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CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
FINAL ENVIRONMENTAL IMPACT REPORT

PROJECT NAME : South Station Expansion Project
PROJECT MUNICIPALITY : Boston
PROJECT WATERSHED : Boston Harbor
EEA NUMBER : 15028
PROJECT PROPONENT : Massachusetts Department of Transportation
DATE NOTICED IN MONITOR : July 6, 2016

As Secretary of Energy and Environmental Affairs, I hereby determine that the Final Environmental Impact Report (FEIR) submitted on this project **adequately and properly** complies with the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and with its implementing regulations (301 CMR 11.00).

Project Description

The project, which is referred to as the South Station Expansion (SSX), consists of an expansion of Boston's South Station by the Massachusetts Department of Transportation (MassDOT). Currently, all 13 existing tracks and eight platforms at South Station are fully used by National Railroad Passenger Corporation (Amtrak) and the Massachusetts Bay Transportation Authority (MBTA). Both operators are constrained in their ability to increase service or offer new services due to the size and configuration of the station and terminal facilities. Daytime vehicle layover capacity for the MBTA's south side commuter rail service area is inadequate and unable to meet projected demand.

The SSX will support expansion of intercity and high-speed rail (HSR) service into South Station as stated in Amtrak's *NEC Master Plan*, its *Vision for High Speed Rail in the Northeast Corridor (2012 Update)* and improve existing rail operations and service delivery at South Station provided by Amtrak and the MBTA. MassDOT, the MBTA, the Federal Railroad Administration (FRA) and Amtrak have identified the expansion of rail capacity at South Station as a critical regional and national transportation need. Current weekday ridership at South Station includes an average of approximately 4,100 Amtrak combined boardings and alightings, and 42,000 combined MBTA commuter rail boardings and alightings. Combined South Station boarding and alightings in 2012 include 54,000 on the Red Line, 12,700 on the Silver Line, 2,900 on local bus routes, and 12,200 on intercity/commuter bus routes. By the year 2035, Amtrak projects that daily intercity rail ridership at South Station will increase to approximately 5,500 combined boardings and alightings. South Station commuter rail boarding and alightings are projected to increase to 56,000 daily riders by 2035. Amtrak's 2030 plans call for increased service between Boston and New York City and additional trains to operate over an "inland route" connecting Boston, Worcester, Springfield and New Haven. The project is expected to improve the rail system's ability to absorb demand along the MBTA's south side commuter rail lines and along the NEC. In the 2025 opening year, the project would support an increase in ridership of approximately 16,000 to 17,000 additional daily combined commuter rail and Amtrak intercity rail boardings and alightings at South Station over the No Build Alternative. By 2035, these numbers would increase to approximately 20,000 to 22,000.

The project includes:

- Expansion of the South Station terminal facilities by approximately 385,000 square feet (sf) by adding seven tracks and four new platforms, reconfiguring existing platforms, and constructing larger passenger circulation and waiting areas, amenities, and back of house space. The Tower 1, Broad and Cove Interlockings will be reconfigured to reduce conflicting movements through the terminal area;¹
- Acquisition and demolition of the U.S. Postal Service (USPS) General Mail Facility located on Dorchester Avenue to provide a 16-acre site upon which to expand South Station and restore Dorchester Avenue for public and station access. The USPS facility acquisition is identified as a state-funded project in the MBTA's *FY2015-FY2019 Capital Investment Program (CIP)*;
- Reopen Dorchester Avenue and construct pedestrian, bicycle, local transit, and vehicular improvements to support two-way access;
- Extend Harborwalk by approximately 2,500-feet along Dorchester Avenue;
- Construction of additional rail layover space to address existing and future Amtrak and MBTA service expansions and other planned improvements. Layover facilities are used to store, service, inspect, and maintain trains when they are not in service.

