Project, and determined that the timeline for implementing service was significantly longer than originally anticipated and, in fact, extended out several years beyond the previously produced schedule. MassDOT also determined that the cost of the Project was substantially greater than previously anticipated. MassDOT believes that service to the South Coast communities is critical, and such a delay (anticipated to be constructed no sooner than 2030) is not ideal. Therefore, MassDOT has adopted a phased approach to the Project. In accordance with 310 CMR 11.00, MassDOT filed a NPC on March 15, 2017 describing the phased approach to Project implementation. A Certificate was issued on May 26, 2017, with a scope for a DSEIR limited to an analysis of the proposed changes associated with Phase 1 of the Project. According to the Certificate, upon review of the DSEIR, the Secretary may determine that no substantive issues remain to be addressed and that the document shall be reviewed as a FSEIR, or that the Proponent

must file a Response to Comments on the DSEIR and Proposed Section 61 Findings, which shall be reviewed as the FSEIR.

On March 30, 2018 the Secretary issued a certificate in the DSEIR indicating that the document adequately and properly complies with MEPA and its implementing regulations and that MassDOT must provide a Responses to Comments on the DSEIR and provide updated draft Section 61 Findings.

2.2.3 Related Permits and Approvals

The FEIS/FEIR provided a detailed discussion of permits required to construct the Project. Phase 1 will require the agency permits and approvals listed in **Table 2-1.** Permits for the remainder of the SCR Project (Full Build) will be deferred.

Table 2-1 State and Federal Permits and Clearances

Permit	Phase 1	Full Build (Post Phase 1)
Wetland Protection Act Orders of Conditions	Middleborough Lakeville Raynham Taunton Berkley Freetown Fall River New Bedford	Canton Stoughton Easton Raynham Taunton Berkley Lakeville Freetown Fall River New Bedford
Section 401 Water Quality Certification	Individual WQC required for State of Good Repair Project Individual WQC for Phase 1 Infrastructure	Required
Section 404 Clean Water Act	Required	Required
Chapter 91 Licenses	Required (Weaver's Cove Layover only)	Required
Massachusetts Coastal Zone Management Consistency Determination	No additional consistency determination	No additional consistency determination
Conservation and Management Permit	Required	Required

Table 2-1 State and Federal Permits and Clearances

Permit	Phase 1	Full Build (Post Phase 1)
MEPA Clearance	Required for new Phase 1 elements (Middleborough Secondary, new stations)	Issued in 2013
NEPA Clearance	Required for USACE Section 404 Permit	Required for USACE Section 404 Permit

The on-going MassDOT State of Good Repair program will require Water Quality Certification, a Section 404 Permit (anticipated under the Massachusetts General Permit), and a "no-take" determination under the Massachusetts Endangered Species Act. These permits are being undertaken as part of the SGR program and schedule.

2.2.4 Draft Section 61 Findings

Proposed Section 61 Findings for the Project have been prepared by MassDOT to comply with the requirements of Massachusetts General Laws, Chapter 30, Section 61, and MEPA regulations at 301 CMR 11.07(6)(k), which require state agencies and authorities to review, evaluate, and determine the impacts on the natural environment of all projects or activities requiring permits issued by the state. State agencies are also asked to issue findings describing environmental impacts and to certify that all feasible measures have been taken by MassDOT to avoid or minimize these impacts. Revised Section 61 Findings will be required from agencies with responsibilities for issuing the following permits for work associated with Phase 1 as described in this DSEIR and the FEIS/FEIR, and from MassDOT for funding for construction. These permits include:

- Wetlands Protection Act Orders of Conditions (if a Superseding Order is required);
- Chapter 91 License (Weaver's Cove Layover Facility); and
- Massachusetts Endangered Species Act Conservation and Management Permit.
- 401 Water Quality Certification

The italicized text in the following paragraphs is a proposed Section 61 Finding by MassDOT that extends to cover all potential impacts of the Project.

Project Name: *South Coast Rail Phase 1*
Project Location: *Fall River/New Bedford to Boston*
Project Proponent: *Massachusetts Department of Transportation*
EOEA Number: *14346*

The potential environmental impacts of the project have been characterized and quantified in the DSEIR, which is incorporated by reference into this Section 61 Finding. Throughout the planning and environmental review process, MassDOT has been working to develop measures to mitigate significant impacts of the proposed project. With the mitigation proposed and carried out in cooperation with state agencies, [Agency] finds that there are no significant unmitigated impacts.

MassDOT has prepared a table of Proposed Mitigation Commitments (Table 2-2 of the FSEIR) that specifies, for both temporary and permanent impacts, the mitigation that MassDOT will provide.

