



*The Commonwealth of Massachusetts*  
*Executive Office of Energy and Environmental Affairs*  
*100 Cambridge Street, Suite 900*  
*Boston, MA 02114*

Deval L. Patrick  
GOVERNOR

Timothy P. Murray  
LIEUTENANT GOVERNOR

Richard K. Sullivan Jr.  
SECRETARY

Tel: (617) 626-1000  
Fax: (617) 626-1181  
<http://www.mass.gov/envir>

June 29, 2011

CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS  
ON THE  
DRAFT ENVIRONMENTAL IMPACT REPORT/STATEMENT

PROJECT NAME : South Coast Rail Project  
PROJECT MUNICIPALITY : South Coast Region  
PROJECT WATERSHED : Buzzards Bay, Taunton River, Narragansett Bay,  
Mount Hope Bay, Neponset River, Ten Mile River,  
Boston Harbor, Charles River  
EEA NUMBER : 14346  
PROJECT PROPONENT : Massachusetts Department of Transportation  
DATE NOTICED IN MONITOR : March 23, 2011

Pursuant to the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and Section 11.07 of the MEPA regulations (301 CMR 11.00), I hereby determine that the Draft Environmental Impact Report/Statement (DEIR/S) submitted for this project **adequately and properly complies with MEPA**. The Proponent, the Massachusetts Department of Transportation (MassDOT) should submit a Final Environmental Impact Report (FEIR) in accordance with the Scope below. As was the case with the DEIR/S, MassDOT may adopt the Final Environmental Impact Statement (FEIS), which is being prepared by the U.S. Army Corps of Engineers, as its FEIR and submit a combined Final EIR/EIS for MEPA review, as long as the FEIS meets the Scope below.

The South Coast Rail project involves development of a public transit system to connect the cities of Fall River and New Bedford to Boston and to create regional transit interconnections among the south coast communities. Fall River and New Bedford are historically underserved areas with respect to public transportation options. This project is a priority transportation initiative of the Patrick Administration and is a component of MassDOT's efforts to increase transit access throughout the Commonwealth. In conjunction with the rail project, MassDOT together with the communities and regional planning agencies, have developed the South Coast

Rail Economic Development and Land Use Corridor Plan. This Corridor Plan aims to manage both the projected growth in the region under business as usual conditions and the induced growth associated with this project according to sustainable development principles.

As set forth in further detail herein, MassDOT has submitted a DEIR/S that comprehensively evaluates the relative benefits and impacts of this large-scale transportation infrastructure project. Amongst the project's benefits are improved access to transit and the corresponding traffic, safety, air quality, and greenhouse gas reduction benefits associated with increased use of public transit. The project also has significant potential to facilitate sustainable land use and development patterns and will service environmental justice communities. The proposed route does however involve substantial environmental impacts associated with alteration of wetlands and elimination or fragmentation of habitat (including rare species habitat and loss of biodiversity) as well as induced secondary growth and noise-related impacts, that will need to be evaluated closely in order to minimize impacts and to mitigate unavoidable impacts.

The purpose of the DEIR for any project is to provide sufficient information to allow the selection of a preferred alternative that will avoid, minimize and mitigate environmental impacts to the maximum extent feasible as required under MEPA. I have received numerous comments from public officials, state agencies, environmental advocates, local residents, and other members of the public concerning the selection of a preferred alternative that avoids impacts to the greatest degree. I thank the many parties who have provided comments on the DEIR/S and the many agencies that have participated in its development. In the case of this project, selecting a preferred alternative is a challenging task given the many trade-offs that must be made among legitimate environmental concerns and the balancing that must accompany evaluation of sometimes competing environmental goals and impacts. What must be accomplished through the MEPA process is a thorough vetting of the relative impacts and benefits of alternatives that will allow MassDOT as the project proponent, and the state permitting agencies to make an informed decision about which alternative strikes the most appropriate balance in view of MEPA's statutory directives.

Based on the record before me, and as set forth in greater detail in the following sections of this Certificate, I am satisfied that MassDOT has made the case for the Stoughton route to be brought forward as the preferred alternative in the FEIR. However, there is significant additional work that must be completed in the FEIR to allow the project to complete review under MEPA. The Scope set forth below outlines the outstanding issues that must be addressed, including the development of specific and detailed mitigation plans for unavoidable impacts.

MassDOT did not identify a preferred mode among the diesel and electric alternatives. However, because the electric option is preferable from an air quality perspective, the Stoughton Electric should be the focus of the FEIR.

### Background

MassDOT has defined the project purpose as to "more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, MA, and to enhance regional mobility, while supporting smart growth planning and development strategies

in the affected communities". The U.S. Army Corps of Engineers (Corps) uses a more narrow definition of project purpose, which does not include the smart growth aspect. The Corps overall project purpose is defined in the DEIR/S as "to more fully meet the existing and future need for public transportation between Fall River/New Bedford and Boston Massachusetts, and to enhance regional mobility". I believe the Corridor Plan component of the project has tremendous potential to influence development patterns in the South Coast region in a way that supports smart growth and environmental protection. This is a critical factor to consider in the context of MEPA review.

The proposed sixty-mile transit route follows existing freight lines from New Bedford/Fall River to Taunton, and involves construction of new tracks in the Pine Swamp in the Town of Raynham and the Hockomock Swamp in the Towns of Easton and Raynham. New track construction is proposed along an inactive Right-of-Way in the Pine Swamp and Hockomock Swamp that has been discontinued from rail use since 1958. The project has the potential to increase transit accessibility and ridership, improve regional air quality, and support opportunities for smart growth and sustainable development in the South Coast region, which includes thirty-one cities and towns. At the same time, the project has the potential to result in considerable impacts to natural resources and wildlife habitat of significant ecological value. Selection of a preferred alternative that balances the relative environmental benefits and negative impacts of this large-scale regional initiative is therefore a fundamental objective of this environmental review process.

In selecting among alternatives for this project, MassDOT has considered air quality, climate change, transit access, and public safety as well as wetland, rare species and biodiversity impacts in a DEIR to find a balanced preferred alternative. This balancing act is difficult given the myriad of sometimes competing concerns and will continue in the FEIR and the permitting process. The availability of convenient and reliable public transportation options is a crucial component of the Commonwealth's strategy for reducing greenhouse gas emissions and tackling the problem of global climate change. In addition, expanding transit options for commuters can help reduce congestion on roadways and thereby improve public safety, and provide other socio-economic benefits to Environmental Justice communities. However, the potential for significant environmental degradation and loss of habitat, as well as the national and regional significance of some areas that are at the heart of this environmental study, make it equally important that we give serious consideration to these issues during the environmental review and permitting process. The prospect of climate change further highlights the need for other adaptation strategies, which include protection of our most vulnerable and sensitive ecosystems.

An informed and objective alternatives analysis is at the heart of the MEPA process. Only in this way can a state agency meet its statutory obligations to take all feasible measures to avoid, minimize or mitigate damage to the environment. Numerous routing and mode options were evaluated in the Environmental Notification Form (ENF) for the project and then narrowed down to eight alternatives to be further evaluated in the DEIR. The alternatives evaluated in the DEIR/S include electric and diesel options for three rail routes; Attleboro, Stoughton, and Whittenton (a variant of the Stoughton route), as well as a Rapid Bus route, and a No-Build/Enhanced Bus scenario.

The DEIR/S presents a thorough and detailed comparison of the relative environmental impacts and benefits of the various alternatives, and identifies the Stoughton route as the preferred alternative. After thoroughly reviewing the DEIR/S and the comments received, I am satisfied that MassDOT has provided sufficient information for the purposes of MEPA review to demonstrate that the Attleboro alternative is not operationally feasible, and that both the Whittenton and Rapid Bus alternatives are less effective compared to the Stoughton alternative in meeting the project purpose. The analysis also demonstrates that the Rapid Bus alternative is not practicable because the Zipper lane on I-93 would fail by 2030 to provide a travel time benefit over auto use. Future traffic congestion would result in longer travel times from the South Coast Region to Boston resulting in lower bus ridership, increased vehicle miles traveled, and negative effects on air quality. Compared to the Stoughton route, the Whittenton alternative draws less ridership from the focus areas of Fall River and New Bedford. In addition, the Whittenton variation would result in disproportionate noise impacts to Environmental Justice communities in Taunton as well as public safety concerns due to the number of at-grade crossings required.

Therefore, on balance, I am satisfied that MassDOT has made the case for the Stoughton route to be brought forward as the preferred alternative in the FEIR, and I concur with many commenters who have indicated that from an air quality perspective, the electric option is preferable to diesel. The diesel alternative should be eliminated from further review and MassDOT should focus on the Stoughton Electric as the preferred feasible alternative for further analysis in the FEIR. However, I note that the Corps has not yet made its determination of the Least Environmentally Damaging Practicable Alternative (LEDPA) for the project. If the Corps selects a LEDPA other than the Stoughton Electric alternative, MassDOT should submit a Notice of Project Change (NPC) so that a revised Scope can be issued as appropriate for preparation of the FEIR and the continued coordination of state and federal environmental review.

### Project Description

As noted above, the purpose of the project as proposed by MassDOT is to more fully meet the existing and future demand for public transportation between Fall River/New Bedford and Boston, and to enhance regional mobility, while supporting smart growth planning and development strategies in affected communities.

The proposed Stoughton Electric rail will provide commuter service to South Station using the Northeast Corridor, Stoughton Line, New Bedford Main Line, and Fall River Secondary Line. The New Bedford to Boston route is 54.9 miles long and the Fall River to Boston route is 52.4 miles long. The project requires upgrades to track infrastructure along the existing Stoughton line including reconstruction of tracks from Canton Junction to Stoughton, construction of new tracks from Stoughton to Winter Street in Taunton, for a distance of 15 miles, on an abandoned right-of-way which crosses through the Hockomock Swamp and the Pine Swamp. Reconstruction of tracks is also proposed from Winter Street in Taunton to Weir Junction, a distance of 1.7 miles. The project requires reconstruction of tracks in the Southern Triangle, which includes the New Bedford Main Line and the Fall River Secondary. Infrastructure improvements associated with the project include constructing, reconstructing, or widening 45 bridges, and constructing or reconstructing 46 railroad at-grade crossings.

The project includes ten new rail stations: North Easton, Easton Village, Raynham Place, Taunton, Taunton Depot, King's Highway, Whale's Tooth, Freetown, Fall River Depot, and Battleship Cove. Major reconstruction is also proposed at two existing commuter rail stations, Canton Center and Stoughton. The project will require two overnight layover facilities, one on the New Bedford Main Line and one on the Fall River Secondary. Five alternative layover sites are described in the DEIR/S. MassDOT is also proposing an expansion of South Station as well as mid-day layover facilities in Boston to address existing and future Massachusetts Bay Transit Authority (MBTA) and Amtrak capacity needs that are independent of the South Coast Rail project. The facility expansion in Boston will support the project's infrastructure requirements but it is part of the baseline/No-Build scenario, is not analyzed as part of the DEIR/S, and will undergo environmental review at a future date. The traction power system for the Stoughton Electric rail will include a substation in Easton and one in New Bedford, two switching stations (one in Canton and another in Berkeley), and six paralleling stations (Easton, Taunton, New Bedford, Fall River, and two in Freetown).

Construction and operation of the Stoughton Electric will result in alteration of approximately 250 acres of land, direct permanent impacts to approximately 12 acres of wetlands (Bordering Vegetated Wetlands (BVW) and Outstanding Resource Waters (ORW)), alteration of approximately 32 acres of mapped habitat for state-listed species, habitat fragmentation and migratory barrier impacts, and other secondary and cumulative impacts to wildlife, biodiversity, and open space. The proposed project will result in significant impacts to natural resources and wildlife habitat that must be adequately mitigated in order to satisfy MEPA requirements and other regulatory requirements for state permitting. The habitat areas impacted by the project include the Hockomock Swamp ACEC, which is one of the largest unfragmented wetland systems in the state, and the Pine Swamp conservation area in Raynham. Development of a robust and detailed mitigation plan for unavoidable impacts is a core requirement of the FEIR.

The project has the potential to improve regional air quality and reduce greenhouse gas (GHG) emissions by increasing the number of people using public transit, thereby reducing automobile use and GHG and pollutant emissions associated with vehicle miles travelled (VMT). The smart growth aspect of the project, as described in the DEIR/S and the South Coast Rail Economic Development and Land Use Corridor Plan has the potential to substantially reduce the amount of land consumption and related impacts that might otherwise occur if existing development patterns continue. By concentrating development in Priority Development Areas (PDAs) and protecting habitat of high ecological value in Priority Protection Areas (PPAs), MassDOT's smart growth plans could reduce by up to 50 percent the amount of habitat degradation projected to occur in the region by 2030. Another core requirement of the FEIR Scope relates to further refinement and specificity of MassDOT's commitments to the South Coast Rail Economic Development and Land Use Corridor Plan through land acquisition and other smart growth measures as part of a comprehensive mitigation plan for the project's direct and indirect impacts to the Commonwealth's natural resources and wildlife habitat.

#### Interagency and Community Involvement

The South Coast Rail project was previously reviewed under MEPA from 1995 to 2002. However, federal environmental review under the National Environmental Policy Act (NEPA)

was not undertaken at that time. As a result, the project is now undergoing a joint environmental review process, which includes a comprehensive alternatives analysis under both the state and federal review procedures. The alternatives analysis provides information on the project's environmental impacts that will inform both the federal and state permitting processes. I fully support the ongoing state-federal coordination process to facilitate agency and public review under MEPA and NEPA, and commend MassDOT for undertaking such a robust and coordinated public review process.

MassDOT has also conducted an extensive stakeholder involvement process that includes an Interagency Coordinating Group, the Southeastern Massachusetts Commuter Rail Task Force, and a broad civic engagement process. I would like to thank the Commuter Rail Task Force, the Interagency Coordinating Group, as well as members of the public for their input to date and I appreciate the ongoing participation of all stakeholders during the environmental review of this project. I hope and expect that MassDOT will continue its commitment to stakeholder outreach and public input as it prepares the FEIR for this project.

#### Permitting and MEPA Jurisdiction

The MEPA process provides a valuable forum for the collection and review of environmental documents and comments on a project thereby reflecting various points of view. However, reconciling all of the identified (and sometimes competing) concerns and identifying a preferred alternative that achieves consensus support among all interested parties, is beyond the scope of MEPA. MEPA review, which is conducted in response to the filing of environmental review documents by the Proponent, is intended to facilitate environmental planning for Projects requiring Agency Action. MEPA review is not a permitting process. MEPA requires public study, disclosure, and development of feasible mitigation for a proposed project. It does not pass judgment on whether a project is environmentally beneficial, or whether a project can or should receive a particular permit. Those decisions are left to the permitting agencies. MEPA review occurs before permitting agencies act, to ensure that the permitting agencies know the environmental consequences of a project. No state agency can issue permits needed for the project until MEPA review is complete.

The proposed project is subject to MEPA review because it is being undertaken by a state agency and because it meets or exceeds the review thresholds set forth in the MEPA regulations, including thresholds for a mandatory EIR. The project is undergoing environmental review pursuant to the following sections of the MEPA regulations: Section 11.03(a)(1)(5) because it involves construction of a new rail or rapid transit line along a new, unused or abandoned right-of-way; Section 11.03(3)(a)(1)(a) because it will result in alteration of more than one acre of Bordering Vegetated Wetlands (BVW); Section 11.02(a)(2) because it involves alteration requiring a variance in accordance with the Wetlands Protection Act; Section 11.03(1)(a)(1) and (2) because it will result in alteration of 50 or more acres of land and creation of 10 or more acres of new impervious area; Section 11.03(11)(b) because it is located within a designated Area of Critical Environmental Concern (ACEC); Section 11.03(b)(3) because it involves conversion of land held for natural resource purposes in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth; Section 11.03(2)(b)(2) because it would result in more than two acres of disturbance of designated priority habitat that results in a take of

a state-listed species; and Section 11.03(10)(b)(1) and (2) because it may result in demolition of a part of a state-listed historic structure or destruction of a state-listed archaeological site. The project may also meet or exceed other MEPA review thresholds depending upon its final design.

The project requires a 401 Water Quality Certification, a Chapter 91 License, and a Variance from the Wetlands Protection Act (WPA) from the Massachusetts Department of Environmental Protection (MassDEP). The project also requires local Orders of Conditions under the WPA (and, on appeal only, Superseding Order(s) from MassDEP). Other permits or approvals required for the project include a Conservation and Management Permit from the Division of Fisheries and Wildlife, Natural Heritage and Endangered Species Program (NHESP), a land disposition agreement with the Department of Conservation and Recreation (DCR) as well as approval from the legislature and the Division of Capital Asset Management (DCAM) for a disposition of land protected by Article 97 of the Amendments to the Constitution of the Commonwealth. The project is subject to the MEPA Greenhouse Gas Emissions Policy and Protocol. The project is subject to review by the Massachusetts Historical Commission and the Office of Coastal Zone Management. At the Federal level, the project requires a Section 404 permit from the U.S. Army Corps of Engineers, an Air Quality Conformance Determination, a National Pollutant Discharge Elimination System (NPDES) Construction Permit, and is subject to review under Section 106 of the National Historic Preservation Act.

Because the proposed project is being undertaken by a state agency MEPA jurisdiction is broad and extends to all aspects of the project that are likely, directly or indirectly, to cause Damage to the Environment as defined in the MEPA regulations.

## REVIEW OF THE DEIR/S

### Alternatives

The DEIR/S evaluates the relative ability of alternatives to meet the project purpose in a cost-effective manner. Criteria considered in the evaluation include quality of service, constructability, schedule, costs, and smart growth opportunities. The Certificate on the ENF required MassDOT to evaluate alternatives that include electric and diesel options for three rail routes: Attleboro, Stoughton, and Whittenton (a variant of the Stoughton route), a Rapid Bus route, and a No-Build/Enhanced Bus scenario.