The project is proposed to support improved rail and passenger service; improve pedestrian and bicycle circulation and amenities, vehicular circulation and multimodal connections; and support regional and local economic development. The project will improve operational efficiencies in and out of South Station, upgrade facilities to meet Americans with

¹ An interlocking is a segment of railroad infrastructure comprised of track, turnouts, and signals linked (interlocked) in a way that allows for trains to move safely from on track to another, or across tracks, by preventing conflicting train movements.

Disabilities Act (ADA) and life safety regulations, and extend platform lengths to meet Amtrak and MBTA future berthing requirements. The project is expected to provide the ability to meet Amtrak's and the MBTA's established objectives of 95 percent on-time performance (OTP) for Acela and commuter rail service, and 90 percent for Amtrak Northeast Regional trains.

To date, MassDOT has received \$32.5 million from the FRA and \$10 million in additional State funding to complete preliminary engineering and environmental assessment and permitting for the project. The FRA grant was accepted on September 12, 2011 and ends on June 30, 2017. Per the terms of the grant agreement, the FRA may suspend or terminate the agreement if MassDOT fails to make reasonable progress or acts in a manner that endangers substantial performance on the project. If the grant is terminated, MassDOT will be required to pay all or a portion of the grant back to the FRA, depending upon the severity of the action.² MassDOT's submittal of this FEIR for the selected Preferred Alternative is intended to demonstrate reasonable progress towards advancement of the project consistent with the FRA grant. At this time, no additional sources of federal or State funding have been allocated for final engineering or construction of SSX.

I have received comments from U.S. Representative Michael Capuano, State Representative Frank I. Smizik, State Representative Sean Garballey, State Representative Carmine L. Gentile, and State Representative Chris Walsh, numerous State Agencies, public interest groups, business leaders, rail advocates, and individuals. Comments express varying opinions and support for the project as proposed - or an alternative project comprised of the North South Rail Link (NSRL) - as well as concerns about the potential environmental impacts associated with rail service at South Station and layover facilities within the City of Boston. Funding has been allocated for study of the NSRL but it is not incorporated into the project at this time. Many commenters have requested I require that the project be redesigned and include the NSRL. MEPA is an environmental disclosure process. It does not evaluate the purpose or need of a project nor mandate what project a Proponent advances for review. Ongoing opportunity for public comment on the SSX project will be provided as part of the FRA review process, MassDEP c.91 licensing, and public outreach efforts conducted by MassDOT.

Project Area

The approximately 49-acre South Station project site is bounded by Summer Street to the north, Dorchester Avenue and the Fort Point Channel to the east, Atlantic Avenue to the west, and the MBTA's Cabot Yard to the south. The South Station project site also extends along a portion of the NEC Main Line to the west past the Cove Interlocking and along the MBTA's Fairmount/Old Colony Railroad Line to the south just past the Broadway Interlocking. South Station is located at the junction of several Boston neighborhoods including Chinatown, the Leather District, the Fort Point Channel, and the Seaport-Innovation District/South Boston Waterfront.

South Station is the sixth busiest station in the national Amtrak system and is the terminus of Amtrak's Northeast Corridor (NEC) service and Lake Shore Limited service from Chicago via Albany. South Station serves as the terminus for the western and southern lines of

² Email from Paul Godfrey, HNTB Corporation, dated August 9, 2016.

the MBTA's commuter rail system. There are nine main line approach tracks that currently converge in the South Station terminal area. Of these nine tracks, five arrive at South Station from the west, consisting of the NEC Main Line, which operate on tracks 1, 2, and 3, and the MBTA's Framingham/Worcester Line, which operates on tracks 5 and 7. The remaining four tracks arrive at South Station from the south, consisting of the MBTA's Fairmount Line, which operates on the Fairmount Line/Dorchester Branch tracks and the MBTA's Old Colony Line, which operates on the Old Colony tracks. South Station also provides connections to the MBTA's Red Line, Silver Line and local bus routes and intra-city bus routes run by private bus companies.