Therefore, [Agency] having reviewed the MEPA filings for the South Coast Rail Project, including the mitigation measures summarized in Chapter 2 of the FSEIR finds pursuant to M.G.L. C. 30, §61, that, with the implementation of these mitigation measures, all practicable and feasible means and measures will have been taken to avoid or minimize potential damage from the project to the environment. In making this finding, [Agency] has considered reasonably foreseeable climate change impacts, including additional greenhouse gas emissions, and effects, such as predicted sea level rise.

2.3 Avoidance and Minimization

As described throughout the DSEIR, measures have been identified to avoid and minimize impacts, while meeting the transportation purpose and need of the Project.

Each element of Phase 1 has been designed by MassDOT to avoid impacts to environmental and social resources. Each element was developed to maximize the use of existing transportation infrastructure corridors, thereby avoiding or minimizing impacts to undeveloped lands and natural resources. The Project used an iterative process of identifying sites for potential stations that sought to avoid impacts to wetlands, threatened and endangered species habitat, water resources, Areas of Critical Environmental Concern and open space, as well as to residential areas and businesses. Single track, with passing sidings as needed, will be employed to reduce wetland impacts. Stations have been designed to minimize traffic impacts, and to minimize land acquisitions.

MassDOT anticipates that additional measures to minimize unavoidable impacts will be undertaken during the preliminary and final design stages through (among other elements) the refined grading design of tracks and roadways, station layout, and the design of bridges and culverts.

2.4 Updated Summary of Mitigation Commitments

The following sections provide an overview of the conceptual mitigation measures that will mature into more specific, implementation-oriented mitigation measures during final design and permitting. The mitigation measures that MassDOT and MBTA have committed to related to the content of this FSEIR are listed in Table 2-2. The mitigation requirements of the Secretary's Certificate on the 2011 DEIR that apply to previously-studied aspects of the Project were provided in the 2013 FEIS/FEIR and are summarized in Table 2-2.

2.4.1 Land Alteration

The Project has been designed to eliminate, minimize and/or mitigate potential impacts of land alteration to the extent practicable by:

- Selecting locations for new Project elements that are on previously developed lands and lands that are adjacent or proximate to the existing freight line;
- Designing the stations to comply with the Massachusetts Stormwater Standards; and
- Implementing erosion and sedimentation controls during construction.

2.4.2 Environmental Justice

No mitigation for environmental justice communities is required for Phase 1 because there are no disproportionate adverse impacts to environmental justice communities. Phased service will benefit all environmental justice communities previously identified and evaluated in the FEIS/FEIR because it provides passenger rail service to the South Coast earlier than the Full Build South Coast Rail Project.

2.4.3 Traffic and Transportation

Intersection and roadway operations at each of the municipalities impacted by Phase 1 will be mitigated as follows:

Middleborough

- Complete a road safety audit (RSA) at the intersection of Route 105/Route 28 and implement recommended improvements;
- Modify traffic signal timing/phasing at Route 105/Route 28, including providing adequate pedestrian crossing times;
- Modify traffic signal timing/phasing at Route 105/I-495 northbound. Provide new crosswalk across Route 105;
- Install high-visibility materials, advanced signage, and flashing beacon warning devices at the existing unsignalized crosswalks across Route 28 at West Street and at Elm Street; and
- Modify the traffic signal timing at Route 105/Route 79/Commercial Street.

Taunton

- Install new traffic signal at Route 140/Industrial Drive;
- Install pre-signals at the Route 140 grade crossing;
- Restripe Route 140 southbound between Industrial Drive and Route 24 southbound; and

- Modify traffic signal timings/phasing at Route 140 with Mozzone Boulevard and with Route 24 southbound ramps to provide preemption phasing during gate closure.

Freetown

- Install advanced warning signage along South Main Street and at Freetown Station driveway; and
- Install dynamic messages signing along approach where sight distance is deficient.

Fall River

- Widen North Main Street on both approaches to President Avenue;
- Update traffic signal timing/phasing at North Main Street/President Avenue and increase pedestrian crossing time; and
- Increase the pedestrian crossing time at North Davol Street/President Avenue.

Construction Period Impacts

Each municipality is expected to experience limited traffic impacts associated with construction of stations and parking. Temporary construction impacts include construction related traffic and potentially minor traffic disruptions during the construction or upgrading of station driveways. These impacts are expected to terminate when construction is complete. The Project will work with the agency or municipality that has jurisdiction over the roadway (as well as public safety officials from each municipality) during the development of temporary traffic control plans. Construction is proposed to take place during off-peak traffic periods to minimize impacts to the traveling public. With respect to grade crossing improvements, at this stage of design, no detours are anticipated given the proposed improvements. If detours are found necessary as design progresses, the Project will coordinate with appropriate state and local officials.

2.4.4 Air Quality and Greenhouse Gas Emissions

The results of the mesoscale air quality analysis of the Phase 1 stations demonstrate that all the pollutant concentrations will be below the National Ambient Air Quality Standards (NAAQS), therefore no mitigation is required.