### *Attleboro*

The Attleboro alternative is not feasible and the rationale for eliminating this as an alternative moving forward has been described in detail in the DEIR/S. MassDOT conducted a thorough analysis of the operational feasibility for the Attleboro Route under several scenarios including the elimination of all constraints at South Station and construction of a fourth track from Readville to South Station. The fourth track is excessively costly and disruptive, would require re-routing of the MBTA Orange Line, and would result in substantial impacts to the Southwest Corridor Park in Jamaica Plain and environmental justice communities in this area. The

Attleboro alternative cannot be modeled without a fourth track as it fails in peak hour periods causing disruption and delays to other commuter rail lines.

### *Stoughton*

The Stoughton route is MassDOT's preferred alternative. It meets the project purpose in terms of travel time (76 minutes) and the time for construction (4.5 years), and performs better than other alternatives in terms of ridership and reductions in Vehicle Miles Travelled (VMT). The DEIR/S indicates a more effective cost-per-rider for the Stoughton route compared with other alternatives. However, mitigation costs have yet to be fully evaluated.

### *Whittenton*

The Whittenton Alternative is a variation of the Stoughton route that includes a diversion to avoid the Pine Swamp. Although the Whittenton Electric gets slightly higher ridership overall, the Stoughton Route captures more riders from the New Bedford and Fall River areas, which are the focus of this new public transit service, and shows a greater increase in shift of commuters from auto to transit. This is because of its faster travel time to Boston. Although the Whittenton Electric performs well in terms of ridership projections, its longer route to avoid Pine Swamp adds approximately 11 minutes to the journey from the South Coast to Boston. Compared to the Stoughton Alternative, the Whittenton Alternative is projected to pick up more riders from Taunton but less from New Bedford and Fall River. The cost per rider and smart growth opportunities are similar to the Stoughton alternative, as is the construction timetable.

### *Rapid Bus*

The cost of the Rapid Bus alternative is substantially lower than the rail alternatives (\$0.8 billion compared to \$1.8 billion for the Stoughton Electric) and it performs well in terms of construction timeline and less significant impacts to natural resources and biodiversity when compared with the rail alternatives. However, the Rapid Bus does not perform as well as the rail alternatives in terms of travel time, with the exception of Whittenton Diesel, which has a similar travel time. Since the Environmental Notification Form (ENF) review, the travel time projections for the Rapid Bus were updated to account for projected increases in traffic congestion in 2030. In comparison with the Stoughton Electric, which takes 76 minutes from New Bedford to South Station, the Rapid Bus travel time is 27 minutes longer (103 minutes). The longer travel time from the south coast communities to Boston has a significant influence on ridership. The ridership model indicates that Rapid Bus would generate 1,700 new linked boardings, representing the number of commuters shifting from automobiles to transit, compared with 5,900 for the Stoughton Electric. Because the ridership is lower for Rapid Bus, VMT and related air pollutants are not reduced to the same extent as they are under the Stoughton Alternative. In addition, the analysis in the DEIR/S indicates that the existing zipper lane along I-93 will no longer provide a travel advantage for the Rapid Bus under 2030 conditions. Buses are expected to travel slower in more congested conditions thereby adding to existing air quality problems. Alternative operating plans were considered to evaluate how performance might be improved under different policy assumptions (for example, a three-person minimum versus a two-person occupancy restriction in zipper lanes). In a Memo dated June 24, 2011, MassDOT indicates that

extension of the High Occupancy Vehicle (HOV) lane was also evaluated as part of the Central Artery Tunnel project. An HOV extension could potentially improve Rapid Bus performance by providing a continuous zipper lane to South Station, thereby addressing delays encountered in the two-mile section of I-93 where the Rapid Bus travels in mixed traffic. However, the evaluation showed that constraints at Savin Hill would require substantial infrastructure improvements, disruption to existing rail lines, and residential takings on the Savin Hill embankment. Based on MassDOT's analysis, it is not feasible to substantially improve performance of the Rapid Bus for the 2030 Build condition.

#### *No Build-Enhanced Bus*

The No Build Alternative represents a continued investment in the regional transportation network, but does not address the fundamental need for improved public transit service between New Bedford/Fall River and Boston. Under this alternative, no new rail or bus service would be provided to Southeastern Massachusetts. Enhancements are proposed for existing bus services and this alternative includes the expansion of South Station, the construction of mid-day layover facilities in the Boston area and the reconstruction of railroad bridges in the New Bedford area. Ridership projections are significantly lower for this alternative compared to the rail or Rapid Bus alternatives. The No-Build/Enhanced Bus alternative is expected to achieve only 400 new linked trips daily. Although it does not generate the environmental impacts associated with other alternatives, this no-build does not serve the project purpose. It is however useful as a baseline for comparison of alternatives under 2030 conditions.

#### *Comparison of Impacts*

The DEIR/S includes a comprehensive comparative analysis of the environmental impacts of project alternatives, including impacts to air quality, wetlands, upland habitat, rare species, Article 97 protected land, and biodiversity.

*Air quality:* The rail alternatives provide more air quality benefits compared to the Rapid Bus because they attract more riders and thereby result in a greater reduction in VMT per day. From a regional perspective however, the differences among the alternatives is minimal in terms of their air quality benefits. The Stoughton Electric route achieves an approximately 295,922 reduction in VMT per day compared to 228,018 for Whittenton Electric and 81,495 for the Rapid Bus (diesel option, a hybrid bus alternative was not evaluated). The diesel alternatives for rail show substantially higher VMT reductions when compared with the diesel Rapid Bus (228,705 VMT reduction for Stoughton and 173,961 VMT per day for Whittenton diesel).

*Wetlands:* Both Attleboro rail and the Rapid Bus result in the largest amount of acres of direct wetlands impact (approximately 21 acres compared to 11.94 acres and 10.34 acres respectively for Stoughton and Whittenton). However, the quality of wetland resource is an important consideration in assessing impacts. For example, the Stoughton and Whittenton alternatives have more significant impacts to the functions and value of higher quality interior wetlands compared with the primarily edge impacts of the Rapid Bus route. In addition, both the Stoughton and Whittenton routes impact a greater acreage of vernal pool supporting habitat. Vernal Pools are a major contributor to biodiversity.

*Upland Habitat:* the DEIR/S estimates that direct loss of upland habitat associated with Stoughton Electric is 183.27 acres, which includes 55.4 acres of supporting habitat for vernal pools. The estimate for the Whittenton alternative is slightly higher at 187.98 due to the longer alignment. The diesel rail alternatives impact approximately 3.5 acres less because they do not require additional land alteration for the electrical traction stations. The Rapid Bus alternative has the largest impact to upland habitat, estimated at 316.98 acres although impacts to biodiversity, rare species and wetland habitat may be less significant than those of rail because the acreage affected by the bus route is primarily along the edge of existing roadways in already degraded areas. In comparison, the Stoughton and Whittenton rail alternatives impact a greater area of unfragmented habitat with a high ecological value.

*Rare Species:* The Stoughton Electric alternative impacts approximately twice as many acres of mapped habitat compared to the Rapid bus alternative (32.6 acres compared to 16.2 acres). The Whittenton alternative impacts approximately 31.8 acres of mapped habitat. The diesel rail alternatives impact slightly less mapped habitat than the electric alternatives because the latter need additional land for electrical traction stations. As NHESP notes in its comment letter, the differences between Stoughton and Whittenton from a rare species perspective are not significant enough to influence the choice among these alternatives. The Whittenton route would have greater impacts to Box Turtle habitat but would avoid Pine Swamp, which contains habitat for a state-listed butterfly. Otherwise, both alternatives share the same route through the Hockomock Swamp and would result in similar barrier and fragmentation impacts. The Rapid Bus route would have the least impact to rare species and their habitats.

In the relative comparison of alternatives, the DEIR/S tables and text provide inaccurate information on Whittenton alternative rare species impacts. The discrepancy was identified during DEIR/S review, and MassDOT provided corrections in an email to NHESP dated May 19, 2011. Impacts to state-listed species habitat associated with the Whittenton alternative are 31.8 acres for the Whittenton electric alternative (not 13.2 acres as indicated in the DEIR/S) and 29.9 acres for the Whittenton Diesel. As noted above, the outcome of the review indicates that there is little difference among the Stoughton and Whittenton alternatives with regard to rare species impacts. They both result in fragmentation and interior habitat loss.

*Article 97 land:* The Stoughton route impacts approximately two acres of Article 97-protected land compared to the Whittenton Alternative that impacts less than one acre and the Rapid Bus, which impacts 4.5 acres.

*Biodiversity:* the DEIR/S includes a detailed analysis of biodiversity impacts using the Conservation assessment and Prioritization System (CAPS) analysis developed by University of Massachusetts (UMass) Amherst. The analysis, as described in more detail below, is useful in developing a better understanding of the relative impacts of alternatives on biodiversity at a landscape level of analysis. Some of the more detailed micro-scale level of impacts cannot be analyzed at the CAPS level of resolution. Based on the analysis, the rail alternatives have substantially more impacts to biodiversity than the Rapid Bus, and the Stoughton and Whittenton alignments are similar in their level of impact. As noted in MasssDEP's comment letter, additional analysis was done by UMass at MassDEP's request and this analysis highlighted a

greater impact from the Stoughton direct route (compared to Whittenton) in terms of its loss of habitat areas that have a high Index of Ecological Integrity (IEI).

*Noise and Vibration:* The Stoughton Electric alternative will impact approximately 2,136 sensitive receptors (1,728 moderate and 408 severe impacts) compared with 2,243 sensitive receptor impacts for the Whittenton Electric (1,826 moderate and 347 severe). The diesel impacts are less (1,793 total receptors impacted for Stoughton compared with 1,987 for Whittenton). In Taunton, the Whittenton route would result in disproportionate impacts to residents in Environmental Justice communities. The DEIR/S concludes that, for the Whittenton route, almost three times as many residents in Environmental Justice neighborhoods in Taunton will be disproportionately impacted by noise in comparison to the percentage of the population affected in non-Environmental Justice neighborhoods. Within the City of Taunton, the Stoughton Electric and Diesel alternatives would generate 12 and 5 severe noise impacts respectively, compared to 33 and 40 severe impacts from Whittenton's operations. In addition, the Whittenton Alternative will cause 708 severe horn noise impacts in Taunton compared with 28 severe horn impacts from the Stoughton Alternative. Noise impacts would also be experienced by residents in New Bedford and Fall River who would be similarly affected regardless of route since the Stoughton and Whittenton alignments are the same in the Southern Triangle. Electric train operations associated with the Fall River Secondary would result in 581 moderate and 155 severe impacts to residential receptors. The New Bedford Main Line segment would result in 298 moderate and 63 severe impacts to residential receptors. The DEIR/S does not identify any sensitive receptors for noise associated with the Rapid Bus because it will operate in areas already impacted by traffic-related noise and will not result in a measurable difference to receptors.

*Indirect and Cumulative Impacts:* An analysis of secondary growth impacts associated with the alternatives, including induced growth and socio-economic impacts, is included in the DEIR/S and discussed below in the section on Indirect and Cumulative Impacts.

*Method and criteria for comparative analysis:* The DEIR/S does a good job in explaining the method and criteria used for the comparative analysis of alternatives, and providing sufficient data for the reviewer to understand the overall impacts and trade-offs among alternatives. However, as noted in several comment letters received, the A-F grading approach used may not be the best way to present a fair and unbiased comparison of alternatives. I recommend that MassDOT not use this approach in any summary tables presented in the FEIR/S. Rather, actual quantification of impacts should be presented in comparison with the no-build and other alternatives (versus comparison with the worst-or best performing alternative which can result in an "A" for a route that results in permanent direct impacts to 12 acres of high quality wetlands).

*No-Build/Enhanced Bus Alternative:* The DEIR/S describes a No Build-Enhanced Bus alternative that includes foreseeable transportation projects and other developments assumed to be in place by the project build year. The no-build rail assumes an expansion with seven additional tracks at South Station (for a total of 20 tracks). The enhanced bus component builds on existing bus routes and park and ride lots but does not include any new service (the new service is evaluated as the Rapid Bus alternative). Enhancements included for the no-build alternative include bus schedule enhancements, new and expanded park-and-ride facilities,

transportation demand management, and transportation policy enhancements for commuter bus and other programmed and funded improvements for the system. The ridership analysis indicates that the No-build/Enhanced Bus alternative will achieve an increase in ridership equivalent to a diversion of 400 riders from car to public transit. VMT reductions projected for this alternative are estimated in the DEIR/S to be 75,100.

### *Layover Facilities*

The DEIR/S includes information on five potential layover sites for the rail alternatives. Two layover sites will be required for the proposed rail service; one on the New Bedford line and another for the Fall River line. The sites identified in the DEIR/S include the Weaver's Cove East and Weaver's Cove West sites in Fall River, the ISP site in Freetown, the Wamsutta site in New Bedford near the proposed Whale's Tooth station, and the Church Street site in New Bedford. The FEIR should include additional information and analysis of the layover facilities as outlined in the Scope below.

### *Conclusion – Alternatives Analysis*

The DEIR/S concludes that the Stoughton route is the best alternative in terms of practicability and meeting the overall project purpose of expanding transit service to the South Coast region. I concur with MassDOT that based on the analysis presented, the Attleboro and Rapid Bus alternatives are not feasible, and the Whittenton Route does not serve the project purpose as well as the Stoughton direct route. In addition, the Whittenton Alternative would result in substantially more noise impacts, both moderate and severe, to a large number of residents in the Taunton area, including those in Environmental Justice communities. The Whittenton alternative also raises public safety concerns due to the necessity for 12 at-grade crossings in an approximately one-mile section of the route through Taunton. Although the Whittenton route has approximately one acre more in wetlands impacts compared to Stoughton, as indicated in MassDEP's comment letter, it is reasonably likely that through further minimization, mitigation and compensatory measures, which should be detailed in the FEIR, the divergence between these two alternatives can be narrowed to the point where their net differences in environmental impacts will be negligible. Both the Stoughton and Whittenton Alternatives impact rare species and their habitats to a similar degree. Having considered these factors relating to noise and public safety, environmental justice and project purpose, I agree that the Stoughton Route is preferable to the Whittenton route and should be carried forward for further analysis in the FEIR.

The DEIR/S includes a comparative analysis of electric and diesel options for all rail alignments. Although the electric alternatives result in some additional land alteration compared with diesel, I believe, on balance, that the air quality benefits of electric warrant selection of electric as the preferred power source. Therefore, the Scope below focuses on the Stoughton Electric as the preferred alternative to be carried forward to the FEIR.

### Freight Services

Several commenters expressed concern about potential freight through the Hockomock Swamp. In a Memo dated June 23, 3011, MassDOT clarified that the South Coast Rail project has not been designed to accommodate freight traffic north of Taunton through the Hockomock Swamp where freight currently does not exist. MassDOT also notes that if freight is proposed in the future, further environmental review would be required.

### Land Alteration

As discussed in the alternatives section above, the DEIR/S provided a detailed comparative analysis of alternatives that includes estimates of project-related impacts to wetlands, endangered species, biodiversity, environmental justice communities and socio-economic indicators.

The DEIR/S estimates the total habitat loss for the preferred Stoughton alternative at approximately 251 acres compared to approximately 360 acres for the Rapid Bus, 254 acres for the Whittenton Electric Alternative, and 266 acres for Attleboro Electric. The cumulative estimates provided appear to be for the rail and bus route alignments only and it is not clear if the estimates include land alteration associated with the stations and layover facilities, which should be clarified in the FEIR. For the preferred alternative, the Stoughton route, the estimate for habitat loss includes 182.27 acres of upland habitat, 55.05 acres of supporting upland for vernal pools, 11.86 acres of direct wetlands impact (BVW) and 1.77 of vernal pool wetland impact. Additional wetlands impacts (e.g. for Riverfront and Bordering Land Subject to Flooding) should be detailed in the FEIR.

The DEIR/S describes five potential layover facilities in New Bedford and Fall River. The total amount of land alteration associated with project layover facilities is not defined in the DEIR/S. However, the DEIR/S summary of property acquisition indicates that an area of 11 acres to 44 acres would be required per site. Property acquisition estimates for the various alternatives range from 75.36 acres for the Whittenton diesel to 106.80 acres for the Stoughton Electric. The analysis of layover facility impacts should be expanded in the FEIR as outlined in the Scope below.

### Ridership Projections

The DEIR/S includes a detailed analysis of ridership and traffic estimates associated with each alternative, which were developed and calibrated by the Central Transportation Planning Staff (CTPS) using its Regional Travel Demand Model (RTDM). The inputs for the RTDM included land use assumptions, transportation service assumptions, and modeling methods. The DEIR/S discusses the sources of information for the analysis, which included input from state, federal, and regional agencies, and local communities. The modeling process used by CTPS is consistent with other major transportation projects in eastern Massachusetts, which allows for a consistent comparison across alternatives based on their project ridership and specific elements such as service plans and demographics. The model incorporates connections to commuter rail

lines, the central subway system, and bus routes in regional communities, which supports the analysis of system-wide boardings and regional mobility.

To estimate future ridership projections, the CTPS refined their RTDM set to include regional transportation projects and land use alternatives based on regional plans for the study area and the proposed operational plans for the project alternatives. The DEIR/S includes information on the ridership modeling methodology, model inputs, transit operating plans, and a detailed discussion of the ridership projection results. Ridership forecasts were developed for all alternatives for the 2030 forecast year. The output of the model runs for the various rail and Rapid Bus alternatives were compared to the No-Build (which includes assumptions to enhance existing bus service) to see what travel pattern changes would occur based on implementation of alternative transit system improvements.

The ridership analysis compares alternatives based on several different metrics including new linked trip estimates, which represents the number of people who, without the project, would otherwise have driven to work. In addition to the estimates for mode shifts (from auto to transit), the results provide estimates for the overall increase in transit use and the total reduction in vehicle miles traveled (VMT) projected for each alternative. The reduction in VMT correlates to air quality benefits associated with the project. New system-wide boarding estimates represent the overall draw of passengers to the commuter rail transit system due to the proposed project.