The project includes the construction of layover facilities within the City of Boston. An alternative analysis that evaluated 28 potential locations to alleviate existing layover deficiencies and support future service expansion was completed as part of the DEIR. Three sites for new and/or expanded layover facilities were selected for design advancement in the FEIR. These potential layover locations include:

- Widett Circle - a 29.4-acre site located approximately one mile south of South Station at 100 Widett Circle and 1 and 2 Foodmart Road, primarily in private ownership;
- Beacon Park Yard - a freight yard and intermodal terminal most recently used by CSX Transportation, Inc. (CSXT) located along Cambridge Street in the Allston section of Boston and approximately four track-miles from South Station on the MBTA Framingham/Worcester Line. A facility at this location will allow the MBTA to meet its current need for additional layover capacity for commuter rail operations on the tracks west of South Station; and
- Readville Yard 2, an existing MBTA layover yard and maintenance facility located off Wolcott Court in the Hyde Park section of Boston, approximately nine track-miles from South Station.

The Beacon Park Yard layover facility will continue to be reviewed in conjunction with the Interstate 90 (I-90) Allston Interchange Project (EEA No. 15278) as noted in both the Certificate on the Environmental Notification Form (ENF) for the Allston Interchange Project and the Certificate on the DEIR for the SSX project. MassDOT and the MBTA are preparing the DEIR for the Allston Interchange project with an anticipated submittal date of Spring 2017. I note comments received regarding the potential layout of the BPY facility within the Allston Interchange project area. MassDOT should review these comments to inform their preparation of the Allston Interchange DEIR. According to the FEIR, the Beacon Park Yard layover facility is expected to be constructed and in service in advance of the construction of SSX, pending completion of its MEPA review process as part of the Allston Interchange project. If the I-90 Allston Interchange project does not advance in a timely manner and MassDOT wishes to commence use of BPY in a manner beyond that specifically authorized in its agreement with Harvard University, a Notice of Project Change (NPC) may be required for the SSX project.

Site History

Portions of the project site have previously been subject to MEPA review as far back as 1973. Of these prior filings, only three projects required the preparation of an EIR. The South

Station Air Rights Project (SSAR) (EEA Nos. 3205 and 9131) consists of an approximately 2.5 million square foot³ mixed-use development located on the northern end of the site above existing portions of the South Station headhouse and tracks. The project also includes a horizontally expanded bus terminal, enhanced pedestrian connections and expansion of the bus terminal parking garage. A NPC for the SSAR was submitted for MEPA review and noticed in the August 10, 2016 *Environmental Monitor*. The NPC identifies minor changes in design, massing and square footage, alternatives for Phase 2 as hotel, residential or a combination thereof, and an increase of 140 parking spaces. MassDOT has assumed that the SSAR project will be constructed prior to the SSX project, but the SSX design is not dependent upon SSAR construction, nor does it preclude the ability to construct SSAR if SSX proceeds first. The SSX project assumed the same platform lengths, headhouse and concourse circulation and access points described in the SSAR during advancement of its design plan. MassDOT has, and should continue to, coordinate with the SSAR proponents to ensure that ongoing design refinements for either project do not result in constructability conflicts and maximize potential efficiencies for either project's construction process and minimization and mitigation of construction period impacts.

The NSRL Project (EEA No. 10270) consists of a three-mile tunnel linking North and South Stations and associated rail infrastructure. The DEIR for this project was determined to adequately and properly comply with the MEPA Regulations in July 2003. A Final EIR was not filed for the project. Given the lapse of time since the filing of the DEIR, this project, if it was to advance, would require reinitiating the MEPA review process.