The microscale analysis evaluated the potential for impact of motor vehicles and train locomotives on hotspot locations around the grade crossings and proposed stations under worst-case scenarios in association with Phase 1. The analysis demonstrates that operations will comply with federal and Massachusetts ambient air quality regulations, therefore no mitigation is required.

Since the Project will not increase greenhouse gas (GHG) emissions, further mitigation measures are not required by the MEPA GHG Policy. However, as part of the Phase 1 Service, the Project will further reduce GHG emissions by:

- Installing electric vehicle charging equipment in commuter rail station parking lots; and
- Utilizing light emitting diode (LED) technology for lighting at the commuter rail stations to further reduce the minimal electricity consumption.

To reduce criteria pollutants and GHG emissions from temporary construction activities, construction contractors will be contractually required to adhere to all applicable regulations regarding control of construction vehicles emissions. MBTA construction contractors will:

- Be required to maintain in a state of good repair all motor vehicles, machinery, and equipment associated with construction activities;
- Prohibit excessive idling of construction equipment engines in compliance with 310 CMR 7.11, including posting of on-site signage;
- Specify that all diesel construction equipment used on-site will be fitted with after-engine emission controls such as diesel oxidation catalysts (DOCs) or diesel particulate filters (DPFs);
- Be required to utilize ultra-low sulfur diesel fuel for all off-road construction vehicles as an additional measure to reduce air emissions from construction activities;
- Implement protective measures around the construction and demolition work to protect pedestrians and prevent dust and debris from leaving the site or entering the surrounding community;
- Mitigate wind erosion to open soil areas by requiring spraying with water;
- Implement other dust control methods, such as wheel washing and avoiding dust-generating work on high wind days, to ensure minimization of the off-site transport of dust; and
- Regularly sweep adjacent roadway surfaces during the construction period to minimize airborne dust and particulate matter from vehicular traffic.

2.4.5 Climate Change

For Phase 1, Project designers are analyzing all Project components in terms of their vulnerability to the climate change impacts associated with heat and flooding based on the following procedure:

1. Refer to projected future climate conditions scenario;
2. Identify exposure to climate change impacts;
3. Identify sensitivity to changing climate conditions;
4. Consider the component's adaptive capacity based on the component's useful life; and

5. Choose appropriate design solution(s).

Potential design solutions for mitigating and adapting to potential climate-related impacts may include, but are not limited to:

- Reducing runoff from impervious surfaces;
- Appropriately sizing drainage structures;
- Consider movable and/or permanent barriers to protect vulnerable portions of rail lines;
- Design new/replacement culverts to stream crossing standards;
- Raise electrical components above future flood elevations;
- Design station shelters and landscaping to maximize shade and reduce heat gain;
- Periodically monitor effectiveness of current rail-neutral temperatures; and
- Explore potential use of off-grid renewable energy for back-up power generation at station sites.

In addition, Phase 1 will help improve the SCR Project's future flexibility and adaptive capacity by providing an alternate route that will continue to connect the South Coast to Metro Boston in the case of an emergency that renders the Stoughton Line temporarily inoperable in some areas.

2.4.6 Wetlands, Water Quality and Waterways

Wetlands and Floodplains

Mitigation will be provided in each community where unavoidable permanent wetland impacts are proposed, with the goal of providing an adequate area of mitigation on-site and in-kind to offset the lost functions and values, in accordance with the Wetlands Protection Act (WPA) regulations (310 CMR 10.00), as follows:

- Mitigation for impacted Bordering Vegetated Wetland (BVW) will be located in the same watershed, and support the same habitat type, hydrological regime, ecological functions, and other key characteristic as the impacted resource area;
- Mitigation will be provided at a minimum impact-to-mitigation ratio of 1:1 for all proposed permanent BVW impacts at one location within each municipality; and
- Bordering Land Subject to Flooding (BLSF) mitigation, which will be provided at a 1:1 ratio to supply compensatory flood storage for any flood storage lost due to fill required, would be designed to provide sufficient flood storage volume incrementally equal to the theoretical volume of flood water at each elevation, up to and including the 100-year flood elevation, that would be displaced by the proposed fill. All BLSF mitigation will occur within the same floodplain as the impact.

Mitigation for wetland resources subject to federal jurisdiction will be provided in addition to the mitigation developed for WPA impacts to meet the requirements for each wetland cover type impacted, as follows:

- Mitigation will be in-kind with respect to the cover type of the impacted wetlands, within the same watershed, and of sufficient area to offset the functions and values of the impacted resources; and
- Where compliance with USACE mitigation guidance ratios would require additional mitigation over and above WPA required mitigation, an In-Lieu Fee (ILF) Agreement will be established in accordance with USACE procedures.