The No-Build/enhanced bus alternative is expected to generate an increase in linked transit trips of 400 daily linked trips, compared to 5,900 for Stoughton Electric, 5,000 for Stoughton Diesel, 5,500 for Whittenton Electric, 4,600 for Whittenton Diesel, and 1,700 for Rapid Bus (diesel). The Stoughton Electric alternative has the greatest benefit in terms of shifts from automobile to public transit and reductions in VMT and vehicle emissions. Total daily ridership for the alternatives are estimated to be: Stoughton Electric - 9,580; Attleboro Electric - 9,360; Whittenton Electric - 9,640; and Rapid Bus - 4,200. Electric locomotives can operate at higher speeds than diesel engines and therefore attract more ridership resulting in greater VMT reductions for the electric alternatives compared with Rapid Bus or diesel rail alternatives.

### Secondary Growth and Cumulative Impacts

The DEIR/S includes a comprehensive analysis of indirect impacts associated with the project, including induced growth expected as a result of the proposed transit project. The assessment of induced growth quantifies household and employment changes in the south coast communities. Other aspects of the indirect impact assessment consider changes in land use patterns associated with a "business as usual" scenario for the growth expected in the region by 2030 and an alternative scenario based on MassDOT's smart growth plan as described in the South Coast Rail Land Use and Economic Development Corridor Plan. The indirect analysis also evaluates encroachment-alteration indirect effects such as the long-term decline in the viability of a population of a particular species as a result of habitat fragmentation caused by the project. The DEIR/S includes a cumulative impact analysis that evaluates changes in the study area as a result of the combined effects of the project, past development, and reasonable foreseeable future actions.

The DEIR/S includes information on the methodology and assumptions used in the indirect and cumulative analysis. The analysis includes potential impacts of the proposed transit project to land use, infrastructure requirements, and the social and economic environment. Induced growth in the vicinity of proposed stations and nearby communities was estimated using information from literature review and regional growth projections, including data obtained from regional planning agencies and the Transportation Economic Development Impact System (TREDIS) model.

The analysis of the smart growth scenario assumes that 1) infrastructure constraints will be overcome within reason and that the Commonwealth will support investments in infrastructure to realize more compact investment; 2) local rezoning can be expected to occur for Priority Development Areas (PDAs) to accommodate higher levels of development and different permitted uses; and 3) a greater mix of multi-family and smaller-lot single-family units will be developed under the smart growth scenario. The analysis also assumes that proposed stations are designed to optimize Transit Oriented Development (TOD) opportunities with the full range of smart growth measures as provided in the Corridor Plan and regional long-term plans.

In developing the 2030 smart growth scenario, all of the Priority Development Areas (PDAs) were designated to receive a portion of housing and job growth and 50 percent of projected growth (baseline and induced) was assumed to shift from Priority Protection Areas (PPAs) to PDAs, with 25 percent shifting from “neutral” areas to PDAs. The DEIR/S includes the results of analysis, which indicates that under the No-Build scenario, population in the study area is expected to grow by 74,371 households. The alternatives are expected to induce additional growth estimated to be 2,057 households (Attleboro), 1,972 (Stoughton) and 1,310 (Rapid Bus). Under the No-Build scenario, job growth in the study area is expected to add 81,615 jobs by 2030. The induced job growth associated with the project is estimated to be 2,600 (Attleboro), 2,535 (Stoughton), and 1,678 (Rapid Bus). The DEIR/S details how growth in households and jobs would be allocated, with some communities gaining and others losing jobs and households.

The DEIR/S further develops the analysis by evaluating impacts of induced growth on land use, farmland, wetlands, biodiversity, water and sewer infrastructure, and air quality. Metrics used were based on published sources (e.g. loss of 0.3 acres of forest land per household under the No-Build scenario). Information from the MassAudubon report “Losing Ground” was used to estimate the direct and indirect impacts on biodiversity as a result of new development in the south coast region. The analysis in the DEIR/S assumes a thirty percent reduction in land consumption based on a high-level implementation of Smart Growth measures (and 21 percent reduction for the “low” scenario). Both high and low metrics were used to reflect different level of implementation of the smart growth plan (e.g. 0.21 acres of forest land loss under the “high smart growth” scenario and 0.24 acres of loss under the low scenario). Community-specific metrics were also developed.

The induced growth in jobs and households estimated for the project alternatives amounts to a 2.8 percent increase above the No-Build scenario for the Attleboro alternative, a 2.7 percent increase for Stoughton, and a 1.8 percent increase for the Rapid Bus. The Whittenton alternative was not evaluated separately as it is expected to have a similar level of induced growth as the

Stoughton alternative. The DEIR/S includes estimates of projected residential unit and commercial development associated with proposed station area Transit Oriented Development (TOD). The Stoughton alternative (the preferred route) would include TOD at ten station sites. Overall, the redistribution of growth expected as a result of the smart growth plan would result in a greater amount of new growth in New Bedford, Fall River, Foxborough, and Taunton. Future growth would be shifted out of rural communities such as Acushnet, Berkeley, Lakeville, Rehoboth, Wareham and Westport as well as more developed communities such as Mansfield.

The DEIR/S evaluates the cumulative effects to the economy of each of the project alternatives combined with historic economic trends and recent or reasonably foreseeable future actions. All the alternatives are expected to measurably benefit the economy based on the projections for 2030 (\$487 million-Attleboro, \$479 million-Stoughton, and \$296 million-Rapid Bus). The analysis indicates that the incremental addition of project-related benefits to the regional economy are not substantial; the cumulative effects of any of the alternatives would be a minimal change to any of the economic parameters. The Rapid Bus alternative is expected to have less of an economic benefit due to less ridership, TOD, and induced growth when compared with the rail alternatives. Local economic impacts would vary depending on where the stations and PDAs are; the smart growth approach would concentrate impacts in PDAs. The analysis concludes that induced growth would result in economic benefits in the South Coast region, and that there are no substantive differences between the alternatives in their cumulative impacts to the economy on a regional basis. From a regional perspective, cumulative economic effects are expected to be minimally different from the No-Build scenario.

The amount of land expected to be lost as a result of growth under the No-Build scenario (i.e. no new transit) is estimated in the DEIR/S at 44,995 acres. When induced growth associated with the project is added, the loss is expected to be 46,165 acres (Attleboro), 46,121 acres (Stoughton), and 45,756 (Rapid Bus). The DEIR/S indicates that for every one acre of development, three acres of biodiversity are impacted. The No-Build alternative is expected to result in a loss of biodiversity value in 134,984 acres of land. The Stoughton Alternative is expected to result in an additional indirect loss of 1,126 acres of land compared to the No-Build, which corresponds to an additional loss of biodiversity value in 3,378 acres of land (for a total loss of value in 138,362 acres due to baseline and project-related induced growth). The combined loss of land associated with the Stoughton route is 1,233 acres (106.8 from direct conversion and 1,126 from induced growth). The DEIR/S quantifies cumulative impacts to biodiversity based on historic trends, the project alternatives, and other recent and foreseeable development. The analysis indicates that implementation the smart growth strategy would be beneficial environmentally and would reduce habitat degradation by approximately 50 percent.

The DEIR/S presents additional detail on the projected losses in forested land and wetlands under the No-Build and other project alternatives, and quantifies reductions in impacts expected under a smart growth approach to development. Cumulative impacts to rare species, water quality and wetlands are evaluated. The induced growth-related loss of wetlands is estimated at 13 acres for the Stoughton alternative, which could be reduced to a 9.3-10-acre loss under a smart growth development scenario. The total direct and indirect impacts to wetlands are estimated to be approximately 25.35 acres for the Stoughton alternative (this estimate is for

Bordering Vegetated Wetlands and Outstanding Resource Waters associated with vernal pools. Additional detail on other resource impacts will be included in the FEIR).

The analysis of indirect impacts also considers additional water demand associated with induced growth of households, estimated at 285,025 gallons per day (gpd) more than the No-Build for the Stoughton Alternative (184,438 gpd for the Rapid Bus and 294,287 gpd for Attleboro Alternative). Additional greenhouse gas (GHG) emissions associated with induced household growth was analyzed using the eQUEST model and estimated to result in an increase in GHG emissions of 20,750 tons per year (tpy) of CO<sub>2</sub> for the Stoughton Alternative, 21,424 tpy for Attleboro Alternative, and 12,427 tpy for the Rapid Bus Alternative. The amount of vehicle miles travelled (VMT) is expected to increase as a result of induced growth. The DEIR/S projects an increase of approximately 75,422 VMT for the Stoughton alternative and estimates that implementation of aggressive smart growth measures could result in a decrease of 490,451 compared to the No-Build “business-as-usual” alternative.

The analysis in the DEIR/S indicates that cumulative impacts of the project’s emissions would not result in an exceedance of the National Ambient Air Quality Standards (NAAQS) for criteria pollutants for any of the project alternatives. Ambient air quality is expected to improve at the regional level due to increasing regulatory controls despite new sources of pollution. The difference in modeled air emissions (including CO<sub>2</sub>) among the alternatives is less than 0.2 percent and the percent change in emissions between the build without mitigation and the Build with Smart Growth alternative is less than 0.1 percent at a regional level, indicating no substantial difference in impacts to air quality. As noted above, the GHG analysis of mobile emissions for induced growth and smart growth has not yet been completed.

The proposed smart growth measures for the project would reduce the amount of land that would otherwise be developed in the region. Land use impacts associated with the project under the high and low smart growth scenario are estimated to be: 31,168 – 35,349 acres (Attleboro); 31,297 – 35,321 acres (Stoughton); and 31,058 – 35,051 acres (Rapid Bus), an improvement of approximately five percent over the “business as usual” development scenario. The preferred Stoughton route is expected to result in an additional loss of 1,233 acres of land compared to the no-build alternative. However, if smart growth measures are implemented as proposed for the Stoughton alternative, the DEIR/S estimates a reduction of approximately 9,674 acres in land lost to development, compared with development patterns associated with the “business as usual” scenario. Implementation of smart growth measures as proposed in the DEIR/S, through the South Coast Rail Economic Development and Land Use Corridor Plan, is clearly a good strategy to advance environmental protection in concert with anticipated economic development, and if successful will contribute to mitigation for project-related indirect impacts. The smart growth aspects of the mitigation plan should be further developed in the FEIR.

#### South Coast Rail Economic Development and Land Use Corridor Plan

The DEIR/S outlines strategies to promote smart growth including targeted state investments, a regional mitigation bank for private projects to support the South Coast Rail Economic Development and Land Use Corridor Plan (Corridor Plan), technical assistance to expand affordable housing and economic development opportunities, open space preservation,

and station area planning, and a regional Transfer of Development Rights (TDR) program to steer growth into areas appropriate for development (PDAs) and out of sensitive areas (PPAs). The South Coast Rail Corridor Plan received approval from the Governor in September 2010 with the signing of Executive Order 525 and \$320,000 in grants for smart growth assistance to communities in the south coast region. Executive Order 525 directs state agencies to review their policies, actions and investments to support and implement the recommendations of the Corridor Plan. Investments include, but are not limited to, water, wastewater, transportation, housing and economic development funding and land preservation funding. The FEIR should expand upon implementation of the Corridor Plan in conjunction with the proposed rail project as outlined in the Scope below.

### Air Quality

The DEIR/S includes a mesoscale analysis that evaluates regional air quality impacts of the project alternatives with respect to emissions of Volatile Organic Compounds (VOCs), Nitrous oxides (NO<sub>x</sub>), Carbon monoxide (CO) Carbon dioxide (CO<sub>2</sub>) and Particulate matter (PM). The analysis includes existing and future conditions in the study area. A microscale analysis was also conducted to look at hot spot areas where increases in CO and PM may occur at congested locations such as roadway intersections, and in the vicinity of stations and layover facilities. The DEIR/S evaluates air quality impacts in the context of the National Ambient Air Quality Standards (NAAQS). The DEIR/S explains the methodology used for the meso and micro-scale analyses and includes model input data in the appendices. The vehicle emission factors used were obtained using EPA's Mobile 6.2 emissions model and are adjusted to reflect Massachusetts-specific conditions such as vehicle age distribution, the statewide maintenance and inspection program, and Stage II Vapor Recovery System.

The microscale analysis used the EPA computer model CAL3QHC to predict CO and PM concentrations at receptor locations at each intersection in the study area, which included 12 intersections in the vicinity of proposed stations. The EPA atmospheric model AERMOD was used to model locomotive emissions at stations, layover facilities and environmentally sensitive areas such as the Hockomock Swamp. Mobile vehicle emissions were modeled using EPA's Mobile 6.2 emission factor model and the Central Regional Planning Staff (CTPS) regional travel demand model.

The DEIR/S includes the results of air quality analyses for the No-Build/Enhanced Bus, rail alternatives and the Rapid Bus alternatives, as well as stations and layover facilities. The analysis indicates that all alternatives would comply with the Clean Air Act Amendments and will not create any new violations of the NAAQS. The electric trains produce less pollutant emissions than the diesel rail and Rapid Bus alternatives. With regard to the microscale analysis for hotspot locations, the electric trains will not generate emissions locally that would affect receptor locations near the proposed stations. The diesel rail alternatives would result in an increase of CO, NO<sub>x</sub> and particulate matter at receptor locations in the vicinity of layover facilities and stations. The DEIR/S indicates that maximum concentrations (2016) would be below the NAAQS.

The DEIR/S analyzes ridership demand and changes in travel patterns for the various alternatives to develop a projection for reduction in Vehicle Miles Travelled (VMT) as a result of the proposed project. The VMT reductions correspond to a reduction in CO<sub>2</sub> emissions due to shifts from automobile to transit use. At the regional level, CO<sub>2</sub> emissions (mobile vehicles) are estimated at 27,800,000 tons per year (tpy) for the No-Build/Enhanced Bus. The Stoughton Electric alternative performs best in terms of CO<sub>2</sub> reduction with an estimated 59,715 tons per year reduction compared to the 2030 No-Build/Enhanced bus alternative. The Whittenton Electric provides a reduction of 45,584 tons per year (tpy) of CO<sub>2</sub>. The Stoughton Diesel provides a reduction of 44,007 tpy compared to 32,601 tpy for Whittenton Diesel and 6,588 tpy for the Rapid Bus (diesel) alternative. The difference in GHG reductions can be attributed primarily to the VMT reductions gained by the alternatives. The Stoughton Electric obtains a reduction of 295,922 VMT daily in 2030 compared with a reduction of 228,018 for the Whittenton Electric. The Diesel alternatives achieve reductions of 228,705 VMT daily (Stoughton), 173,961 VMT (Whittenton) and 81,495 VMT (Rapid Bus). The time of travel from the South Coast to Boston appears to be a significant factor in influencing ridership and the resultant VMT reductions. The Stoughton Electric attracts more riders from New Bedford and Fall River compared with the Whittenton alternative, hence the better VMT and CO<sub>2</sub> reductions as people who would otherwise drive the longer distance from those areas are switching to the train.

An analysis of greenhouse gases from stationary sources was not conducted. The DEIR/S indicates this is because no buildings are proposed for the stations. MassDOT has committed to use train engine plug-ins and electric block heaters at layover facilities. Additional analysis of GHG emissions and mitigation should be included in the FEIR as outlined in the Scope below.

### Transportation

The DEIR/S includes a detailed analysis of transportation in the region addressing existing conditions as well as historical and future trends. Mitigation measures are proposed for roadways and intersections that would be most impacted by traffic associated each of the alternatives. The DEIR/S presents MassDOT's case for the need for the project based on adverse roadway and related air quality conditions, transit mode choice and equity, and implementation of the Commonwealth's Transportation policies. The analysis documents the growth in traffic volume over the past decade, which is 2-3 percent overall and 5 percent in some communities, that has created roadway congestion on the limited set of highways connecting commuters from the southeast region to Boston and Cambridge. These consistently congested conditions result in a Level of Service (LOS) of F and increased vehicular accidents on the three major highways serving the south coast. There has been an overall increase of seven percent in accidents, injuries and fatalities during the 2004-2006 study period with some routes showing increases of almost 30 percent in accidents or fatalities. Fall River and New Bedford had the first and third highest number of vehicle crashes during this period. As new households continue to be added to the region, the projected growth in commuter trips and VMT will exacerbate existing congestion problems, further compromising automobile safety and increasing emissions of mobile source pollutants that have an adverse impact on air quality and climate change.

### Endangered Species

The DEIR/S includes the results of an endangered species impact assessment that investigated areas of mapped habitat within 100 feet of the right-of-way (ROW) of rail and Rapid Bus project alternatives. The DEIR/S identifies 15 Priority Habitats within the study area and 15 Estimated Habitats. Thirteen state-listed species are documented to occur within these habitats, including amphibians, reptiles, crustaceans, dragonflies, butterflies, moths, and plants. These species are likely to occur adjacent to the ROW (defined in the DEIR/S as within 100 feet of the centerline of the ROW). Additional state-listed species may occur beyond that radius and may be impacted by habitat alteration associated with project construction and operation. The DEIR/S identifies 16 additional state-listed species for which habitat may be found adjacent to the project corridor.

None of the proposed station sites are located within mapped habitat of state-listed species, except for Raynham Place where the platform is located within mapped habitat. The DEIR/S indicates the Raynham Place station site is previously developed and does not provide potential habitat. The DEIR/S identifies five potential alternatives for layover facilities in New Bedford, Fall River and Freetown, none of which are located within mapped habitat. The mid-day bus layover facility for the Rapid Bus alternative is not within mapped habitat. A mid-day layover facility in Boston has yet to be identified but it is unlikely to be located within mapped habitat as noted in the DEIR/S.