MassDOT's draft *2017-2021 Capital Investment Plan (CIP)* has \$2.0 million programmed for a NSRL corridor and area planning study. I acknowledge that a key benefit of the NSRL project that will not be realized by the SSX project currently under review is a seamless connection between South Station and North Station. This connection would provide enhanced service along the MBTA commuter rail, subway, and NEC lines and would facilitate operations and maintenance by eliminating the need to run non-revenue trains to reach more distant layover facility locations. The FEIR indicated that the Preferred Alternative will expand South Station such that the project goals can be met without eliminating the potential for future underground infrastructure that will likely be necessary to implement the NSRL such as tunnel portals and station platforms.

Jurisdiction and Permitting

This project is subject to MEPA review and requires the preparation of a mandatory EIR because it requires State Agency Actions and will result in the expansion of an existing non-water-dependent structure, provided the use or structure occupies one or more acres of tidelands (301 CMR 11.03(3)(a)(5)).⁴

The project requires a c.91 Waterways License and may require a Section 401 Water Quality Certification (401 WQC) from the Massachusetts Department of Environmental

³ Updated square footage based on Notice of Project Change filed on July 29, 2016.

⁴ Due to the selection of a transportation only preferred alternative, previously cited MEPA thresholds for wastewater generation, daily vehicle trips and parking spaces no longer apply.

Protection (MassDEP) and air-rights easements or approvals from the MBTA.⁵ The project may require a MassDEP Dewatering General Permit for dewatering of non-contaminated groundwater and a MassDEP Remediation General Permit for dewatering of contaminated groundwater. The project may require an 8(m) Permit, Construction Site Dewatering Discharge Permit and/or a Sewer Use Discharge Permit from the Massachusetts Water Resources Authority (MWRA).

The project is subject to State Register Review (950 CMR 71.00) and Section 106 Review (36 CFR 800) by the Massachusetts Historical Commission (MHC). A Federal Consistency Certification from the Massachusetts Office of Coastal Zone Management (CZM) will also be required.

An Order of Conditions will be required from the Boston Conservation Commission, or in the case of an appeal, a Superseding Order of Conditions from MassDEP. The project will also require a Drainage Discharge Permit and may require a Dewatering Discharge Permit from the Boston Water and Sewer Commission (BWSC).

The project requires several federal permits and approvals including, but not limited to: approval under the National Environmental Policy Act (NEPA), Part 77 Airspace Review from the Federal Aviation Administration (FAA), Section 4(f) Review by the FRA and a National Pollutant Discharge Elimination System (NPDES) Construction General Permit from the United States Environmental Protection Agency (EPA). The project may require a NPDES Permit, a Notice of Intent, or a NPDES Permit Exclusion associated with construction period dewatering. The project is subject to the MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol.

The project will receive Financial Assistance in the form of funding from the Commonwealth and the FRA. Therefore, MEPA jurisdiction is broad in scope and extends to all aspects of the project that may cause Damage to the Environment, as defined in the MEPA regulations.

Project Changes Since the DEIR

Since the completion of the DEIR, MassDOT selected a Preferred Alternative to advance through the FEIR process. Previous MEPA review documents considered the environmental impacts of four alternatives: a No-Build Alternative, a Transportation Improvements Only Alternative (Alternative 1), a Joint/Private Development Minimum Build Alternative (Alternative 2), and a Joint/Private Development Maximum Build Alternative (Alternative 3). MassDOT has chosen to advance Alternative 1 – Transportation Improvements Only for further design, review and permitting. Therefore, potential environmental impacts associated with either joint/private development alternative do not warrant further assessment at this time. MassDOT acknowledged the potential for future development on-site and has taken measures in the design of the headhouse and terminal that it will not preclude, to the extent practicable, future transit-oriented development. If development is pursued in the future, additional MEPA review will likely be required to assess the specific environmental impacts associated with the development. The Proponent should consult with the MEPA office prior to advancing any additional

⁵ Due to the selection of the transportation only preferred alternative, the project will no longer require a Vehicular Access Permit from MassDOT or an amendment to the Fort Point Channel Downtown Waterfront Municipal Harbor Plan.

development plans on-site to determine the applicability of the MEPA regulations and need for additional MEPA review.