Surface and Groundwater Resources

Impacts to surface and groundwater resources are not anticipated. The following Best Management Practices (BMP) will be employed to ensure protection of Water Quality through construction and operation of the system:

- Sediment forebays will be constructed to remove suspended solids and reduce other contaminants, such as hydrocarbons and grease, that may be present as a result of spills, drips, or exhaust due to the train traffic on the rails.
- A Stormwater Pollution Prevention Plan (SWPPP) will be developed during final design that will identify BMPs that will be used to protect receiving waters from sediment discharges during the construction period.
- New and reconstructed swales within the rail corridor will include water quality features such as check dams, sediment forebays, and outlet protection stone to reduce erosion and the concentration of total suspended solids (TSS) in runoff from the Project Area.
- The MBTA will adhere to the approved Vegetation Management Plan (VMP), as implemented through its Yearly Operating Plans (YOPs), which restricts the use of herbicides in areas adjacent to wetlands or sensitive resources such as public or private drinking water supplies.
- Areas subject to heavy vehicular use will be treated as Land Uses with Higher Potential Pollutant Loads (LUHPPLs) under the Stormwater Management Standards.
- In compliance with the Clean Water Act, Section 303 (d), and the Massachusetts Surface Water Quality Standards (314 CMR 4.00), all Project elements will be constructed to prevent the release of sanitary sewage into receiving waters, which is the major source of bacteria and other pathogens that are the cause of the impairment under *Final Pathogen TMDL for the Taunton River Watershed*. Infiltration practices are proposed at the Freetown and Fall River stations to treat stormwater through infiltration to the underlying soils and promote groundwater recharge. These BMPs will help minimize bacteria loading from ambient sources such as birds and other wildlife.

- In compliance with the Safe Drinking Water Act, the stormwater management system at Pilgrim Junction Station, which is within Zone II to a municipal groundwater well, will be designed with additional pre-treatment.
- In compliance with the Massachusetts Groundwater Quality Standards (314 CMR 6.00), the Project includes stormwater BMPs designed to promote recharge of groundwater to the maximum extent practicable. Pretreatment of runoff prior to recharge will ensure that groundwater quality is not impacted by the Project.

Stormwater and Water Quality

The Project has been designed to comply with Section 402 of the Clean Water Act and the Massachusetts Stormwater Management Standards and Guidelines. The Project will:

- Implement stormwater improvements at Pilgrim Junction, East Taunton, Freetown, and Fall River Depot Stations as described in Section 8.4.5 of the DSEIR, including:
    - Design BMPs in accordance with Massachusetts Department of Environmental Protection (MassDEP) guidance for stormwater management;
    - Comply with MassDEP's Total Maximum Daily Loads (TMDL) for the Taunton River;
    - Mitigate for the increase in peak flow rate and required recharge and water quality volumes associated with an increase in impervious area; and
    - Perform geotechnical investigations at each site to obtain the necessary information to determine final BMP locations and designs as Project design progresses.
- Implement stormwater improvements along the Middleborough Secondary as described in Section 8.4.5 of the DSEIR, including:
    - Reconstruct existing drainage features; and
    - Design drainage systems to collect and convey runoff from the 50-year storm.
- Obtain authorization to discharge stormwater during construction under the National Pollutant Discharge Elimination System (NPDES) program General Permit for Construction Activities; and
- Draft and implement a SWPPP in compliance with the NPDES General Permit for Construction Activities.

Waterways

The new Phase 1 elements described in the DSEIR do not include any impacts to areas subject to MGL Chapter 91, and therefore do not require any related mitigation.

2.4.7 Biodiversity and Wildlife Habitat

Mitigation for impacts to regulated resources such as wetlands, waterways, and threatened and endangered species will incorporate measures to protect and enhance the biodiversity of these resources. Mitigation for temporary and permanent impacts to protected species will comply with the requirements of the Conservation and Management Permit. Detailed site-specific, species-specific mitigation measures will be developed in the permit process in consultation with NHESP. These measures will include:

- Installing barriers to exclude turtle species from the work zones;
- Implementing a construction-period turtle protection plan;
- Implementing a construction-period rare plant protection plan;
- Installing between-the-ties wildlife crossings;
- Monitoring and maintaining between-the-ties wildlife crossings post-construction;
- Restoring vegetation to areas of temporary disturbance within turtle habitat zones;
- Implementing a post-construction invasive species control plan in areas near rare plant populations;
- Restricting herbicide use in areas near rare plant populations; and
- Providing funding to the Eastern Box Turtle Mitigation Bank.

Additional measures to protect fisheries and the Northern Long-eared bat during construction will include:

- Adhering to tree removal time-of-year (TOY) restrictions related to Northern Long-eared Bat; and
- Adhering to TOY restrictions for anadromous and catadromous fish for culvert and bridge replacements.