The state-listed species known to occur in areas intersecting or adjacent to the ROW of project alternatives include the Blue-Spotted Salamander (special concern), the Marbled Salamander (threatened), the Wood Turtle (special concern), Blanding's Turtle (threatened), Eastern Box Turtle (special concern), Coastal Swamp Amphipod (special concern), Mocha Emerald (special concern), Hessel's Hairstreak (butterfly of special concern), Pale Green Pinion Moth (special concern), Water Willow Stem Borer (moth of special concern), Gypsywort (endangered plant), Long-leaved Panic Grass (threatened), and Long's Bulrush (threatened).

The DEIR/S describes the methodology used to assess impacts to endangered species and their habitats. As noted in the NHESP comment letter, there are some issues relating to the methodology that should be resolved in consultation with NHESP during FEIR preparation. Some of the measures used in the DEIR/S may not provide a meaningful basis for comparing state-listed species impacts among the various alternatives. These measures include (1) the total acreage of Priority Habitat impacted with or without existing disturbed areas included, and (2) the individual species impact assessments based on vegetation cover types. NHESP has recommended that the Barrier Effect Grade shown in Table 3.3-24, and the NHESP scores and overall assessment of "Habitat Functions Lost" (see tables in Section 4.15.3.5) be used for evaluating the alternatives. Based on these measures, the Stoughton and Whittenton alternatives have similar levels of impact on state-listed species, which are substantially greater than those of the Attleboro or Rapid Bus Alternatives.

The DEIR/S quantifies potential habitat loss for the various alternatives. Upgrades to rail lines on the Southern Triangle, common to all rail alternatives, will result in foraging, breeding/nesting, and wintering habitat loss, including approximately 2 acres in areas along the

Fall River Secondary and 5.1 acres along the New Bedford Main Line. One traction power station is located within Priority and Estimated Habitat and would result in 0.8 acres of habitat loss in the Southern Triangle. The DEIR/S identifies potential impacts including increased mortality of turtles crossing tracks and increased mortality of moths and butterflies due to herbicide use near streams and wetland habitat.

The Rapid Bus Alternative impacts an estimated 16.2 acres of mapped state-listed species habitat, which is comprised of edge habitat in the vicinity of existing roadways. The Attleboro Alternative, eliminated for operational infeasibility, would have impacted approximately 30 acres of habitat. However, these alternatives would run within or immediately adjacent to existing active rail lines (Attleboro) or existing highways (Rapid Bus). Although these alternatives might impact some Priority Habitat areas, NHESP indicates that the endangered species impacts and habitat fragmentation effects would be modest, especially in comparison to the Stoughton Alternative.

The Stoughton and Whittenton alternatives impact both edge and interior habitats, and are comparable in terms of their impacts to rare species habitat. Either alignment would result in approximately 30 acres of impact to state-listed species habitat and are similar in terms of the quality of habitat affected. While the Whittenton route avoids impacts to habitat of the Hessel's Hairstreak in Pine Swamp it would impact additional Box Turtle habitat. NHESP has indicated in its comment letter that rare species impacts should not be a deciding factor in choosing among the Stoughton Direct route and Whittenton variation.

The DEIR/S describes rare species studies conducted in 2001 and 2008 along the proposed Stoughton line in areas where there is currently no track, as well as studies conducted for the Attleboro Alternative. The 2001 studies in Hockomock and Pine Swamps included an area within 600 feet of the right-of-way centerline. The Stoughton direct route crosses two Priority Habitats including land within the Hockomock Swamp and Pine Swamp, and the Whittenton Alternative crosses the Three Mile River ACEC and the Hockomock Swamp. Construction of the preferred Stoughton route would result in the loss of habitat of five state-listed species on the proposed alignment north of Weir Junction as well as potential habitat of nine state-listed species adjacent to the corridor in the Southern Triangle. The Stoughton route results in direct loss of an estimated 3.4 acres of habitat in Hockomock Swamp and 22.1 acres within the Pine Swamp, for a total of 25.5 acres of Priority and Estimated Habitat (including one traction station proposed in the Hockomock Swamp). Indirect impacts associated with the proposed Stoughton rail include loss of migratory routes (barrier effect) and increase in habitat fragmentation resulting from construction within currently undeveloped forested land. Widening of the canopy gap for construction and Right-of-Way (ROW) maintenance as well as clearing in the vicinity of vernal pools is likely to cause additional indirect impacts.

The DEIR/S outlines potential mitigation measures for the preferred Stoughton route, which include an 8,500 linear foot trestle in the Hockomock Swamp, construction of wildlife passages and nesting sites, acquisition of land or conservation restrictions to protect critical habitats, habitat enhancement, contribution to a mitigation bank for species protection, funding research programs to benefit state-listed species, and construction-related measures to avoid and minimize impacts. Detailed mitigation plans should be included in the FEIR as outlined in the Scope below.

## Wetlands

The DEIR includes a description of wetland systems identified along the proposed alignment for the rail and the Rapid Bus alternatives, and at the proposed station and layover sites. A quantitative analysis is provided as well as summary information on wetland functions and values with graphics illustrating each segment of rail or roadway. The DEIR/S describes the assessment methodology and discusses approaches to mitigation in the context of state and federal regulatory requirements, including the criteria for a variance from Wetlands Protection Act (WPA) performance standards. The DEIR/S documents that there are no project alternatives that could proceed without a variance and presents information to support MassDOT's contention that the project serves an over-riding public interest. Mitigation measures to address the variance criteria have not yet been developed. The FEIR should include additional information and analysis to support MassDOT's variance request as outlined in the Scope below.

The U.S. Army Corps of Engineers (USACE) Highway Methodology was used including the guidance on evaluation of functions and values contained in the USACE New England District's Highway Methodology Workbook Supplement (1999). Each of the alternative project corridors was assessed for the presence of wetlands within 100 feet of the right-of-way. Permanent and temporary impacts are addressed and indirect and cumulative impacts are evaluated as noted above in the review of the indirect impact assessment.

The Southern Triangle is common to all rail alternatives. Direct impacts to wetlands associated with the proposed upgrades to the Fall River Secondary line are estimated in the DEIR/S to amount to 2.72 acres of permanent Bordering Vegetated Wetlands (BVW) and 2.68 of temporary BVW alteration; 0.45 acres of permanent Outstanding Resource Water (ORW) alteration and 0.26 of temporary ORW alteration; 3.25 acres of permanent Bordering Land Subject to Flooding (BLSF) and 1.25 acres of temporary BLSF alteration; and 1,146 linear feet of Bank impact. The volume of BLSF alteration is not quantified in the DEIR/S. Approximately 2 acres of the permanent BVW impact occurs within wooded swamp along the Freetown section of the alignment. The DEIR/S identifies 34 stream crossings along the Fall River Secondary, including 11 perennial streams. Work is proposed within Riverfront Area at all perennial stream crossings. The ORW impacts are associated with two vernal pools.

The project includes upgrades to the existing New Bedford Main line freight track. Direct wetland impacts associated with these upgrades include: 2.53 acres of permanent BVW alteration and 4.93 acres of temporary BVW alteration; 0.1 acres of permanent ORW impact and 0.17 acres of temporary alteration to ORW; 7.65 acres of permanent BLSF impacts and 2.33 acres of temporary BLSF impacts (volume has yet to be determined); and 832 linear feet of temporary impact to Bank. The traction station for the Stoughton electric alternative requires an additional 0.02 acres of BVW impact. A portion of the ROW passes through the Assonet Cedar Swamp Wildlife Sanctuary, the Acushnet Cedar Swamp State Reservation, and a large wetland system associated with Fall Brook. There are 34 stream crossings associated with the project on the New Bedford Main line, ten of which are perennial and would involve impacts to Riverfront Area. ORW impacts include one vernal pool in Berkeley.

The DEIR/S includes a comparative analysis of wetland impacts associated with the rail and Rapid Bus alternatives. The Attleboro and Rapid Bus alternatives result in the highest amount of BVW impacted with 20.56 acres of 21.48 acres respectively. The Stoughton Electric results in 11.94 acres of direct permanent wetland impact compared with 10.34 acres for the Whittenton alternative. Diesel options have slightly less wetlands alteration as they do not require electric traction stations. As noted in the DEIR/S and in comments received, the quality of habitat impacted is an important consideration in evaluating the significance of impacts and alternatives with less acreage of alteration may actually result in more significant impacts.

The Stoughton Electric preferred alternative, including the Southern Triangle and the corridor north of Weir Junction, will result in: permanent alteration of 11.84 acres of BVW and temporary alteration of 12.55 acres of BVW; 1.7 acres of permanent ORW impact and 2.63 of temporary ORW impact; 1.72 acres of permanent impact to wetlands within an ACEC; 23.33 acres of permanent BLSF alteration and 6.1 acres of temporary BLSF alteration (volume of BLSF to be determined in FEIR). Within the Hockomock Swamp in Raynham and Easton, in areas where an elevated trestle is not being proposed, the Stoughton route results in permanent alteration of 1.74 acres of BVW and 0.57 acres of temporary impact. As with the Southern Triangle portion of the route, the greatest impacts north of Weir Junction are in wooded swamps along the proposed rail alignment. In addition to direct impacts, the DEIR/S includes an analysis of indirect impacts and estimates that an additional 13 acres of wetlands would be impacted by induced growth associated with the rail project (for a total of 25.35 acres of impact). Biodiversity impacts are estimated at 3 acres for every one acre of land consumption, which would translate to degradation in biodiversity value of approximately 76 acres of land as a result of the project's direct permanent impacts and induced growth-related impacts to Bordering Vegetated Wetlands.

The DEIR/S includes a conceptual watershed approach to wetlands mitigation and indicates that the Stoughton Electric Alternative would require 23.57 acres of compensatory wetlands mitigation under state guidelines and 33 acres under federal guidelines for permanent resource impacts. Based on MassDOT's assessment, mitigation would be required in the Buzzards Bay Watershed (1.42 acres), Mount Hope Bay Watershed (0.27 acres), Neponset River Watershed (0.18 acres), and the Taunton River Watershed (21.7 acres). During preparation of the DEIR/S and based on consultations with state and federal agencies, the MEPA Office agreed with the Proponent that, in the case of this project, it would be difficult to develop very detailed plans for mitigation until the alternatives analysis was complete and a single preferred alternative identified for further analysis in the FEIR. As outlined in the Scope below, detailed wetland mitigation plans are required in the FEIR as well as public outreach by MassDOT during preparation of the draft plans.

#### Biodiversity and Wildlife Habitat

The DEIR/S includes a description of bioregions (or ecoregions) within the study area, which include the Southeastern Massachusetts Bioreserve, the Hockomock Important Bird Areas (IBA), the Freetown/Fall River State Forest and Southeastern Massachusetts Bioreserve IBA, Biomap Core Habitats, and Living Waters Core Habitats. The DEIR/S also includes an overview of plant communities, wetland and upland cover types, vernal pools, and wildlife including fish and bird species within the study area.

The Southern Triangle portion of the project involves upgrades to the New Bedford Main and Fall River Secondary lines, which pass through or adjacent to several areas of core habitat including the Acushnet Cedar Swamp, Assonet Cedar Swamp, Forge Pond, Turner Pond, and Freetown/Fall River State Forest. The New Bedford Main Line is adjacent to a large unfragmented wetland in Berkley and crosses Cotley River, Cedar Swamp River, Fall Brook and Assonet River, which are all important fisheries habitats.

The Stoughton Alternative includes improvements to existing active freight lines (track sections from Dean Street in Taunton to Cotley Junction, and north of Stoughton Station), as well as construction of tracks for commuter rail on an abandoned ROW between Dean Street and Stoughton Station. The DEIR/S indicates that the ROW provides suitable migratory habitat for wildlife because there are no ties and tracks to prevent turtles, amphibians, and small mammals from moving across the ROW. The DEIR/S indicates that the ROW does not likely provide suitable nesting, breeding or foraging habitat due in part to erosion resulting from unauthorized use by All Terrain Vehicles (ATVs), bicycles and pedestrians. The Stoughton Route crosses through Core Habitat in the Hockomock Swamp and Pine Swamp in Raynham. It crosses the Hockomock Swamp for approximately 1.6 miles and crosses three miles of Biomap Core Habitat within the Hockomock Swamp ACEC, as well as approximately one mile in the Pine Swamp and Core Habitat BM1196. The Stoughton Alternative crosses Taunton River, mapped by NHESP as a Living Water Core Habitat and identified as a fisheries habitat. Other fisheries habitat crossed by the Stoughton Alternative include Whitman Brook, Queset Brook, Black Brook, Pine Swamp Brook, and Mill River. The DEIR/S includes information on thirty-eight vernal pools identified along the Stoughton route (from Taunton north), mostly within the Hockomock Swamp. The Stoughton alternative also crosses and is adjacent to large wetland and upland areas in Stoughton and Easton including the Stoughton Memorial Conservation Land, which includes the Bird Street Conservation Land.

The DEIR/S discusses potential direct impacts such as vegetation clearing and site grading and impacts related to culvert and bridge construction or reconstruction. The DEIR/S estimates a direct loss of 88.46 acres of habitat along the Stoughton Electric route between Weir Junction and Stoughton Station. Approximately 31.68 acres of upland forested non-breeding habitat between 100 and 750 feet of 82 vernal pools would be lost, the majority of this would be north of Raynham Junction. The amount of fill to vernal pools along this section of the route is estimated to be 1.31 acres, which is associated with 16 vernal pools. Approximately 13.75 acres of buffer habitat within 100 feet of 29 vernal pools will be lost as a result of the project. Total loss of habitat for the Stoughton route, including the Southern Triangle is estimated to be 182.27 acres (upland), 11.86 acres (wetland), 1.77 acres (vernal pools), and 55.04 acres (supporting vernal pool upland habitat).

Indirect impacts such as fragmentation and edge effects, wildlife movement and migratory barrier effects are also discussed in the DEIR/S. The Stoughton Alternative will result in barriers to wildlife movement and related fragmentation impacts. It will also increase canopy gap through portions of the Hockomock Swamp in areas where the forest canopy has closed since abandonment of the historic rail line, resulting in edge effects with changes in light, temperature and humidity.

An analysis of biodiversity value and potential impacts of project alternatives was conducted by University of Massachusetts, Amherst using CAPS (the Conservation Assessment and Prioritization System). The analysis was conducted for baseline conditions, and for the Attleboro, Stoughton and Whittenton alternatives. The study area included the entire Taunton watershed and a 5 kilometer buffer around all rail lines for the alternative routes. The Stoughton and Whittenton variation were modeled with and without a trestle through the Hockomock Swamp. The CAPS analysis provides a quantitative assessment of ecological integrity to compare the relative habitat impacts of alternative development scenarios and/or the benefits of habitat management or environmental restoration options. It is a useful tool for environmental impact assessment and decision-making. CAPS defines ecological integrity as the ability of an area to support biodiversity and the ecosystem processes necessary to sustain biodiversity, over the long term. The output of the analysis is an Index of Ecological Integrity (IEI), based on a model that takes into account connectivity between various points on the landscape, habitat type and similarity, influence of nearby roads and traffic, and other metrics related to ecology and development. The CAPS model assigns a value of 0 to 1 for each point in the landscape, based on the ability of a point to serve as wildlife habitat, and generates an IEI score. Locations with the best habitat score 1.0 and lower quality habitat scores are closer to 0. Direct and indirect effects of the project degrade the value of that landscape point (or cell) to serve as wildlife habitat (as do other stressors such as roadways).

The DEIR/S includes the results of the CAPS analysis as well as a description of the methodology and assumptions. Overall, the two routes through Hockomock Swamp showed the greatest estimated loss in ecological integrity, followed by the Attleboro route with considerably less influence (77-80% of the loss associated with the Stoughton and Whittenton alternatives). The trestle alternatives through Hockomock Swamp reduced the modeled loss of ecological integrity somewhat, although many of the benefits of a trestle are likely to occur at a local scale below that of the CAPS analysis. Since a large section of the route, the Southern Triangle, is common to all the rail alternatives, the ecological integrity loss was also calculated for those portions of the alternative routes that are not in common. Excluding the Southern Triangle, the loss in ecological integrity ranges from 206.8 units for the Attleboro Alternative to 312.1 units for Stoughton (no trestle) and 319.5 units for Whittenton (without trestle). When the trestle is included, the modeled loss in ecological integrity for Whittenton is 309.2 units and for the Stoughton Alternative it is 302 units. The Southern Triangle results in an IEI loss of 172.5 units for a total estimated project loss of 474.5 units associated with the preferred Stoughton Alternative. The Rapid Bus was not analyzed and was assumed to have minimal loss in biodiversity compared to the rail alternatives because it would operate along existing roadways and habitat impacts would occur near areas that are already degraded.

The biodiversity analysis splits the project-related loss in ecological integrity into direct and indirect loss. The direct loss is primarily associated with the proposed stations. Most of the projected loss overall is associated with indirect impacts. The Stoughton route with the trestle will result in a loss of approximately 17.6 units of ecological integrity from direct impacts and 456.9 units will be lost as a result of indirect impacts. At MassDEP's request, UMass Amherst evaluated the degree to which important habitat (with IEI>0.6) in the baseline assessment would be compromised as a result of the Stoughton alternative's one-mile transit of the Pine Swamp, a 275-acre unfragmented high quality wetland that is avoided by the Whittenton route. The results

indicated that while the Whittenton route impacts 7 more units (compared to Stoughton), the Stoughton route would impact 13.5 additional units that had a high value for wildlife habitat. As noted in MassDEP's letter, UMass calculates that the loss of 13.5 units would be equivalent to 18 acres of Pine Swamp no longer being characterized as important wildlife habitat (i.e. not in the top 40 percent of IEI scores).

Based on the biodiversity analysis, the proposed Stoughton Alternative will result in substantial direct and indirect ecological impacts for which mitigation should be provided. MassDOT should develop targeted mitigation plans as outlined in the Wetlands and Biodiversity and other sections of the Scope below.