The Preferred Alternative station design has been advanced since the submission of the DEIR resulting in a reduction in overall square footage from 400,000 sf to 385,000 sf and a refinement in the location of the headhouse, pedestrian access points, and elevated concourses. In addition, the Preferred Alternative includes raising a portion of the Fort Point Channel seawall to match the elevation of the existing seawall to the north and south. Raising the seawall in this location is in direct response to vulnerabilities associated with projected sea level rise during the lifespan of the project.

Environmental Impacts and Mitigation

Impervious area will decrease on the South Station site and remain the same on the Widett Circle and Readville Yard 2 sites. The project will impact approximately 700 linear feet (lf) of Coastal Bank, 2.9 acres of Land Subject to Coastal Storm Flowage (LSCSF), and 7.9 acres of 100-foot buffer zone to Bank at the South Station site and 0.01 acres of Riverfront Area and 0.28 acres of 100-foot buffer zone to Bank at the Readville Yard 2 site. The project will impact filled Commonwealth Tidelands. At the South Station site, water usage will increase by approximately 165,561 gallons per day (gpd) for a total of 538,461 gpd and wastewater generation will increase by approximately 150,560 gpd, for a site total of 489,510 gpd. Water usage at the Widett Circle site will decrease by approximately 8,020 gpd to 6,440 gpd and wastewater generation will decrease by approximately 7,290 gpd to 5,850 gpd. Water usage at the Readville Yard 2 layover facility will increase by approximately 1,720 gpd to 3,870 gpd and wastewater generation will increase by approximately 1,560 gpd to 3,510 gpd.

The project will meet applicable State and federal wetland resource area performance standards and comply with the Wetlands Regulations (310 CMR 10.00) stormwater management standards (SMS), as applicable for redevelopment projects. Improvements to eight intersections, in addition to added bicycle and pedestrian amenities and accommodations, will improve multi-modal access to South Station. The project includes the construction of noise barriers and use of plug-in shore power to reduce noise and vibration impacts from train operations and idling. Water and wastewater infrastructure will be constructed in compliance with applicable MassDEP, BWSC and MWRA regulations. The project includes several measures to mitigate and adapt to climate change impacts including raising the wall along Dorchester Avenue along the Fort Point Channel and using more intense precipitation data to model and design the proposed stormwater management system. MassDOT will prepare a Construction Management Plan (CMP) and will schedule construction in a manner that limits impacts to passenger service during peak periods.

Review of the FEIR

General

The FEIR provided a clear summary of the Preferred Alternative and included the results of additional data collection and analysis to identify potential project-related environmental impacts. The FEIR provided a response to comments, as directed by the Certificate on the DEIR, and was prepared consistent with Section 11.07 of the MEPA regulations. MassDOT held a public hearing on July 20, 2016 to review the FEIR and provide opportunities for questions and comments from the public.

The FEIR described actions taken in accordance with the project's public involvement plan (PIP), which complies with MassDOT policies regarding environmental justice (EJ), Title VI, and accessibility. MassDOT briefed the City of Boston's Office of Neighborhood Services, the Boston Redevelopment Authority, and the Mayor's Office on the FEIR's content and recommendations; held a series of briefings and/or corresponded with local agencies and stakeholders in 2016 with project updates; developed a layover facility outreach activities plan in coordination with the FEIR which included community meetings in the Widett and Readville neighborhoods; and publicized and disseminated information about public meetings, publications, and so forth, using email, blogs, social marketing platforms.

Project Description and Permitting

The FEIR included a detailed description of the project and included updated site plans for existing and post-development conditions for the South Station Site, Widett Circle and Readville Yard 2. The FEIR also included plans depicting each interlocking (Interlocking 1, Cove and Broad) and clearly identified existing conditions at each interlocking, environmental or property ownership constraints and proposed modifications to trackwork. The FEIR described the benefits and constraints of various interlocking design alternatives, including how this design will eliminate or reduce delays due to interlocking malfunction or a disabled locomotive.