2.4.8 Noise and Vibration

Noise

The MBTA is committed to providing noise mitigation for the locations that meet or exceed the Severe Noise Impact Level due to train pass-by. As the Project advances into final design, the MBTA will evaluate the severe impact locations to determine if a noise barrier would be safe, maintainable, constructible, acoustically effective and cost-effective. Where noise barriers are not safe, maintainable, constructible, acoustically effective or cost-effective by the standard of the MBTA noise mitigation policy, the MBTA will consider providing funding for building soundproofing enhancements.

Specific noise mitigation measures may include:

- Replacing windows or installing sound insulation in affected residential structures;
- Erecting reduced-height noise barriers or similar measures on a property with a sensitive receptor;
- Constructing full-height noise barriers in areas of impact; and
- Installing automated wayside horns at crossings as a substitute for train horns.

Vibration

Mitigation of adverse vibration effects at sensitive locations may include the following common options, which will be considered as design progresses:

- Install resilient rail fasteners between the rails and the ties to reduce vibration by five to 10 VdB at frequencies above 30 to 40 Hz;
- Place ballast mats in the trackform between the ballast and the sub-grade or ground to reduce vibration levels by as much as 10 to 15 VdB at frequencies above 25 Hz;
- Use Tire Derived Aggregate to provide track vibration isolation;
- Install resiliently supported concrete ties to reduce vibration by up to 10 VdB at frequencies above 15 Hz;
- Use special hardware (i.e., flange-bearing or moveable-point frogs in place of standard rigid frogs), or relocate special trackwork away from sensitive areas, and use continuous welded rail (CWR) rather than jointed rail; and
- Establish a maintenance program for controlling vibration, which may include maintaining a proper wheel/rail profile, minimizing the number and extent of wheel flats, and minimizing potential rail corrugation.

Detailed vibration data will be available during the advanced engineering phase of the Project to verify the need for vibration mitigation and to implement effective solutions.

Temporary Construction Period Impacts

MassDOT will make every reasonable attempt to minimize construction noise and vibration impacts by employing the following strategies as appropriate:

- Use construction equipment that generates lower vibration levels, such as vibratory pile driving or using smaller excavation equipment, when in close proximity to sensitive buildings;

- Incorporate noise guidelines into construction documents, such as a construction noise and vibration control plan, that conform to local by-laws and ordinances, and state and federal regulations and standards;
- Review specific noise control measures during advanced engineering design and incorporate into the construction permitting process;
- Enforce noise specifications through a program of field inspection and compliance review;
- Under special track reconstruction circumstances, where road or rail traffic interruptions are typically minimized during the normal workday, resulting in night work, schedule unusually noisy activities during daytime hours to minimize noise impacts to residential areas; and
- Under special circumstances, when night work related to station construction may occur, schedule unusually noisy activities during daytime hours to minimize noise impacts to residential areas.

2.4.9 Cultural Resources

MassDOT will work with USACE, the Massachusetts Historical Commission (MHC), and other Section 106 parties to update the draft Programmatic Agreement (PA), which was developed as part of the review of the Full Build Project, to accurately reflect the conditions and effects of Phase 1. Adverse Effects documents prepared in support of the PA will outline the mitigation approaches that will be taken for each historic property and district. The Adverse Effects documents are referred to as Mitigation Plans, commonly called Treatment Plans for above-ground historic properties and Data Recovery Plans for archaeological resources. The mitigation plans will be developed after all stages of intensive survey and National Register evaluations are complete, and the results of the investigations have been reviewed and approved by federal and state agencies as stipulated in the PA.

Potential approaches to mitigation may include:

- Develop and implement a Cultural Resource Monitoring Program;
- Install interpretive signage;
- Reduce visual impacts to historic properties through vegetative screening and compatible lighting and materials;
- Locate staging areas away from identified cultural resources.
- Prepare archival documentation when impacts to historic properties/archaeological sites are unavoidable; and
- Explore Creative or Alternative Mitigation Strategies once impacts to archaeological sites are known.

2.4.10 Hazardous Materials

While constructions activities themselves are unlikely to result in the spill or release of Oil or Hazardous Materials (OHM), constructing the Project will require acquisition of properties where OHM may already be present in soils or groundwater, or in existing buildings, potentially under conditions that could constitute a prior release pursuant to the Massachusetts Contingency Plan (MCP). Following is a list of additional measures related to the handling and disposal of hazardous materials that may be required:

- Manage properties with confirmed OHM impacts and/or impacted groundwater in accordance with the MCP (310 CMR 40.0000), MassDEP policies and guidance, and any applicable federal regulations;
- If required, retain a Licensed Site Professional (LSP) to verify if notification is required, further assess and manage the site, direct response actions, and specify procedures for work performed in the contaminated areas, such as soil excavation, in accordance with the MCP and, if need be, to render appropriate opinions;
- Conduct a pre-characterization of soils prior to excavation, and prepare a Soil Management Plan if necessary;
- Test structures to be demolished for hazardous materials and remove in accordance with state regulations;
- Reuse non-contaminated building materials as appropriate;
- Manage and dispose of used railroad ties in accordance with applicable regulations; and
- Ensure compliance with Occupational Safety and Health Administration (OSHA) procedures.