#### Water Quality and Public Water Supplies

The DEIR/S concludes that the Stoughton Alternative, which involves temporary construction activities within one Zone A area, Zone II areas for six wells, and the Interim Wellhead Protection Area (IWPA) for two wells, would not result in long-term impacts to water supply. During post-construction operations, the project will discharge stormwater to these same water supply protection areas as well as ten different waterbodies including one ORW within the Hockomock Swamp ACEC and the East Branch of the Neponset River in the Fowl Meadow ACEC. One new station in Easton is proposed within a Zone II area. MassDEP, in its comment letter, concurs with the DEIR/S conclusion that with comprehensive and early planning and design of adequate containment, minimization and mitigation measures and consistent implementation of maintenance procedures, the proposed project will not result in impairment of surface and groundwater quality or functions. Additional information on compliance with stormwater standards is required in the FEIR as outlined in the Scope below.

#### Article 97 lands

For each of the project alternatives, the DEIR/S identifies land impacted by the project that is protected under Article 97 of the Amendments to the Massachusetts Constitution. Portions of three protected open spaces and publicly owned land within one ACEC subject to the EEA Policy are proposed for acquisition as part of the Stoughton Alternative. Three of these parcels would be used for traction power substations.

#### Environmental Justice

The DEIR/S includes information on environmental justice populations in the project area, discusses relevant state and federal policies, and analyzes potential impacts to environmental justice populations with a comparative analysis of the effects of the various alternatives. The DEIR/S identifies areas in which there will be a disproportionate impact to environmental justice populations as a result of noise and vibration, and describes the potential benefits in terms of economic development and improved access to transportation, jobs and education. Environmental Justice neighborhoods are located in Attleboro, Canton, Fall River, Mansfield, New Bedford, Stoughton, and Taunton. The DEIR/S evaluates impacts related to neighborhood fragmentation, noise level increases, and residence or job losses associated with property acquisition. The analysis examines whether adverse impacts will be predominantly

borne, or experienced in more severity, by Environmental Justice populations in comparison to non-EJ populations in the same communities.

The Southern Triangle portion of the project contains a larger Environmental Justice population compared to areas further north along the alignment; 36 percent of the Environmental Justice population is around the Fall River Secondary and 50.4 percent around the New Bedford Main Line. Populations include those meeting the low income criteria as well as minority populations. 88.7 percent of Fall River's population live within Environmental Justice-designated neighborhoods.

Of the populations affected by noise impacts associated with the electric rail on the Fall River Secondary, 34.7 percent are Environmental Justice residences and 65.4 percent are not (for the diesel alternative it is 36 and 64 percent respectively). For the electric rail on the New Bedford Main line, the number of impacted Environmental Justice residences is 9.2 percent of the total while non- Environmental Justice residences account for 90.8 percent of residences affected (6.3 and 93.3 percent respectively for the diesel alternative). Impacts to Environmental Justice residences in Taunton account for 10.5 (electric) and 10.8 (diesel) percent of the total residences impacted. In New Bedford, the Environmental Justice residences account for 18.8 percent (electric) and 14 percent (diesel) of the total number of impacted residences.

The DEIR/S indicates that vibration impacts to residences could be mitigated by using ballast mats beneath the rail lines and "frogs" at selected switch locations as well as special pile-driving methods to reduce construction-related impacts. The electric alternatives will not adversely affect local air quality in Environmental Justice neighborhoods. Diesel alternatives will result in increased CO and particulate matter at the local level.

The noise impact analysis for the Stoughton Electric alternative concluded that 1,525 residences would be impacted by moderate and severe noise levels. The number of Environmental Justice residences affected is 110, approximately 7.2 percent of the total. Raynham and Easton do not contain Environmental Justice populations. The percent of noise-impacted residences within Environmental Justice neighborhoods in Stoughton is 25.1 percent and in Taunton it is 11.3 percent. The numbers for the diesel alternative are 25.8 percent and 4.3 percent for Stoughton and Taunton respectively. The Whittenton Electric alternative in comparison would result in moderate or severe impacts to 494 residences within Environmental Justice neighborhoods in Taunton, representing 36.4 percent of the total residences affected in that community. The Whittenton diesel results in noise impacts to 506 residences in Taunton (36.5 percent of the total residences affected). The Rapid Bus alternative does not result in adverse noise impacts to Environmental Justice communities.

The proposed Battleship Cove and Whale's Tooth stations in New Bedford, the King's Highway Station, the Fall River Depot, and the Taunton Station are expected to catalyze redevelopment and improve access to transit, as well as employment and educational opportunities for Environmental Justice populations in the area. Data included in the DEIR/S indicates that 20.7 percent of households in Fall River do not own a car compared with the state-wide average of 12.7 percent. The DEIR/S projects that the value of homes in the vicinity of proposed stations will increase as a result of the project and related TOD.

The DEIR/S evaluates potential impacts relating to property acquisition and concludes that acquiring nine parcels as proposed in Fall River will result in a tax revenue loss for the City which would affect financial resource availability for the surrounding Environmental Justice neighborhood. The acquisition of commercial and industrial buildings on the properties may also result in job losses for the nearby Environmental Justice population. The proposed Fall River Depot station is expected to spur growth and catalyze redevelopment of the waterfront area.

The DEIR/S evaluates time of travel for the various alternatives in relation to access to jobs for populations in New Bedford, Fall River and Taunton. The study concludes that the Fall River Environmental Justice populations will benefit the most and New Bedford the least in terms of improved access to basic jobs. The greatest improvement would be realized through the Stoughton Electric because of its faster travel time and projected ridership from the three communities.

The analysis in the DEIR/S concludes that Environmental Justice communities, at a regional level, would not be disproportionately affected by the proposed project. However, at a local community level, Environmental Justice communities in Stoughton would be disproportionately affected by noise relative to non- Environmental Justice communities in that municipality. The Whittenton alternative would result in even greater noise impacts to Environmental Justice communities. The noise impacts in Fall River would be predominantly borne by Environmental Justice residences. Mitigation measures for noise and vibration impacts should be further evaluated and committed to as outlined in the Scope below.

### Coastal Resources

The Fall River Secondary crosses approximately 4,100 feet of filled tidelands in seven locations and three non-tidal rivers and streams potentially subject to Chapter 91 Jurisdiction. Approximately 6.6 miles of the Fall River Secondary (in three segments) is located within the Coastal Zone and a total of 0.5 miles of the Fall River Secondary near the southern end of the project area is located within the Mount Hope Bay Designated Port Area (approximately 2,100 feet near Weaver's Cove and 500 feet near Battleship Cove). The New Bedford Main Line crosses several areas of filled tidelands south of Wamsutta Street in New Bedford (approximately 3,900 feet of filled tidelands in four locations) and five potentially jurisdictional non-tidal rivers and streams.

The DEIR/S describes the proposed work at each crossing and provides a summary of the potential approvals necessary under Chapter 91 and the Coastal Zone Management Program. Certain Chapter 91 jurisdictional and licensing issues remain unclear and MassDOT should address these with MassDEP and in the FEIR as outlined in the Scope. The DEIR/S indicates that the Stoughton line (north of southern triangle) is entirely within inland communities and does not include any work within filled tidelands, flowed tidelands or the Massachusetts Coastal Zone. However, there are nine crossings of non-tidal rivers that may be subject to Chapter 91.

The DEIR/S discusses proposed work at stations and layovers and consistency with regulatory standards and policies. Additional information is required in the FEIR as outlined in the Scope below. Four of the proposed station sites are located on filled tidelands or are within

the Massachusetts Coastal Zone: Battleship Cove, Fall River Depot, Freetown, and Whale's Tooth. Battleship Cove and Whale's Tooth station sites include landlocked tidelands, and require a Public Benefits Determination. Four of the alternative layover sites are located within filled tidelands and require evaluation for Chapter 91 jurisdiction and compliance and consistency with Coastal Zone Management policies. The Wamsutta, New Bedford layover facility is within landlocked tidelands.

### Cultural Resources

The DEIR/S includes a detailed evaluation of historic and archaeological resources in the Area of Potential Effect (APE) and identifies specific historic districts and buildings that may be adversely affected by the project, as well as sites of cultural value to Native American people. The Wampanoag Tribe of Gay Head/Aquinnah has indicated that the Hockomock Swamp and the Pine Swamp are regarded as traditionally culturally sensitive lands. Impacts to traditional cultural properties will be determined based on further consultation with the Tribes. The DEIR/S indicates that properties within historic districts that will be impacted by noise and vibration will be further evaluated in the FEIR. The project will have direct and indirect, as well as temporary and permanent, impacts on above-ground historic resources. Impacts evaluated in the DEIR/S include noise and vibration, traffic, visual, physical modifications, and air quality.

Based on the analysis in the DEIR/S, traffic and air quality impacts to historic and archaeological resources are expected to be minor. Temporary vibration impacts during construction may result in vibration levels that could cause structural damage in the vicinity of certain bridges. The DEIR/S evaluates project elements that may cause permanent impacts to viewsheds including catenary and other electrification infrastructure, vegetation clearing, grade crossings and traffic controls, noise walls, parking lots, and new building construction.

The DEIR/S identifies historic properties impacted by each alternative and describes those potentially eligible for National Register listing. The Southern Triangle affects 32 areas/districts and 214 individual properties of which 14 and 17 respectively are listed in National Register (NR) or considered eligible (8 areas/districts and 26 individual properties in the Southern Triangle are considered ineligible for NR listing. The Stoughton/Whittenton route affects 34 areas/districts and 267 individual properties of which 4 and 16 respectively are listed as NR eligible (16 areas/districts and 12 individual properties are not NR eligible). The Rapid Bus affects 2 historic area/districts and the Attleboro alternative affects 22 historic areas/districts as well as 221 individual properties within districts. The DEIR/S indicates that changes to infrastructure and the introduction of new structures along the Stoughton Line will have indirect visual effects on the H.H. Richardson Historic District. The design of project station and parking/drop-off areas will introduce new modern rail elements that will have a visual adverse effect on Ames Shovel Shop and North Easton station. DEIR also identifies historic properties that would experience moderate to severe noise impacts

The DEIR/S recommends an intensive survey for areas/districts and individual resources that have been identified as potentially eligible for inclusion in the National Register. The DEIR/S recommends additional survey work to inform consultation between the Corps and the Massachusetts Historical Commission (MHC) on the NR eligibility of resources and

determinations of effect on resources. Work is proposed prior to completion of environmental review and when more detailed design information is available. The methodology will include additional background research and field survey to analyze the integrity, historical context, and significance criteria met for each resource.

The DEIR/S includes a summary of the archaeologically sensitivity of the APE. Some locations contain moderate and high sensitivity areas for potentially significant pre-contact sites and documented/recorded post-contact areas. The Hockomock and Pine Swamps include sensitive terraces for pre-contact sites that may be traditional cultural places for Wampanoag Tribe of Gay Head/Aquinnah. High sensitivity areas in the Southern Triangle include Whale's Tooth Station, Wamsutta Layover facility, and historic cemeteries on the New Bedford Main Line. Proposed station sites in Easton North Easton and Taunton Depot are identified as moderate to high sensitivity. The DEIR/S indicates that the Corps will be addressing traditional cultural properties in a separate document pursuant to Section 106 of the National Historic Preservation Act. Additional archaeological studies will be completed prior to the FEIR.

The Stoughton Electric Alternative would result in direct impacts (adverse effects) to six historic properties, primarily historic bridges that would require reconstruction or widening, and potential direct impacts at some existing stations that would need to be reconstructed. In addition, this alternative would have indirect effects to an additional 62 properties as a result of changes in setting and/or increased noise that could affect the setting directly or require noise mitigation that could affect the appearance or setting of a building. It could affect two known archaeological sites for reconstruction of the Fall River Secondary. Archaeological resources could potentially be affected at other areas of archaeological sensitivity along the Stoughton Line, and at three station locations. The DEIR/S discusses potential mitigation strategies and measures to avoid and minimize impacts during construction and noted that additional detailed plans will be provided in the FEIR

### Noise and Vibration

The DEIR/S includes an analysis of noise and vibration impacts associated with the project alternatives. The Federal Transit Authority (FTA) Noise and Vibration Impact Assessment Guidelines were used to evaluate existing conditions and assess potential impacts of the project. The DEIR/S describes the methodology for the study and the land use categories and metrics for evaluating transit-related impacts, as well as including information on background noise levels and monitoring locations. The analysis assumed that horns would be sounded at all proposed grade crossings. Using the FTA guidelines, impacts are categorized as severe, moderate, or no impact depending on the projected increased level of exposure compared to existing noise levels.

In the Southern Triangle, common to all alternatives, electric train operations (operating train noise without horns) would result in 298 moderate and 63 severe impacts to residential receptors along the New Bedford Main line segment. Diesel train impacts are lower with estimates of 194 moderate and 38 severe impacts. Train horns along this segment will add 93 moderate and 76 severe impacts. Electric train operations for the Fall River Secondary will result in 581 moderate and 155 severe impacts to residential receptors. The majority of these occur in

Fall River, in the Cory and Durfee Street neighborhoods. Diesel operations are comparable with 570 moderate and 181 severe impacts. Train horns along this corridor will result in additional impacts of 98 moderate and 164 severe horn impacts. Electric train operations for the Stoughton line segment result in 441 moderate and 190 severe impacts to residential receptors, the majority occurring in Raynham and Easton, in the Elm Street (Easton), Bridge Street and Elm Street (Raynham) neighborhoods. Train horns along the Stoughton line segment will add 437 moderate and 457 severe impacts. Due to lower operating speeds, the diesel alternative has lower noise levels and will result in 335 moderate and 128 severe impacts. The Whittenton alternative has greater noise impacts to residents compared with Stoughton as a portion of the route diverts and affects additional receptors in Easton and Taunton. The Whittenton Electric train results in 530 moderate and 199 severe noise impacts as well as 828 moderate horn impacts and 1,082 severe horn noise impacts. This alternative has 12 at-grade crossings within a short distance in Taunton, hence the additional noise impacts. The Whittenton diesel train results in 492 moderate and 151 severe impacts in addition to the horn impacts. The Rapid Bus operations are not expected to result in any noticeable increase in noise levels for residential receptors.

The DEIR/S estimates noise impacts to residential receptors in the vicinity of the layover sites. One moderate impact to a receptor near the Weavers Cove East site is projected and no noticeable impacts to receptors near the other layover sites. Temporary construction noise impacts are also expected and control measures will be developed with noise guidelines incorporated into construction documents. The DEIR/S discusses potential noise mitigation measures in general for the train operational impacts. Additional evaluation is required for the FEIR as outlined in the Scope below.

The DEIR/S includes information on the vibration measurements conducted to evaluate existing conditions. Projected vibration levels are compared to FTA criteria which indicate that 80 Velocity level in decibel units (VdB) is a level at which human annoyance is experienced for residential receptors exposed to infrequent events (less than 30 per day). The criteria are lower for more frequent events. The DEIR/S indicates that most of the vibration impacts are in the 80-83 VdB range. For receptors closer to the tracks, levels are in the 85-89 Vdb range. The DEIR/S provides the FTA criteria indicating that 90 VdB typically elicits human response of difficulty with tasks such as reading a computer screen and 100 Vdb is the level at which minor cosmetic damage to fragile buildings may occur. The vibration assessment of the track switches indicates that one location has a receptor located within 225 feet of a switch that would result in a vibration impact of 80 VdB (residential receptor on Ingall Street near Weir Junction). At the Weaver Cove site, two residential receptors are located within 100 feet of the proposed track switches and one within 225 feet. At the New Bedford Church Street site, two residential receptors are located within 225 feet of the mainline switch.

The DEIR/S includes the results of the vibration impact assessment indicating that 95 residences will be impacted by vibration associated with the project in the southern triangle section of the corridor. North of the Southern Triangle, for the Stoughton line portion of the route, the DEIR/S estimates that 51 receptors will be impacted by vibration levels of 80 VdB or higher. One receptor is a multi-unit apartment building and the others are single-family homes. The residences are located in Stoughton (12), Raynham (13), Easton (17), and Taunton (9). The DEIR/S concludes that station and other historic buildings in Easton Village would experience

impacts below the 100 VdB vibration threshold for the onset of minor structural damage to fragile and historic buildings. The Whittenton route results in similar impacts to the Stoughton direct, and the Attleboro has less vibration impacts overall. The Rapid Bus is not projected to have any noticeable vibration impacts. Additional information on vibration impacts and mitigation should be included in the FEIR as outlined in the Scope below.

#### Stormwater

The DEIR/S discusses the potential direct and indirect effects on water resources from each of the South Coast Rail project alternatives, and identifies areas where stormwater management systems will be required. The DEIR/S concludes that with mitigation and drainage features in place, none of the Build Alternatives are expected to impair any water resources. The proposed Stoughton alternative will result in 14.4 acres of new impervious area and includes stormwater discharges to two ACEC/ORW waterbodies and nine non-ORW waterbodies, as well as six discharges to Zone II water protection areas and two discharges in Interim Wellhead Protection Areas (IWPA). Additional details on stormwater management should be included in the FEIR as outlined in the Scope below.

#### Farmland Soils

The DEIR/S indicates that the project would not result in significant impact to agricultural lands or convert land from active agriculture to non-agricultural use. The conclusion is based on an evaluation using the U.S. Department of Agriculture (USDA) scoring system and the fact that impacted farmland soils are not currently in active agricultural use. The Stoughton Electric route will impact approximately 13 acres of mapped farmland soils primarily associated with the development of the North Easton and Freetown stations, and traction power sites.

#### Oil and Hazardous Materials (OHM)

The DEIR/S provides a summary of each of the proposed alternatives in the context of potential OHM conditions in locations that may be affected by the South Coast Rail alternatives. The DEIR/S describes environmental site assessments conducted along sections of the project alignment as well as at layover and station sites. The DEIR/S describes the methodology and results including specific areas of environmental concern due to historic contamination. The DEIR/S also discusses management of contaminated soils and impacted groundwater in accordance with the Massachusetts Contingency Plan (MCP). The DEIR/S includes recommendations for further investigations and mitigation measures to be performed prior to and during construction of proposed stations, track segments, and layovers.