The FEIR indicated that updated ridership projections for South Station have not been performed since the DEIR. Ridership projections in 2035 for MBTA South Side commuter rail service and Amtrak service for intercity rail were used for project planning purposes. The Preferred Alternative of 20 total tracks at South Station was determined based upon the maximum throughput at a reconfigured Tower 1 Interlocking and optimal track configuration to maximize capacity.

Alternatives Analysis

As noted previously, MassDOT selected a Preferred Alternative consisting of a transportation improvements only program at South Station and layover facilities at Widett Circle and Readville Yard 2. The FEIR described conceptual design's consistency with MassDOT's station design principles, project purpose and need, and established performance objectives. The FEIR included the results of the *Track Configuration Alternatives Analysis – Tier 2 Screening Technical Report* which further evaluated two terminal track configurations

based on the following criteria: platform accessibility and ability to meet berthing requirements; ability to accommodate future service plans and to meet OTP and delay goals; minimization of impacts to existing infrastructure and passenger service disruption; order-of-magnitude construction costs; and overall maintenance cost of special Tower 1 Interlocking trackwork. Alternative 2 focused on streamlining operations while Alternative 3 focused on minimizing disruptions to service. Each alternative will have equal environmental impacts. Based upon this screening assessment, MassDOT chose Alternative 3 for the track configuration.

The FEIR also included a *Rail Operations Analysis Technical Report* that summarized the basis of operations analysis for the SSX project along with the methodology and assumptions used as part of the simulation modeling effort (e.g., future Amtrak and MBTA, freight, and midday layover operations). According to the FEIR, Alternative 3 will result in minimal impact to the Tower 1 Interlocking track configuration and, therefore, minimal impact to existing operations. The proposed terminal track layout will allow up to seven trains to move simultaneously through the Tower 1 Interlocking. It will reduce the number of conflicting movements in the terminal area by allowing more trains to use the Broad and Cove Interlockings to make faster and more efficient crossover moves prior to berthing at station platforms. The project will include construction of an approximately 850-foot long third running track between the Broad and Tower 1 Interlockings to stage one trainset outside of Tower 1 Interlocking and maximize efficiency and speed through the Tower 1 Interlocking. Efficiencies at Broad Interlocking will also be gained through the installation of new universal crossovers on the north end of the interlocking and maintaining moves to the Wye track and Service and Inspection (S&I) Facility. At the S&I Facility a new yard lead will be constructed and the existing yard tracks will be realigned. Alternative 3 will also avoid impacts to the bus terminal and minimize impact to the future bus terminal expansion foundation and columns. Freight operations were included in the operations analysis (assuming existing freight windows) and will not be adversely impacted by the modeled future year passenger rail service plans.

The FEIR compared operational efficiencies between Alternatives 2 and 3. Both alternatives will meet the 2035 future service plans for the MBTA and Amtrak. While Alternative 2 is projected to result in less delay and greater OTP than Alternative 3 based upon simulated non-randomized and randomized delay scenarios, each alternative is expected to provide reliable service based on 2035 ridership estimates. Alternative 2 will provide greater operational efficiency and more parallel moves than Alternative 3. The FEIR acknowledged that Alternative 3, while providing increased flexibility for non-revenue moves between South Station and south side layover facilities, will pose several operational challenges compared to Alternative 2 with regard to requiring additional track moves or creating conflicting movements under certain operational conditions.