2.4.11 MassDOT Mitigation Commitments Table

Permanent impacts resulting from the construction of the South Coast Rail Project would be mitigated as described in Section 2.3 and summarized in Table 2-2. Due to ongoing planning and design of mitigation measures, the exact cost of each commitment is not included at this time. Unless otherwise noted, mitigation commitments below are the responsibility of MassDOT and MBTA. Where applicable, other responsible parties are noted in bold text. Changes to mitigation commitments since the issuance of the Certificate on the DSEIR are noted in italics.

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
Land Alteration	Site Project elements on previously developed lands to minimize new disturbance.	During design
	Design stations to comply with the Massachusetts Stormwater Standards.	During design
	Implement erosion and sedimentation controls during construction.	During construction
Environmental Justice	No mitigation required.	N/A
Traffic and Transportation	Modify traffic and pedestrian signal timing/phasing (Middleborough, Taunton, Fall River).	During design
	Complete RSA (Middleborough).	During design
	Restripe pedestrian and vehicular ROW elements (Middleborough, Taunton).	During construction
	Install new traffic signal (Taunton).	During construction
	Install grade crossing safety improvements (Middleborough, Taunton, Freetown).	During construction
	Provide approach warning signage (Freetown).	During construction
	Install signal interconnect infrastructure between Mount Pleasant Street and Church Street (King's Highway, New Bedford).	During construction
	Revise signal phasing and timings (Mount Pleasant Street at Jones Road/King's Highway, New Bedford).	During construction
	Improve signal equipment, phasing and timing to provide concurrent pedestrian crossing (King's Highway at Shaw's Drive, New Bedford).	During construction
	Pre-empt grade crossing signals. Reconfigure Stop & Shop Drive to accommodate diverted Tarkiln Hill Road traffic (King's Highway at Stop & Shop Drive, New Bedford).	During construction
	Pre-empt grade crossing signal. Revise signal timing, including longer pedestrian timings (Tarkiln Hill Road at Church Street, New Bedford).	During construction
	Improve crosswalks and pedestrian ramps (Acushnet Avenue at Hillman Street, New Bedford).	During construction
	Construct approximately 300 feet of sidewalk along east side of Acushnet Avenue (New Bedford).	During construction
	Revise signal timing, including longer pedestrian timings (Mill Street at Pleasant Street and Kempton Street, New Bedford).	During construction

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	Install traffic signal (Coggeshell Street at North Front Street, New Bedford).	During construction
	Construct approximately 1,600 feet of sidewalk along the east side of South Main Street (Freetown).	During construction
	Improve crosswalks and pedestrian ramps (South Main Street at Narrows Road, Freetown).	During construction
	Improve crosswalks and pedestrian ramps (South Main Street at Copicut Street, Freetown).	During construction
	Widen North Main Street to provide an exclusive northbound and southbound left-turn lane. Modify traffic signal phasing to provide a westbound lead phase and exclusive pedestrian phase (North Main Street at President Avenue, Fall River).	During construction
	Improve pedestrian timing (President Avenue at N. Davol Street, Fall River).	During construction
	Remove vegetation at all grade crossings to improve sight distance.	During construction
	Coordinate with local emergency service providers regarding grade crossing design.	*During design*
Air Quality	Adhere to all applicable regulations for control of construction vehicle emissions.	During construction
	Prohibit excessive idling of construction equipment engines in compliance with 310 CMR 7.11, including posting of on-site signage.	During construction
	Ensure all diesel construction equipment used on-site is fitted with after-engine emission controls such as DOCs or DPFs.	During construction
	Utilize ultra-low sulfur diesel fuel for all off-road construction vehicles.	During construction
	Implement protective measures around the construction and demolition work to protect pedestrians and minimize off-site dust transport.	During construction
	Mitigate wind erosion and implement dust suppression methods.	During construction
	Conduct regular sweeping to minimize vehicular airborne dust and particulate matter.	During construction
	Consult with the Massachusetts Department of Energy Resources, Division of Green Communities to develop a joint approach to promote energy efficiency and greenhouse gas reductions in South Coast Rail communities.	During design