#### Station Sites

The proposed Stoughton route includes ten new stations from the existing Stoughton station south to New Bedford and Fall River. Two existing stations, Canton Center and Stoughton will require modifications for the preferred Stoughton route. Proposed new stations consist of high-level platforms (4 feet above track), canopies, commuter parking, a pick-up and drop-off area for buses, and drop-off parking. Platforms will be designed to handle a 9-car train

set (800 feet long approximately). The station designs includes bike storage areas and pedestrian connections to neighboring streets. The Transit Oriented Development (TOD) aspect of the proposed stations will include residential and commercial development.

The proposed Battleship Cove station in Fall River includes a single track and one side platform. This station will not have designated parking, it will allow for pick-up and drop-off only with a driveway access off Water Street. The paved loop driveway will accommodate three 40-foot buses as well as passenger vehicles for pick-up and drop-off. Pedestrian connection improvements to Fall River's central block are proposed which would improve access to Southeastern Regional Transit Authority (SRTA) Route 6 bus and the Route 7 bus will be extended to the station.

The Canton Center station is an existing station off Washington Street that will be modified for a second track. Two new 800-foot long low-level platforms with mini-high platforms are proposed adjacent to each track. Modifications to existing parking will be required and the existing 210 parking spaces would remain. There is no designated area proposed for bus or vehicular drop-off. A walkway is proposed from the platforms to existing sidewalks on Washington Street.

The new Taunton Depot station will be located off Route 140 at the rear of a shopping plaza and serve walk-in, drive-in and drop-off passengers. A total of 456 parking spaces are proposed. The driveway access will be through the existing Target Plaza with a new driveway behind Target to the new station parking area. The new driveway will accommodate two 40-foot buses. A sidewalk is proposed to connect with the existing sidewalk on Taunton Depot Drive. No feeder bus connection is proposed for this station. One center platform is proposed with a pedestrian bridge over the tracks with stairs and ramps. Triple tracks are proposed (two for commuter rail and one for freight).

The Easton Village Station is proposed immediately south of the historic H.H. Richardson train station on Sullivan Street in Easton. The location is within walking distance of downtown Easton and will serve walk-in and bike-in customers. The DEIR/S proposes using ten of the existing spaces at the historic train station for drop-off and pick-up. The driveway access for the proposed new station is from Sullivan Street and Oliver Street. No bus accommodation is proposed. One side platform and a single track is proposed. Pedestrian access is proposed via ramps connecting to an existing sidewalk on Oliver Street and an existing underpass (under the tracks) to connect with an existing sidewalk on the west side of Sullivan Street. A shuttle bus is proposed for Stonehill College and an extension of the Brockton Area Transit (BAT) Route 9.

The Fall River Depot Station will be located one mile north of downtown Fall River at Route 79 and Davol Street and is the site of an historic train station. A parking deck is proposed to limit surface parking and allow space for future TOD. The station will serve walk-in, bike-in, and drive-in customers. 513 parking spaces are proposed. The driveway access will be off Davol Street and will accommodate up to four 40-foot buses and 10 vehicles for passenger drop-off. One side platform and double track is proposed. Sidewalks will be installed throughout the site and along the frontage of Davol, Pearce, and Turner Streets connecting to existing sidewalks in

the vicinity of the stations. Pedestrian connections will provide access to SRTA Route 2. SRTA Route 14 will be re-routed to access the station.

The proposed Freetown station will be located on South Main Street. The site includes a self-storage business and is near the Fall River Executive Park and the proposed River Front Park. The station will serve drive-in customers and customers shuttled between the station and industrial parks. 174 parking spaces are proposed. The driveway access will be off South Main Street and will handle two 40-foot buses and 8 passenger drop-off vehicles. One side platform and a double track is proposed. Sidewalks are proposed out to South Main Street for future pedestrian connections. The existing SRTA Route 2 will be extended one mile to the proposed station.

The proposed King's Highway Station will be located in northern New Bedford along King's Highway, immediately east of Route 140. The station is located on the site of an existing shopping plaza and will serve walk-in, bike-in and drive-in passengers. 360 parking spaces are proposed. Parking will be shared with an existing movie theater. Access will be from the King's Highway through the existing commercial development to a shared parking area and bus drop-off, which will accommodate two 40-foot buses and 10 drop-off vehicle parking spaces. One side platform and a double track are proposed. Ramps will be installed to connect with sidewalks that will be extended to connect with existing sidewalks. The existing SRTA Route 8 bus and North End shuttle will be extended to connect to the station.

The proposed North Easton station will be located at the rear of the existing Roche Brothers plaza off Route 138. The station will serve primarily drive-in customers although it may attract walk-in customers also from existing and proposed new development on the site as well as nearby residences. 509 parking spaces are proposed and an access driveway from Roche's Brothers Way that will accommodate two 40-foot buses and 10 vehicular drop-off parking spaces. A center platform with pedestrian bridge is proposed as well as a double track and a sidewalk to connect with the existing sidewalk along Roche Bros. Way. No feeder bus connections are proposed for this station.

The proposed Raynham Place Station will be located at the Raynham-Taunton Greyhound Park off Route 138. The site is proposed for future TOD and will serve walk-in, bike-in, and drive-in customers. 448 parking spaces are proposed. Access to the parking area and bus drop-off will be from Route 138 through the existing development complex. The access driveway will accommodate two 40-foot buses and 7 drop-off vehicle parking spaces. One center platform with a pedestrian bridge is proposed as well as double-track. Walkways will be installed around the exterior of the parking facilities for future walkway connections. No feeder bus service is proposed at this location.

The existing Stoughton station is located off Route 138 and is proposed for modification to accommodate a second track. The station will be relocated from its present position between Wyman and Porter Streets to a new location south of the Wyman Street at-grade crossing. Two new platforms are proposed adjacent to each track, which will require changes to the existing parking layout. Approximately 185 existing parking spaces will be relocated and loss of 28 spaces is proposed. Approximately 350 spaces will remain undisturbed, for a total of 507 parking

spaces. Driveway access is proposed from Washington Street, Wyman Street, Porter Street and Canton Street. No accommodations for bus riders are proposed. Nine vehicular drop-off spaces are proposed. Two side platforms and a double track are proposed. Sidewalks will be constructed to connect with existing sidewalks allowing pedestrians to use the existing at-grade pedestrian crossing at Wyman Street.

The proposed Taunton –Dean Street Station will be located along Arlington Street near Dean Street (Route 44) adjacent to an historic train station. The City of Taunton has begun brownfields remediation of the proposed site in anticipation of the train station. The site is within walking distance of downtown Taunton and is proposed for use as a TOD site and will serve walk-in, walk-in, and drive-in customers. 201 parking spaces are proposed. The driveway access is proposed from Arlington Street and will accommodate two 40-foot buses and 8 vehicle drop-off spaces. One side platform with a single track and freight siding is proposed. Walkways are proposed to connect the platform and access driveway to Arlington Street for future pedestrian connection. The existing Greater Attleboro Taunton Regional Transit Authority (GATRA) Route 7 bus will be re-routed to access the station and Routes 6 and 18 will be rerouted for better transfer access at Taunton Green.

The Whales Tooth station will be located on Acushnet Avenue at the existing Whales Tooth parking lot, constructed by the City in anticipation of the project. The station will include intermodal connections, buses, and potentially ferry services. The site will serve walk-in, bike-in and drive-in customers. 694 parking spaces are proposed. Driveway access is off Acushnet Avenue and the proposed bus drop-off area will accommodate two 40-foot buses and spaces for passenger pick-up and drop-off. One side platform and a single track are proposed. Ramps and stairs will be installed to connect with existing sidewalks adjacent to the parking facility. The SRTA Routes 1, 3 and 11 will be extended to connect with the station and pedestrian connections to the station will be improved.

MassDOT is also planning an expansion at South Station independent of the South Coast Rail project, which involves the addition of seven new tracks (included in the no-build/enhanced bus baseline analysis).

### Layover Facilities

The DEIR/S provided information on five alternative layover sites, including graphics showing wetland resources, preliminary information on tidelands, and potential impacts to environmental justice communities and cultural resources. Conceptual plans for layover facilities have not yet been developed to the same level of detail as those for the stations. As noted in the Scope below, information and analysis should be further developed in the FEIR.

### Monitoring and Evaluation

A draft long-term monitoring and evaluation plan was not presented in the DEIR/S which indicates it will be provided in the FEIR. Further guidance is provided in the Scope below.

### Mitigation, Permitting and Section 61 findings

The DEIR/S identifies potential mitigation measures for various impacts including traffic, noise, vibration, visual, and cultural impacts as well as impacts to wetlands and state-listed species. Some specific measures such as noise walls and ballast mats for vibration reduction are proposed as well as more conceptual measures such as a watershed approach to wetlands mitigation. As further detailed in the Scope below, detailed mitigation plans for the preferred alternative are required in the FEIR.

## SCOPE

### General

MassDOT should prepare a FEIR in accordance with the general guidance for outline and content found in Section 11.07 of the MEPA regulations as modified by this Scope. The FEIR should include maps, plans and other graphics at a reasonable scale to facilitate review and comment. The FEIR should include a list of permits and approvals required, an update on any changes since the filing of the DEIR/S, and a copy of this Certificate.

### Wetlands and Biodiversity

The project will require several variances from the Wetlands regulations performance standards. One of the three criteria for a variance is a demonstration that the variance is necessary to accommodate an overriding public interest. The FEIR should further refine how the proposed Stoughton Electric rail will advance the public interests identified in the DEIR/S, which include: the need for public transportation from the south coast region to Boston and benefits to the south coast region in terms of public transit equity, service distribution and ridership, air quality and climate change improvements, and opportunities for smart growth and sustainable development as an alternative to sprawl.

To demonstrate eligibility for a variance MassDOT must also propose mitigation measures that will allow the project to be conditioned to contribute to Wetland Protection Act interests. Mitigation measures will be required to off-set the project's direct, indirect, and cumulative impacts. The FEIR should describe specific mitigation measures that will directly mitigate wetlands impacts, improve wetland conditions and avoid future indirect and cumulative impacts.

The FEIR should document any revisions to wetland boundaries and project-related impacts based on more detailed field delineations for the proposed Stoughton route, and boundaries as approved by local Conservation Commissions. The FEIR should quantify temporary as well as permanent wetlands impacts, for individual project components and cumulatively for the entire project (including stations and layover facilities). Direct and indirect wetlands impacts related to canopy clearance should be further evaluated in the FEIR. Some tables in the DEIR/S reference total "wetlands" impacts but do not include all resource impacts or temporary impacts. In discussing and summarizing wetlands impacts, the FEIR should clarify

(in table headings for example) whether the reference is to Bordering Vegetated Wetlands (BVW) and ORW only or to the total amount of project-related wetland impacts, and whether it is referring to permanent, temporary or both combined. Where there are differences in categorization under state and federal regulations, the FEIR should clarify and differentiate as appropriate. The FEIR should include a summary table with a breakdown of all wetland resource impacts (including BVW, Bank, Riverfront Area, and BLSF) for the entire project (rail, stations/layovers, roadway improvements, and other components) so that the individual resource impacts and the cumulative totals are summarized in one place. Temporary and indirect impacts should be included in the summary of wetlands impacts, as well as direct and permanent impacts.

The FEIR should include information on the location and volume of Bordering Land Subject to Flooding (BLSF) that will be impacted by the project and details on proposed compensatory flood storage mitigation. The WPA requires that compensatory storage be provided at or near the points of impact. MassDEP has indicated that flexibility exists to consolidate mitigation for some resource impacts into more centralized areas within the watershed rather than individual mitigation sites at each mitigation location. But this approach does not necessarily apply to BLSF. The FEIR should include detailed plans for BLSF mitigation and demonstrate how proposed mitigation will meet WPA requirements. The FEIR should quantify the total area of Riverfront Area impacted by the project, provide a breakdown of impacts at specific locations, describe how work proposed in riverfront will meet applicable performance standards, and provide details of mitigation plans for riverfront impacts.

The DEIR/S indicates that vernal pool impact assessment is based on data from surveys within 100 feet of the center of the ROW. As discussed at meetings of the Interagency Coordinating Group (ICG), vernal pools within 100 feet of the edge of the limit of work should be included in the assessment of impacts as well as vernal pools further away from the ROW. The ICG agreed (meeting minutes 4/16/2009) that the direct impacts will include loss of upland habitat where the limit of work is either 600/750 from a vernal pool (biodiversity impacts); potential impacts to vernal pool habitat if the limit of work is within 100 feet of the edge of the vernal pool wetland; and impacts to vernal pools if the work is within a wetland containing a vernal pool. The FEIR should update the vernal pool impact assessment for the Stoughton route to clarify vernal pool and vernal pool habitat impacts, as agreed by ICG, and to inform the proposed mitigation plan. The FEIR should include the results of additional field work or other data gathering needed to complete the assessment. MassDOT should consult with the NHESP about survey methods prior to initiating additional vernal pool surveys. The FEIR should describe how impacts to vernal pools and vernal pool habitat will be avoided, minimized, or mitigated, and include detailed mitigation plans to compensate for adverse impacts. The FEIR should also discuss potential measures to eliminate existing All Terrain Vehicle (ATV) impacts on vernal pools. The FEIR should include a draft Vegetation Management Plan and identify no-spray zones for protection of rare species and other wildlife.

The FEIR should expand upon the analysis of wetlands functions and values in the DEIR/S to include a more detailed analysis for the proposed Stoughton rail. The FEIR should include narrative descriptions of wetlands functions and values of each wetland impacted directly and indirectly by the proposed project. The mitigation plan should describe how the lost functions and values will be mitigated.

The FEIR should include a detailed evaluation of potential mitigation measures to improve habitat connectivity by methods such as wildlife passage structures through the rail bed and improvements to stream crossings to facilitate passage of fish and wildlife designed so as not to compromise the hydrology of wetlands on either side of the rail bed. Potential rail bed modifications should be evaluated using the CAPS methodology to determine those potential modifications that would result in the most improvement in connectivity and wetland condition. The evaluation of opportunities for connectivity improvement measures should be conducted along the entire rail alignment. The FEIR should evaluate opportunities to enhance wetlands near the Raynham Dog Track on the west side of the alignment as well as potential “undevelopment” and restoration of portions of the dog track site. The FEIR should identify measures that MassDOT is committed to implement.

Additional Scope requirements related to stream crossings, trestle design and mitigation are outlined below. The analysis and design plans required should be at a sufficient level of detail to allow permitting agencies and other reviewers to fully understand the type and extent of environmental impacts, and to provide sufficient information for the detailed mitigation plan that will be included in the FEIR. If some of the information cannot be provided in the FEIR due to the level of design detail required, MassDOT should explain why this is the case, include a schedule for development of the information, and MassDOT’s best estimate of project impacts based on the information and analysis prepared for the FEIR. MassDOT should consult with the Interagency Coordinating Group during FEIR preparation to discuss any aspects of the required analysis for which information may not be complete, and to obtain input from the group on the appropriate level of detail to include in the FEIR.

### *Stream Crossings*

The FEIR should include details on the existing conditions at stream crossings, explain where culverts will be replaced or modified. The FEIR should include designs for proposed culverts, bridges, or other alterations at stream crossings and evaluate potential direct and indirect hydrological changes, including those that may impact adjoining wetlands. Any new culverts should be designed so as not to compromise the hydrology of wetlands on either side of the crossing. The analysis should address all stream crossings where work is proposed, including the Southern Triangle. Mitigation should be proposed for any unavoidable impacts. The FEIR should include detailed plans for the proposed relocation of the stream that runs along the former railroad berm near the Raynham Dog Track. The FEIR should assess the environmental impacts and benefits of the proposed relocation, including identification of any additional wetlands impacts associated with stream relocation within the Hockomock Swamp or potential Article 97 land impacts.

The FEIR should identify the locations for proposed culvert replacement and for new culverts and discuss in detail the proposed project’s consistency with Massachusetts River and Stream Crossing Standards. As noted in MassDEP’s comment letter, compliance with Stream Crossing Standards is fully required for new culverts reviewed pursuant to the WPA and 401 regulations. The FEIR analysis should include an evaluation of culvert extension impacts to fish, amphibians, reptiles, and other wildlife passage. The FEIR should evaluate opportunities for

maximizing hydrological connections between wetlands for enhancement and restoration as well as for flood capacity.

The FEIR should include an analysis of spans and open bottom arches to meet the Stream Crossing Standards, and consider such arches as mitigation measures throughout the entire rail alignment to the extent they are practicable to improve fish and wildlife passage, and do not interfere with safe train operations. Any closed bottom arch design should include an analysis of measures to install and maintain the stone that requires embedding at a depth of at least two feet. I refer MassDOT to the comments from MassDEP for additional guidance on stream crossing design.

#### *Trestle Design and ROW Access*

The FEIR should evaluate the engineering feasibility of constructing the proposed trestle in wetland soils and evaluate the feasibility of constructing a trestle through the Pine Swamp also. The FEIR should also discuss how access will be achieved for any maintenance or emergency situation along portions of the rail ROW, including sections of the rail located in the Hockomock and Pine Swamps.

#### *Mitigation*

The FEIR should identify targeted lands for acquisition by MassDOT as mitigation for the cumulative and indirect impacts of the project. The analysis of secondary impacts and smart growth measures in the DEIR/S concludes that aggressive implementation of smart growth can reduce habitat impacts by almost 50 percent compared to the build without mitigation scenario. Cumulative and indirect impacts of the project are estimated at 250 acres of habitat loss that includes loss of high quality wetlands, rare species habitat, and biodiversity. A variance from the WPA regulations is required for the project's impacts to rare species. One concrete way for MassDOT to translate its smart growth planning into resource protection is to fund for conservation-protected targeted acquisition of parcels in Priority Protection Areas (PPAs) that are important to meet the long-term net benefit to rare species and preserve land with a high Index of Ecological Integrity (IEI). The CAPS analysis should be applied to potential mitigation sites to determine IEI scores. The selection of high IEI properties should consider properties that will not be adversely affected by direct or indirect impacts of the project, which would reduce IEI scores after construction. The FEIR should identify targeted sites for acquisition and describe in detail how the proposed land acquisition will offset direct and indirect impacts of the project, and further the smart growth aspects of the Corridor Plan.