Alternative 3 will maintain the existing platform configuration at South Station and expand the terminal track configuration to the east with four new platforms and seven new tracks parallel to the existing tracks. Existing platforms will remain at 17 feet, 6 inches wide while new platforms will be 26 feet wide to meet current NFPA and ADA requirements. Platform G is the only existing platform that will be modified. This terminal track configuration includes platforms ranging in length from 708 feet to 1,085 feet. This alternative will likely require two design modifications to enhance platform capabilities and accommodate desired MBTA and Amtrak

berthing lengths (850 feet and 1,050 feet, respectively). Anticipated modifications include locating the locomotive and a portion of the first coach beyond the end of the platform and/or using a fixed-type bumping post to replace some of the longer hydraulic bumping posts currently in use. These design modifications considered the anticipated shortening of some existing platform lengths as part of the SSAR project.

The FEIR identified proposed station track accessibility based upon approach tracks and interlockings on the various service lines into South Station. Alternative 3 allows for greater overall track/platform accessibility and longer platform lengths compared to Alternative 2. Alternative 3, with design modifications, will meet platform berthing requirements for Amtrak trainsets at 14 out of 20 station tracks. Alternative 3 ranked higher in constructability and capital cost, while Alternative 2 was ranked higher in maintenance cost and operations. MassDOT consulted with Amtrak and the MBTA, both of which expressed a preference for Alternative 3 based upon all the screening criteria.

Layover Facilities

As noted in the FEIR, MBTA revenue trains entering South Station from the south will ideally layover at the south side facilities (i.e., Widett Circle and Readville Yard 2) to optimize operations. The *Railroad Operations Analysis Technical Report* assumed both revenue and non-revenue trips and their impacts to commuter rail service along each south side line. All Amtrak trains will continue to layover at Southampton Street Yard in future conditions. The FEIR indicated that additional MBTA midday layover facilities will provide Amtrak trains with nearly exclusive use of the central platforms at South Station, allow for a greater number of trains to move in and out of the terminal, and reduce conflicting movements at Tower 1 Interlocking.

The FEIR indicated that the midday layover facilities will provide a location to stage MBTA commuter rail trains and relieve train crews between revenue runs, typically during midday off-peak hours. According to the FEIR, the average layover duration is approximately four hours and 30 minutes. Layover facilities will store essential supplies for each locomotive (e.g., fuel, sand, lubricants, and coolants) and provide sanitary systems maintenance and water for coaches equipped with restrooms. Cleaning and minor running repairs (e.g., replacements of lights, fixing jammed doors, etc.) will also occur at layover locations. No heavy maintenance functions are proposed at either facility; routine service, inspection, and repairs will be conducted at the South Side S&I facility while extensive equipment repairs will be conducted at the MBTA's North Side Commuter Rail Maintenance Facility.

Layover demand will increase over time as ridership grows and operations are modified. MassDOT noted that there are opportunities to phase the construction of the proposed layover facilities to meet existing layover needs and those associated with MBTA commuter rail service expansion. The FEIR assumed that the Beacon Park Yard layover facility will be constructed prior to 2035, which may help support short-term south side midday layover capacity and maintenance needs. MassDOT indicated that the expansion of South Station will be able to advance independently of layover facility sites, on separate timelines, as necessary. Anticipated service enhancements to passenger rail service by 2035 will be supported by an expanded Readville Yard 2, followed by full build-out of Widett Circle as layover demand increases. It is

important to note that, consistent with MEPA recommendations, the FEIR has assumed a maximum impact scenario with regard to layover facility storage capacity and operations. It is a possible, given future operations and ridership that maximum layover capacity will not be realized at one or all of the proposed layover facilities.

Land

The FEIR identified the following changes to land associated with the Preferred Alternative:

- Acquisition of the USPS property (approximately 14 acres) to facilitate expansion of South Station;
- Acquisition of a parcel located adjacent to 245 Summer Street (approximately 0.2 acres);
- Reopening of Dorchester Avenue to create a public right-of-way (ROW) (approximately 5.0 acres);
- Acquisition of the Cold Storage and New Boston Food Market properties (approximately 25.1 acres) for the construction of the Widett Circle layover facility;
- Acquisition of DPW/City of Boston property (approximately 0.1 acres) for the proposed track realignment of the Fairmount Line/Dorchester Branch;
- Acquisition of Foodmart Road and Widett Circle (approximately 6.2) acres for the construction of the Widett Circle layover facility; and
- Partial acquisition of the James G. Grant Co. LLC property (approximately 0.7 acres) to facilitate the expansion of the Readville Yard 2 layover facility.