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	Use plug-ins and electric block heaters at rail layover facilities.	During construction and operation
Greenhouse Gas	Install electric vehicle charging equipment at stations.	During construction
	Utilize LED technology for station lighting.	During design
Climate Change	Follow vulnerability identification procedure.	During design
	Prevent/reduce impacts of flooding by reducing runoff from impervious surfaces; appropriately size drainage structures; consider flood barriers in vulnerable locations; and raise electrical components above future flood elevations.	During design
	Protect equipment and passengers from increased heat by designing station shelters and landscaping to maximize shade and reduce heat gain; monitor effectiveness of current rail-neutral temperatures; and explore potential use of off-grid renewable energy for back-up power generation at stations.	During design
Wetlands and Floodplains	Minimize impacts through design revisions; provide 1:1 Wetland Mitigation to meet WPA requirements; and provide additional mitigation to meet USACE Guidelines.	During design
	Monitor compensatory wetlands for success and invasive plant species, and implement an Invasive Species Control Plan during a post-construction monitoring period as required by the Section 404 permit.	5-10-year post-construction monitoring period
	Implement erosion and sedimentation control measures according to a Soil Erosion and Sediment Control Plan.	*During construction*
Surface and Groundwater Resources	Construct sediment forebays to remove suspended solids and reduce other contaminants.	During construction
	Develop a SWPPP that identifies construction-period BMPs.	Prior to construction
	Include water quality features in new and reconstructed swales to reduce erosion and TSS concentration in runoff.	During design
	Adhere to the approved VMP and YOPs.	Post construction
	Treat LUHPPLs in accordance with the Stormwater Management Standards.	During design
	Comply with the Clean Water Act by choosing BMPs that meet the TMDL for the Taunton River Watershed.	During design

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	Comply with the Safe Drinking Water Act by designing the stormwater management system at Pilgrim Junction Station with additional pre-treatment.	During design
	Comply with the Massachusetts Groundwater Quality Standards by choosing BMPs designed to promote groundwater recharge and avoid impacts to groundwater quality.	During design
Stormwater and Water Quality	Implement stormwater improvements at Pilgrim Junction, East Taunton, Freetown, and Fall River Depot Stations.	During construction
	Implement trackside stormwater improvements.	During construction
	Obtain authorization to discharge stormwater during construction under the NPDES program General Permit for Construction Activities.	Prior to construction
	Draft and implement a SWPPP in compliance with the NPDES General Permit for Construction Activities.	Prior to construction
	Improve railroad drainage system to promote settling and infiltration.	During construction
	Install sediment forebays and check dams upgradient of discharge points.	During construction
	Design and install stormwater management systems at layover facilities to meet stormwater management standards for LUHPPLs.	During design and construction
	Adhere to the approved Vegetation Management Plan, as implemented with MassDOT's Yearly Operating Plans, which restrict the use of herbicides in areas adjacent to wetlands or sensitive resources.	During operation
	Develop and implement a comprehensive Soil Erosion and Sediment Control Plan in accordance with NPDES and MassDEP standards	During construction
	Apply water to dry soil to prevent dust production.	During construction
	Stabilize any highly erosive soils with erosion control blankets and other stabilization methods, as necessary.	During construction
	Use sediment control methods (such as silt fences and hay bales), during excavation to prevent silt and sediment entering the stormwater system and waterways.	During construction
	Maintain equipment to prevent oil and fuel leaks.	During construction
	Design a construction-phase SWPPP that incorporates the following: • *Erosion and sediment controls* • *Spill control procedures* • *Proper handling of dewatering discharges*	*During construction*

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
Biodiversity and Rare Species	Develop detailed site-specific, species-specific mitigation measures via consultations with NHESP.	During design
	Mitigate for 6.27 acres of impact to eastern box turtle habitat by funding the Eastern Box Turtle Mitigation Bank at an amount to at an amount to be determined by NHESP.	*Prior to construction*
	Avoid impacts to rare species by locating stations outside of Priority Habitat; keeping tracks and culverts within their existing footprints; and avoiding tree removal TOYs related to the Northern Long-Eared Bat.	During design
	Minimize impacts to rare species habitat by using single track along the Middleborough Secondary; modifying culverts to allow through-movement; adjusting grading and using retaining walls to reduce habitat loss; replanting disturbed areas; and implementing an invasive species control plan.	During design
	Mitigate temporary construction impacts by implementing erosion and sedimentation controls; installing turtle barriers; complying with TOY restrictions; and employing rare plant protections.	During construction
	Where possible when engineering constraints and hydrology are taken into consideration, replace bridges and culverts that connect areas of high biodiversity with structures that meet Massachusetts River and Stream Crossing Standards to facilitate fish and wildlife passage through the rail bed.	During construction
	Replant disturbed areas.	During construction
	Install wildlife crossings (tunnel and between-tie crossings) to maintain population continuity for state-listed wildlife, at locations approved by NHESP.	During construction
Noise and Vibration	Where noise levels are projected to occur above the Severe Noise Impact Level, choose noise mitigation measures that are proportional to the level of impact over the threshold level and are safe, maintainable, constructible, acoustically effective and cost-effective.	During design
	Consider appropriate vibration mitigation measures at sensitive locations as design progresses.	During design
	Incorporate noise guidelines and construction noise and vibration control plans that conform to applicable regulations and standards into construction documents and permitting processes.	Prior to construction