Implementation of the smart growth Corridor Plan has the potential to mitigate environmental impacts and advance environmental preservation along the project corridor. The Corridor Plan presents an opportunity for an integrated approach to advance environmental protection strategies with land use planning that 1) optimizes economic and housing development, 2) contains sprawl, and 3) protects the integrity of critical natural resource habitats. The FEIR should include an analysis of how land acquisition can be optimized to accomplish these three goals. MassDOT should consult with EEA agencies to identify and protect areas critical to preserving the integrity of existing and valuable ecosystems. MassDOT should also

partner with local Conservation Commissions and Planning Boards, regional planning agencies, and non-profit land trust/conservation organizations in a coordinated effort to adopt land preservation strategies that will stem wetland habitat fragmentation commonly associated with sprawl due to unconstrained development. The FEIR should clearly identify MassDOT's commitments to acquire land that meets the project's mitigation requirements and longer-term smart growth goals.

The FEIR mitigation plan should include the following:

- a 2:1 ratio for BVW mitigation (at a minimum), at least 1:1 for all other wetlands. Where the Corps requires higher ratios (e.g. for forested wetlands), the mitigation plan should reflect the federal requirements also;
- at least a 2:1 mitigation of rare species impacts subject to consultation with NHESP. In some areas mitigation requirements may be considerably higher—because this is a linear project that results in habitat fragmentation and may have disproportionate impacts on some species.
- specific locations and design details for wildlife crossings;
- an evaluation of the feasibility of removing targeted portions of the existing rail bed that will not be used for the new rail line and evaluation of potential ecological benefits of railbed modification using the CAPS analysis. The mitigation plan should include a proposal for removal of portions that can be performed without adversely affecting adjacent wetland resources, including sensitive wetlands on either side of the berm. Mitigation plans should focus specifically on locations that would improve wildlife habitat and fish passage, increase connectivity, and reduce fragmentation (for example, at locations within the Hockomock Swamp where a trestle will replace the existing bed);
- an evaluation of potential for restoration/preservation of Atlantic White Cedar (*Chamaecyparis thyoides*) wetlands
- topographic information and proposed improvements to existing stream crossings at site-specific locations to improve wildlife and fish passage;
- meaningful Riverfront Area improvements and/or restoration to mitigate for riverfront impacts;
- on-site elevation-specific compensatory storage for lost flood storage, or if such compensatory storage cannot be provided, demonstrate an insignificant increase in flooding. demonstrate that any incremental increase in flooding could be contained on the Proponent's property, or acquire flood easements;
- Acquisition of land to meet the goals of advancing smart growth, providing long-term net benefit to rare species, and preserving high IEI land;
- Commitment to specific actions to implement the Corridor Plan and to work with communities to implement smart growth; and
- Wetland restoration within the Hockomock ACEC.

The FEIR should document with a high level of assurance that land identified for preservation, restriction, or replication/restoration to be taken by eminent domain can actually be acquired and will satisfy mitigation goals. As part of the assurances, additional mitigation areas should be identified as fall-back options in the event the primary mitigation goals are not achieved.

MassDOT should consult with the Interagency Coordinating Group (ICG) for input on a draft mitigation plan including the methodology to identify appropriate mitigation for fragmentation impacts and the analysis of mitigation opportunities in the context of fulfilling mitigation objectives. MassDOT should expand its outreach efforts during FEIR preparation to obtain public input on draft mitigation plans.

The draft mitigation plan presented in the FEIR should clearly identify the impacts to be mitigated, for example specific resources, functions and values, amounts and types of impacts etc. The plan should describe specific mitigation objectives and include an evaluation of mitigation options to determine which sites and mitigation measures perform best overall in terms of fulfilling mitigation objectives.

### Endangered Species

MassDOT should consult with NHESP about the methodology to be used prior to any additional habitat analysis and to discuss metrics to be used in the FEIR for assessing impacts to state listed species and their habitat. MassDOT should also consult with NHESP regarding the assumptions related to vegetation cover that were used in the DEIR/S (Table 4.15-9). The analysis of impacts for the Stoughton route should be revised in the FEIR to reflect the full range of vegetation cover types that each state-listed species requires, as recommended by NHESP.

The FEIR should include a detailed quantification of impacts to state-listed species, vernal pool habitat, general wildlife, and state-owned open space, and a detailed plan for minimization and mitigation of impacts. The FEIR should include a comprehensive description of how MassDOT proposes to meet MESA regulatory requirements, including the standards for authorizing a take of a state-listed species through a Conservation and Management Permit. The FEIR should include detailed descriptions and discussion of rare species and wildlife crossing and barrier design (for example, culverts and bridges) as well as other minimization measures, such as construction management to minimize turtle and salamander mortality. The FEIR should explain in detail how the project will meet the long-term "net benefit" standard in 321 CMR 10.23 including detailed mitigation plans that should be developed in consultation with NHESP. These mitigation plans should be at a very specific level of detail to demonstrate clearly that appropriate and effective mitigation will be implemented. The FEIR should also include a detailed plan for mitigation of vernal pool impacts, general wildlife impacts, and impacts to state-owned open space.

The DEIR/S indicates there would be no impacts to species migration in areas of existing rail lines. However, the FEIR should include an evaluation of any potential impacts to migration associated with widening of the existing tracks and ROW.

### Fisheries

The DEIR/S identifies 34 river and stream crossings on the New Bedford main line and the Fall River Secondary, and 64 on the Stoughton line (on the abandoned railroad ROW). I refer MassDOT to NEHSP's comment letter which includes a list of species and fisheries survey results for rivers and streams in the project area. The FEIR should evaluate potential impacts of

the proposed project to fishery resources, considering issues such as water quality, flow changes in siltation, water level fluctuations, loss of riparian habitat and alterations of the temperature regime. As noted in NHESP's letter, stocked trout waters are highly susceptible to changes in water quality and/or quantity. The FEIR should explain how the project will be designed to avoid any adverse impacts to streams and rivers that support stocked trout. The FEIR should describe Best Management Practices (BMPs) that will be implemented for erosion and sedimentation control and propose time of year restrictions as appropriate to avoid and minimize impacts.

The Division of Marine Fisheries included a list of Time of Year (TOY) restrictions for specific species in rivers and streams affected by the project. These restrictions are based on the recently released recommended TOY restrictions for coastal alteration projects to project marine fisheries resources in Massachusetts. The FEIR should clarify commitments to TOY restrictions or demonstrate that they may not be required if construction is located outside the area used by diadromous species or uses methods that will not affect fish passage or use of spawning riffles. MassDOT should consult with the Division of Marine Fisheries to obtain the new maps of fish passage and spawning locations that are under development.

### Biodiversity

In addition to the biodiversity analysis required above relating to wetlands, endangered species, and fisheries, the FEIR should include the results of breeding bird surveys and other studies conducted to refine the wildlife impact assessment and mitigation plans. The mitigation plan should include time of year (toy) restrictions to project migratory birds, which are protected under the National Migratory Bird Treaty.

The FEIR should include a summary of the CAPS analysis of ecological integrity impacts associated with the proposed project and the results of additional analysis on the potential improvements in the Index of Ecological Integrity (IEI) as a result of proposed mitigation measures. The mitigation plans should describe MassDOT's commitments to specific enhancements in the Hockomock Swamp and other areas along the rail alignment, as well as commitments to biodiversity protection through land acquisition and conservation.

### Open Space and Conservation Lands

#### *Hockomock Swamp Wildlife Management Area (WMA)*

The proposed Stoughton route uses an inactive railroad Right-of-Way that crosses through the Hockomock Swamp WMA. The FEIR should include a detailed analysis of the project's potential impacts to open space within the Hockomock Swamp, including any impacts relating to infrastructure, such as access roads, for construction or ongoing maintenance of the trestle and railbed ROW. The FEIR should include a detailed plan to avoid and minimize impacts and/or to mitigate unavoidable impacts to open space. The FEIR should clarify whether proposed work falls within the existing ROW or to what degree it will extend beyond it.

*Taunton Wild and Scenic River*

The FEIR should include an update on consultations with the National Park Service regarding the status of Taunton River as a National Wild and Scenic River, and to discuss issues relating to water quality impacts from construction and stormwater runoff, rail line crossings of the Taunton and its tributaries, impacts to natural and cultural landscape features, selection and siting of layover facilities, and construction of the Fall River Depot station. The FEIR should describe impacts to Riverfront Area from the proposed layover facility in Fall River and discuss other possible sites outside of Riverfront Area as recommended by the Department of Interior in its comment letter.

*Acushnet Cedar Swamp National Natural Landmark*

The FEIR should describe proposed measures to avoid and minimize construction and train operational noise impacts during critical wildlife breeding season in spring and early summer. The FEIR should also assess barrier effects to wildlife movement in the Acushnet Cedar Swamp and propose scheduling and/or other measures to minimize impacts to wildlife movement during project construction and operation.

The FEIR should evaluate the potential for a hydrological connection between the Acushnet Cedar Swamp and the Church Street Layover facility site. The FEIR should clarify whether or not there is a connection, discuss the potential for runoff impacts to the Swamp, and describe proposed mitigation measures.

*Article 97 and other Open Space*

The open space impact estimates presented in the DEIR/S summary tables are limited to Article 97 land and are not representative of the full range of potential impacts to open space. The FEIR should quantify all open space impacted by the project and describe mitigation commitments. The FEIR should expand upon the evaluation in the DEIR/S to demonstrate consistency with the EEA Article 97 Land Disposition Policy. MassDOT should consult with the Department of Conservation and Recreation during FEIR preparation to discuss policy requirements and a land disposition agreement.

Layover Facilities

The FEIR should expand on the analysis of the proposed layover facilities with detailed plans for the layover facilities and a comparative analysis of environmental impacts with a summary table showing land alteration, impervious area, wetland and water quality impacts, traffic impacts, air quality, noise and vibration, impacts to conservation lands/open space, and impacts to Environmental Justice populations. The alternatives analysis should include consideration of potential sites outside of Riverfront Area. The FEIR should identify permits required for layover facilities and document how the proposed facilities will comply with applicable regulatory requirements. Consistency with Chapter 91 licensing requirements and requirements for location within a Designated Port Area (DPA) should be described as applicable. The FEIR should clarify whether any facility located in a DPA can be allowed as a

temporary and/or supporting DPA use. The FEIR should clarify, and depict on figures/plans, any filled or flowed tidelands on or near the proposed layover facilities. Where applicable, information to support a Public Benefit Determination should be included.

Proposed layover facilities contain resource areas including scrub shrub swamp and wooded swamp. The DEIR/S information should be supplemented with additional details on wetlands protection and stormwater management for the proposed sites. The FEIR should describe MassDOT's commitment to measures that will avoid and minimize impacts and/or mitigate for any unavoidable impacts. The FEIR should include a rationale for selection of the preferred layover facilities and for elimination of others from further consideration. The evaluation of impacts associated with layovers should include potential conflicts and synergies with existing and future land use on and in the vicinity of the sites.

The DEIR/S indicates that the Weavers Cove East layover facility in New Bedford would substantially affect the visual environment for nearby residents and passers-by on the Taunton River. Similarly, the ISP layover facility would substantially impact the visual environment at its location, which is approximately six miles from the southern terminus of the Fall River Secondary line. The FEIR should include clear commitments to specific measures to minimize or mitigate visual impacts associated with proposed layover facilities.

#### Station sites and Transit-Oriented Design (TOD)

The FEIR should describe MassDOT's work with the City of New Bedford to develop a feeder bus system and discuss the additional benefits of the system including potential increases in ridership of the proposed South Coast Rail. The FEIR should also clarify the enhanced bus measures assumed as part of the No-Build scenario, which will be incorporated as part of the project. Several of the station designs do not include accommodations for feeder bus. The FEIR should explain this and consider measures to enhance shuttle/feeder bus service to the proposed stations.

The FEIR should include additional information on station sites, including analysis of decked parking, Environmentally Sensitive Site Design (ESSD), and opportunities for greenhouse gas reductions as required by other sections of this Scope. The FEIR should include updated design plans for station sites with additional information on proposed Transit Oriented Development (TOD). The DEIR/S indicates that Battleship Cove Station would not operate year-round. The FEIR should clarify the operating schedule for this station.

The FEIR should include an update on the new 2010 Journey to Work (JTW) data and include a sensitivity analysis based on comparison of the more recent data with the 2000 data used for the ridership analysis. The FEIR should update the ridership estimates as applicable to account for any significant changes in JTW trends.

The FEIR should include additional detail on plans to support pedestrian and bicycle access. I refer the Proponent to comment letters from the Metropolitan Area Planning Council (MAPC), WalkBoston, and other commenters for their recommendations.

Some of the station designs include additional siding for freight traffic. The FEIR should clarify whether freight currently exists at these sites or not, and if there are any changes to existing freight routes as a result of the proposed project.

### Stormwater

The FEIR should describe how the project will comply with the Massachusetts Stormwater Standards for work proposed in wetland resource areas and buffer zones pursuant to 310 CMR 10.05(6)(k) and 314 CMR 9.06(6), as well as other state and federal requirements (including Total Maximum Daily Load (TMDL) requirements) for stormwater discharges to existing outfalls and/or for the proposed layover facilities. The FEIR should describe measures to ensure that stormwater discharges to the Neponset River will meet the TMDL pathogen removal requirements and Total Suspended Solids (TSS) removal requirements.

The FEIR should include an assessment of the ability of the proposed project to meet the ten Massachusetts Stormwater Standards or specify if a variance to the standards specified at 310 CMR 10.05(6)(k) and 314 CMR 9.06(6) may be required. For those components of the project where complete raze of existing development is proposed, MassDOT should be fully meeting the Stormwater Standards rather than only "to the extent possible" as few constraints existing in such situations.

The FEIR should include a detailed evaluation of Environmentally Sensitive Site Design (ESSD) and Low Impact Development (LID) practices to manage stormwater at proposed stations and parking areas, and layover facilities. The FEIR should identify the design capacity for parking at each station. Deck parking should be evaluated as an alternative to at-grade parking to minimize the project's impervious footprint and reduce the amount of land taking required. The ESSD and LID alternatives analysis in the FEIR should also include evaluation of smaller parking stalls and circulation lanes; porous pavement; pavement disconnection versus traditional curb and gutter drainage; retention of existing mature non-invasive plants; exfiltrating bioretention in place of raised traffic islands; and tree box filters. The FEIR should clearly identify the ESSD and LID measures to which the Proponent is committed to implement. For those measures not being committed to, the FEIR should include a sound rationale as to why they are not feasible.

The FEIR should include information on stormwater peak runoff rates and whether attenuation requirements will be met. The FEIR should assess each station and layover site to determine if there is sufficient land available for attenuation structures or if any additional right-of-way purchase would be required. For those stations being upgraded, the FEIR should include an analysis and description of measures to meet stormwater standards to the Maximum Extent Practicable (MEP) and to improve existing conditions. The FEIR should include an analysis of potential stormwater impacts to critical areas including vernal pools, and how these impacts will be addressed.

The FEIR should include details on proposed stormwater management along the proposed rail tracks. As noted in MassDEP's comment letter, the Greenbush rail line included an extensive drainage system. The FEIR should describe the proposed drainage design for the

Stoughton rail line and demonstrate that sufficient treatment will be provided prior to any discharge of track drainage runoff to resource areas. The FEIR should include a detailed description of the proposed stormwater management system for all components of the project. I refer MassDOT to additional guidance regarding stormwater management in MassDEP's comment letter.

### Coastal Zone

The proposed Whale's Tooth Station in New Bedford is located within the coastal zone. The FEIR should include measures to avoid and minimize non-point source pollution from idling trains and should describe how the station site will be designed to be compatible with existing industrial uses in the New Bedford/Fairhaven Designated Port Area (DPA). The Wamsutta layover alternative is located adjacent to the Whales' Tooth Station site and the DPA. The FEIR should address compatibility issues with regard to coastal zone protection and DPA uses as recommended by CZM.

The proposed stations in Fall River are located near the Mount Hope Bay DPA and the Fall River station is partially located within the coastal zone. The proposed Fall River layover sites are located within the coastal zone. In consideration of future sea level rise, the FEIR should consider a margin of safety to avoid a facility being located in a future elevated Zone A floodplain. The FEIR should address pollution prevention and LID at all station and layover sites as well as project consistency with DPA uses and the Fall River City's harbor planning goals for pedestrian reconnection to the Waterfront. The FEIR should also address nitrogen deposition in coastal embayments more explicitly, as requested by CZM in its comment letter.

### Chapter 91 Licensing and Public Benefits Determination

MassDOT should consult with MassDEP and provide more detailed plans to determine whether or not the filled tidelands at Fall River Battleship Cove Station, New Bedford Whale's Tooth Station, and Wamsutta Layover facility are considered landlocked tidelands as defined at 301 CMR 9.02. The FEIR should include analysis and mitigation as applicable to support a Public Benefits Determination consistent with Chapter 168 of the Acts of 2007. The FEIR should describe any public access restrictions to the shoreline that may result from construction of layover facilities or other components of the proposed project. Mitigation plans should be included in the FEIR to compensate for any public access impacts.

A Mandatory Public Benefits Determination is required if the project is completely or partially located in tidelands or landlocked tidelands. The FEIR should include detailed information describing the nature of the tidelands affected and the public benefits of the proposed project in accordance with the Public Benefits Determination requirements at 301 CMR 13.00.

MassDEP indicates in its comment letter that the layover facilities at Weavers Cove and the ISP off North Main Street are located on filled tidelands. MassDEP has established the presumptive line of jurisdiction. MassDOT, if intending to rebut this presumption, should consult with MassDEP prior to submission of an FEIR and provide MassDEP with the

information outlined in its comment letter. The FEIR should include an update on consultations and jurisdictional determinations.