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	During construction, use equipment that generates lower vibration levels when near sensitive buildings.	During construction
	Enforce noise specifications in the field.	During construction
	Schedule unusually noisy activities to avoid impacting sensitive receptors.	During construction
	Provide noise walls or other noise measures where sensitive land uses would be subject to Severe impacts (if cost-effective according to MBTA and FTA criteria; e.g., less than $30,000 per dwelling unit) at two locations along the alignment: • Murray Street Area, Fall River (Brightman Street to Cory Street) • Almay Street Area, Fall River (Cory Street to President Ave)	During construction
	Provide funding for building noise mitigation where sensitive land uses would experience severe impacts but walls are not cost-effective, at a rate of $5,000 per dwelling unit per decibel of noise impact above the Severe level, up to a maximum of $30,000 for: • 14 residences in Berkley • 8 residences in Lakeville • 25 residences in Freetown • 12 residences in New Bedford • 53 residences in Fall River	During construction
	Incorporate vibration mitigation measures into the design and operating plan, including continuously welded rail, ballast and sub-ballast depth specifications, turnout locations at least 100 feet away from sensitive receptors, and train and track maintenance (such as regular wheel re-truing) schedules.	During design
	Maintain mufflers on construction equipment.	During construction
	Keep truck idling to a minimum in accordance with MassDEP anti-idling regulations.	During construction
	Fit any air-powered construction equipment with pneumatic exhaust silencers.	During construction
	Prohibit nighttime construction.	During construction
Cultural Resources	Work with USACE, MHC, THPO, and other Section 106 parties to update the draft a Phase 1 Programmatic Agreement.	During design
	Conduct intensive archeological surveys.	During design

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	Develop Mitigation Plans after all stages of intensive survey and National Register evaluations are complete and the results of the investigations are reviewed and approved by federal and state agencies as stipulated in the PA.	Prior to construction
	Where impacts to historic resources are unavoidable, prepare archival documentation and provide interpretive signs that describe for the public the site's history, features, and significance.	During construction
	Develop and implement a Cultural Resource Monitoring Program.	During design and construction
	Develop a mitigation plan, in consultation with the USACE and MHC, to minimize adverse impacts to historic properties as identified in the Programmatic Agreement.	During design
	In areas where there is a potential for vibration damage to historic structures, inspect building foundations prior to construction and monitor foundations during construction.	During design and construction
	Use non-contrasting paints on fences, roadway equipment, and signal bungalows; locate signs and fixtures in a sensitive manner within and adjacent to historic properties.	During construction
	Within historic districts, reduce visual impacts by reducing clearing and using screening planting and landscaping.	During design
	Minimize number of lighting poles adjacent to historic properties; paint poles a non-contrasting color.	During design
Hazardous Materials	Manage existing contaminated sites pursuant to the MCP and other applicable regulations and policies.	During construction
	Retain a LSP if required.	During construction
	Conduct a pre-characterization of soils and prepare a Soil Management Plan if necessary.	Prior to construction
	Test structures for hazardous materials and remove in accordance with applicable regulations.	Prior to construction
	Manage and dispose of used railroad ties in accordance with applicable regulations.	During construction
	Ensure compliance with OSHA procedures.	During construction

Table 2-2 MassDOT Mitigation Commitments

Environmental Category	Mitigation Measure	Schedule
	Prepare Hazardous Materials and Solid Waste Management Plan, and Health and Safety Plan, to describe the regulatory context and procedures to be used during construction.	During design
Visual	Select station lighting fixtures, designs, and technologies that minimize night sky impacts.	During design
	Install station lighting that minimizes night-sky impacts.	During construction
	Design facilities and structures to blend with the surrounding landscape.	During design
	Install screening in selected locations.	During construction
	Avoid unnecessary tree clearing along rights-of-way.	*During construction*
Land Use	Implement the Smart Growth measures of the Corridor Plan as applicable in accordance with Executive Order (EO) 525.	Prior to, during, and after construction
	Provide incentives and guidance to municipalities for Smart Growth implementation. **Implementation Responsibility, see State agencies listed in EO 525.**	Prior to, during, and after construction
	Monitor Smart Growth implementation using approved performance metrics. **Implementation Responsibility, see State agencies listed in EO HED.**	Prior to, during, and after construction
	Consistent with the Secretary's Certificate on the SCR FEIS/FEIR, MassDOT will continue to provide funding of an average of $200,000 per year to the RPAs to provide technical assistance to South Coast communities for the next several years.	During design