The FEIR should identify and describe all components of the project requiring Chapter 91 licensing and whether project components are considered water-dependent or non-water dependent. The FEIR should describe in detail how the project will meet licensing standards at 310 CMR 9.54 and 9.55 (for non water-dependent) and 301 CMR 9.31 – 9.40 (for water dependent). The FEIR should explain how the project is consistent with the New Bedford and Fall River Municipal Harbor Plans pursuant to 310 CMR 9.34, including for example, how intermodal connection to the ferry service would be achieved. The FEIR should explain how railroad components subject to licensing will preserve or enhance navigational capacity and maintain or enhance public access pursuant to 310 CMR 9.35 and 9.36. If navigation or public access is impacted by the project, the FEIR should include detailed mitigation plans. The FEIR should explore opportunities on or near the layover facilities where MassDOT can “take reasonable measures to provide open space for active or passive recreation at the water’s edge” pursuant to 310 CMR 9.55(2).

#### Air Quality and Climate

The FEIR should include an evaluation of alternative fuels for the Enhanced Bus and feeder bus services and commit to use of hybrid and/or other fuels to minimize emission of air pollutants to the maximum extent feasible.

The Stoughton Electric alternative, as noted in the DEIR/S review above, is the preferred alternative and provides the best overall emission reductions for VOC, NO<sub>x</sub>, PM<sub>10</sub>, PM<sub>2.5</sub> and CO<sub>2</sub> in comparison to the other alternatives evaluated. The commitments to construction-related mitigation measures should be reiterated in the FEIR as part of comprehensive mitigation plan.

#### *GHG and Climate Change*

The DEIR/S did not include an analysis of stationary source GHG emissions and mitigation indicating that there would be no buildings at the stations, only platforms. However, there are other ways in which MassDOT can achieve GHG reductions, for example by using energy efficient interior and exterior parking lot lighting and use of solar photovoltaic energy. The DEIR/S indicates that the MBTA will explore renewable energy technologies at station sites; this should be evaluated in the FEIR/S. The FEIR should identify design and operational features that MassDOT will commit to implementing in order to reduce GHG emissions, including measures to promote reduction of GHG emissions associated with TOD facilities and other induced growth. MassDOT should consult with the Massachusetts Department of Energy Resources (DOER) Division of Green Communities during preparation of the FEIR for assistance in developing a joint approach to promote energy efficiency and GHG reduction in the south coast rail communities. DOER has also recommended that MassDOT consult with utility companies to explore ways that communities can avail themselves of incentives that could be used to mitigate GHG emissions related to induced growth. The FEIR should include an update on consultations and an outline of the proposed mitigation plan.

The project overall is expected to reduce vehicle miles travelled (VMT) and GHG reductions are expected as a result of emission rules for mobile sources and the proposed smart growth plan. As indicated in the DEIR/S, the transportation model is being updated to reflect the reallocation of induced jobs into different transportation zones for future impact analyses of induced jobs in the context of traffic and GHG emissions. The FEIR should include the results of analysis of induced growth impacts on traffic and air quality. The FEIR should describe in detail specific commitments that MassDOT will make to contribute towards VMT and related GHG reductions through the proposed feeder bus system. The FEIR should provide more detailed information on a proposed feeder/shuttle bus network with frequent and convenient local bus linkages that will enhance local and intra-regional access to the proposed stations. MassDOT should work in cooperation with the regional transit authorities to further develop this plan. The feeder bus system should accommodate riders with bikes and the stations should provide adequate bicycle racks and storage and provide space and support for other programs that allow train riders to pick up bikes at one location and drop them off elsewhere. MassDOT should design this project as a flagship for implementation of its GreenDOT program.

### Noise and Vibration

The FEIR should include a detailed evaluation of those locations that will experience moderate and severe noise impacts as a result of the project and commitments to specific mitigation measures. The evaluation should address noise impacts relating to all aspects of the project including train operations and horn noise, and noise associated with stations and layover facilities.

The DEIR/S indicates that mitigation will be provided for severe impacts where it is cost-effective. The Proponent is required to mitigate for noise-related impacts and the cost-effectiveness limitation may be problematic, as is the proposed lack of mitigation for moderate impacts. MassDOT should consult with MassDEP and the Interagency Coordinating Group for guidance on development of the noise mitigation plan. The FEIR should include a detailed mitigation plan with commitments to an appropriate level of mitigation for project-related noise impacts. The FEIR should document how the project will comply with MassDEP air quality regulations and Noise Policy.

The DEIR/S compares vibration impacts experienced by receptors against the 80 VdB FTA criteria for human annoyance. The FEIR should compare the estimated vibration levels to existing conditions and describe the actual change that will be experienced. This additional information should be provided for residential impacts along the Stoughton route as well as for historic buildings. The DEIR/S discusses possible mitigation measures. The FEIR should include a mitigation plan with clear and specific commitments to address vibration impacts and an explanation of the reductions in VdB levels expected.

### Environmental Justice

The FEIR should include a list of specific mitigation commitments to address noise and vibration impacts to Environmental Justice neighborhoods. The FEIR should also include an update on the investigation of potential adverse effects on any traditional cultural properties of

significance to Native American Tribes. The FEIR should clarify if there will be a disproportionate adverse impact to an Environmental Justice community with regard to traditional cultural properties, and if so, what mitigation will be implemented.

The DEIR/S projects potential financial impacts to Environmental Justice communities in Fall River as a result of property acquisition. The FEIR should specify how such impacts will be mitigated as part of the project. The DEIR/S also acknowledges that Environmental Justice communities may be negatively affected by increased property values in their neighborhood as a result of the South Coast Rail project. The FEIR should include further discussion and specific commitments on how this will be addressed (for example, through clear commitments to affordable housing as part of the project's station TOD plans, or other measures).

MassDOT should continue its outreach program during FEIR preparation and encourage the participation of those Environmental Justice neighborhoods and residences specifically affected by the proposed project. The FEIR should include an update on MassDOT's outreach efforts to Environmental Justice populations.

### Cultural Resources

The FEIR should include an update on historical and archaeological studies conducted since the DEIR/S and an update on consultations with the Massachusetts Historical Commission and local historic board and societies. The figures in the FEIR should show locations of historic architectural resources in the context of the project and its Area of Potential Effect. The FEIR should address potential conflicts with proposed station parking at the site of the historic H.H. Richardson train station in Easton and address local concerns relating to visual and cultural resource impacts. The FEIR should evaluate mitigation opportunities, including repairs and rehabilitation, for the historic train station in Stoughton.

The FEIR should expand on the analysis provided in the DEIR/S with a detailed mitigation plan for impacts to significant historical and archaeological resources. The FEIR should include an update on consultations with Native American Tribes and describe potential impacts to properties of significance to the tribes. The FEIR should include commitments to specific mitigation measures for any significant cultural impacts.

### Traffic and Public Safety

Many commenters expressed concerns regarding the proposed at-grade crossings for the rail line and the potential for increased accidents. The FEIR should evaluate the potential for increases in accident rates as a result of proposed crossings and identify specific measures, and the effectiveness of such measures, to protect public safety to the maximum extent feasible. The FEIR should evaluate potential safety impacts in the context of EEA's Environmental Justice Policy. Traffic congestion and potential delays in emergency services were also raised as concerns in the comment letters received, as were construction-related impacts to existing rail services. The FEIR should respond to these comments and include details of any mitigation proposed. The traffic mitigation plans in the DEIR/S should be revised as necessary based on further analysis for the Stoughton Electric alternative and included in the FEIR.

### South Coast Rail Economic Development and Land Use Corridor Plan

The DEIR/S should include an update on the status of implementation of the Corridor Plan and explain how it will be implemented in parallel with the proposed rail and station development to ensure appropriate timing of mitigation and to optimize the smart growth potential of the project.

### Long-Term Smart Growth Evaluation and Environmental Stewardship Plan

MassDOT should consult with the Interagency Coordinating Group (ICG) and set up a workgroup in conjunction with the ICG to develop the methodology and process for this component of the FEIR. MassDOT should explore existing models and performance metrics used to evaluate the effectiveness of smart growth plans and environmental protection strategies, and include a summary in the FEIR of experience from other regions that may be useful to apply in the case of this project. MassDOT should work with EEA, ICG, regional planning agencies, and local communities, to develop evaluation indicators and metrics tailored to the South Coast Rail project. The evaluation plan should include a monitoring component to assess the accuracy of impact projections and allow for mid-course corrections and adaptive strategies as needed. The FEIR should propose a mechanism for periodic reporting out to the public and other agencies on MassDOT's progress in achieving the smart growth and environmental goals of the project, including its commitments to protection of ecologically significant habitat.

The DEIR/S describes anticipated smart growth and environmental benefits of the proposed project. MassDOT should describe in the FEIR how potential impacts and benefits will be monitored and measured. Metrics to consider for the Smart Growth Evaluation and Environmental Stewardship Plan include spatial metrics based on data that can be integrated with GIS mapping to compare 2020, 2025, and 2030 conditions against the baseline and Build without smart growth (business as usual scenarios) to evaluate benefits in reducing sprawl and to identify areas for improvement. Other smart growth metrics to consider include: the percentage of new development acreage located in PDAs; the percentage of PPAs left undeveloped and permanently protected; the number of developments meeting TOD, LEED, neighborhood design or EESD standards; increasing shift of commuters from automobile to transit (riders and VTM reductions); change in IEI value of impacted areas and mitigation sites; the amount of land subject to transfer of development rights (TDR); and GHG emission reduction achievements of facilities in TOD areas. Implementation of the South Coast Rail Economic and Land Use Corridor Plan is expected to achieve various socio-economic benefits that could be monitored over time to evaluate the effectiveness of plan implementation. For example, the DEIR/S discusses environmental justice communities and related transit equity citing benefits the project will provide in terms of access to jobs, education and other services. The long-term evaluation plan should include metrics to evaluate how effective the project is in furthering social equity and environmental justice within the south coast communities.

### Mitigation and Section 61 Findings

The FEIR should expand upon the smart growth implementation plan as outlined above. The FEIR should include details on the proposed measures, roles and responsibilities, and

MassDOT's commitments to implement specific measures to promote smart growth and achieve the mitigation and environmental benefits described in the DEIR/S. The FEIR should discuss the mitigation planning and outreach process conducted during FEIR preparation.

The FEIR should include revised Section 61 Findings for all state agency permits that reflect the detailed mitigation commitments to be provided in the FEIR. GHG commitments and related self-certification language should be included in the draft Section 61 Findings for MassDEP permitting.

The FEIR should include a separate chapter on mitigation measures, which should include a summary table of all mitigation commitments as well as the revised Section 61 Findings. The Section 61 Findings should describe proposed mitigation measures, contain clear commitments to mitigation and a schedule for implementation, and identify parties responsible for funding and implementing the mitigation measures. The draft Section 61 Findings will serve as the primary template for permit conditions. Final Section 61 Findings will be included with all state permits issued for this project and will include conditions considered binding upon the proponent as mitigation commitments.

#### Responses to Comments

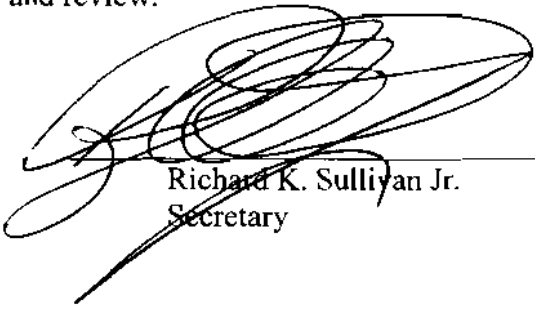
In order to ensure that the issues raised by commenters are addressed, the FEIR should include responses to comments to the extent they are within MEPA jurisdiction. This directive is not intended to, and shall not be construed to, enlarge the scope of the FEIR beyond what has been expressly identified in this Certificate. The FEIR should also include a copy of this Certificate and a copy of each comment letter received on the DEIR/S.

#### Circulation

The FEIR should be circulated in compliance with Section 11.16 of the MEPA regulations and copies should be sent to the list of "comments received" below. A copy of the FEIR should be made available for public review at the Public Libraries in the South Coast region municipalities. I commend MassDOT on its public outreach efforts to date and encourage continued public engagement during FEIR preparation and review.

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June 29, 2011



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Richard K. Sullivan Jr.  
Secretary

## Comments Received

4/15/11	1. David Slutz
4/26/11	2. Doug Leatham
5/02/11	3. City of New Bedford Assessing Department (Peter S. Barney)
5/02/11	4. Guillermo Gonzales
5/04/11	5. MassAudubon (1 <sup>st</sup> letter - public hearing May 4)
5/05/11	6. Peter L. Paull, Jr.
5/05/11	7. City of Taunton, Office of the Mayor
5/05/11	8. Jean C. Fox
5/06/11	9. Denise Paquette
5/06/11	10. Jim Mathes
5/06/11	11. Senator Michael J. Rodrigues
5/06/11	12. Dr. Candace Heald
5/06/11	13. City of New Bedford Planning Department
5/06/11	14. Massachusetts Historical Commission (copy of letter to the Army Corps)
5/09/11	15. David Chaffin
5/09/11	16. Rosemary Zehntner
5/10/11	17. John Theriault
5/10/11	18. Westport Community Schools
5/10/11	19. Southeastern Regional Planning & Economic Development District
5/10/11	20. Melinda Ailes
5/11/11	21. John K. Bullard
5/11/11	22. Pauline C. Nadeau
5/11/11	23. Representative Shauna O'Connell
5/11/11	24. Representative Robert M. Koczera
5/12/11	25. City of New Bedford Planning Board
5/16/11	26. City of New Bedford Office of the City Clerk
5/17/11	27. Nicole Dion
5/17/11	28. New Bedford Economic Development Council
5/18/11	29. Scott Martin
5/19/11	30. Stephen Castellina
5/23/11	31. Gerald J. McDonald
5/23/11	32. Forrest C. Lindwall
5/23/11	33. City of Fall River Planning Department
5/23/11	34. City of Fall River Conservation Commission
5/23/11	35. Town of Norton Board of Selectmen
5/23/11	36. Robert M. Mendillo
5/23/11	37. Peter Deschenes
5/23/11	38. Patti Linhares
5/23/11	39. Susan K. Plante
5/23/11	40. Fall River Area Chamber of Commerce
5/25/11	41. Weavers Cove Energy LLC
5/25/11	42. Steven P. Davis
5/25/11	43. Antoinette Lopes
5/26/11	44. Linda L. Palmieri

- 5/26/11 45. Eric M. Stevens  
5/26/11 46. Louis F. Gitto  
5/26/11 47. Joel N. Weber II  
5/26/11 47. Louis F. Gitto  
5/26/11 48. David L. Goldrick  
5/26/11 49. Paul Fitzpatrick  
5/26/11 50. Heather Graf  
5/26/11 51. Grant Taylor  
5/26/11 52. Representative Elizabeth Poirier (Elaine M. Hyland on behalf of Rep. Poirier)  
5/26/11 53. John Malley  
5/26/11 54. Senator John F. Kerry, Member of Congress James P. McGovern, and  
Member of Congress Barney Frank  
5/27/11 55. Fall River Office of Economic Development  
5/27/11 56. U.S. Environmental Protection Agency  
5/27/11 57. Massachusetts Division of Fisheries and Wildlife, Natural Heritage and  
Endangered Species Program  
5/27/11 58. Town of Easton  
5/27/11 59. Sue Bass  
5/27/11 60. Metropolitan Area Planning Council  
5/27/11 61. Representative Antonio Cabral  
5/27/11 62. Public Employees for Environmental Responsibility  
5/27/11 63. Taunton River Watershed Alliance  
5/27/11 64. Massachusetts Association of Conservation Commissions  
5/27/11 65. MassAudubon (second letter)  
5/27/11 66. Town of Stoughton (on behalf of Town from Kopelman and Paige, P.C.)  
5/27/11 67. Sierra Club  
5/27/11 68. Old Colony Planning Council  
5/27/11 69. Massachusetts Department of Environmental Protection  
5/27/11 70. Massachusetts River Alliance  
5/27/11 71. The Nature Conservancy  
5/27/11 72. Norton Conservation Commission  
5/27/11 73. Curt Rice  
5/27/11 74. Michael Mazucca  
5/27/11 75. Eileen J. Marum  
5/27/11 76. Heather and Doug Lewis  
5/27/11 77. Priscilla Almquist-Olsen  
5/27/11 78. Brian Reardon  
5/27/11 79. Jennifer Reardon  
5/27/11 80. Barbara Anzivino  
5/27/11 81. Victoria Taylor  
5/27/11 82. Michael Joliffe  
5/27/11 83. Donald Michaud  
5/27/11 84. Rebecca Turley  
5/27/11 85. Town of Raynham, Selectmen and Board of Health  
5/27/11 86. Robert Mullen  
5/27/11 87. Marianne B. De Souza

5/27/11	88. Leon Litchfield
5/27/11	89. Sergeant Christopher John Barros
5/27/11	90. James Stanton
5/27/11	91. Town of Easton, Office of the Town Administrator
5/27/11	92. Mary Jane Golden
5/27/11	93. Wendy Van Dyke
5/27/11	94. Easton Historical Society
5/27/11	95. Linda Grubb
5/27/11	96. Massachusetts Office of Coastal Zone Management
5/27/11	97. The United Regional Chamber of Commerce
5/27/11	98. Elizabeth Acheson
5/27/11	99. Stephen Ford
5/27/11	100. Town of Canton, Office of the Selectmen
5/27/11	101. Massachusetts Division of Marine Fisheries
6/01/11	102. Massachusetts Department of Conservation and Recreation
6/01/11	103. Lynne E. McSweeney
6/01/11	104. Alan Johnson
6/01/11	105. John Molloy
6/02/11	106. WalkBoston
6/03/11	107. City of Boston
6/13/11	108. Massachusetts Department of Energy Resources
5/07/11	109. Paul Cienniwa
4/21/11	110. Ken Petitti

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