The FEIR described the existing conditions on each parcel of land proposed for acquisition or that will require an easement as part of the Preferred Alternative. The FEIR identified current ownership of individual properties, which range from private ownership, to City of Boston and Commonwealth of Massachusetts, to Amtrak parcels and ROW. The FEIR also identified existing easements (primarily for utility purposes) within the project area, although significant impacts to these areas are not anticipated. MassDOT should work with MWRA and/or BWSC during final design and operations to ensure ongoing access to utilities located within these easements for maintenance. Property easements associated with the agreements between the MBTA, BRA, USPS, and 245 Summer Street will be addressed as part of the acquisition of the USPS property. I note that an inability to acquire certain properties (i.e., USPS property and/or Widett Circle properties) may render the project infeasible as currently designed.

As indicated in the FEIR, MassDOT's preferred goal is to reach agreements with owners for the purchase of properties wherein property owners will be offered just compensation based on fair market value established by a certified appraiser. Acquisition will be limited to the minimum footprints required to support each function, including access roads, stormwater management facilities, and employee parking areas (where required). All property acquisitions and relocations will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, 42 USC 4601; CFR 49 Part 24 and/or M.G.L. 79; M.G.L. 79A through the MBTA's real estate acquisition team.

Comments from the New Boston Food Market Development Corporation, which consists of property owners in the Widett Circle area, cite several concerns to the proposed layover facility, including economic burdens associated with uncertainty about future acquisition, equitable compensation if relocation occurs, and potential loss of tax revenue for the City. Comments from the City of Boston indicate a preference to avoid locating a layover facility at Widett Circle in order to prioritize existing businesses and provide for long-term planning of future infrastructure investment and potential air rights development in the area. The City of Boston indicated that if Widett Circle is advanced as a layover facility location by MassDOT, close collaboration with business owners to explore fair and equitable relocation options are imperative. MassDOT should continue dialogue with business owners and the City of Boston to address the challenges associated with construction of the Widett Circle layover facility and potential conflict with business interests and city planning goals, as project design advances.

Traffic and Transportation

As the Preferred Alternative will not include a substantial redevelopment component, potential new trip generation rates will be relatively minor compared to the Joint/Private development alternatives. However, the project will impact roadway, pedestrian and bicycle infrastructure and present opportunities, particularly through the re-opening of Dorchester Avenue, to improve circulation through and around South Station. The FEIR included graphics identifying proposed routes to and from South Station from key roadways and locations such as South Boston, I-93 north, I-93 south, and the MassPike. Maintenance of public realm improvements to Dorchester Avenue, including the Harborwalk and cycle track, will be the responsibility of the City to maintain, or, if desired, the City may develop maintenance agreements with others. As Dorchester Avenue will be a public ROW, the City will be responsible for maintenance and repairs to the hardscape, landscape, drainage systems, pavement markings, lighting, signage and traffic signals.

The project includes measures to improve operations and safety conditions for motor vehicles, pedestrians, and bicycles. MassDOT analyzed 21 intersections in the South Station study area and two intersections each in the Widett Circle and Readville Yard 2 study areas as part of the DEIR. Eight intersections, all in the South Station study area, were identified that will benefit from changes to improve traffic flow and bicycle and pedestrian mobility.⁶ These mitigation measures are discussed later in this Certificate, and will, in most cases improve level-of-service (LOS) at these intersections during the morning or evening peak hour in the 2035 condition. As noted in the FEIR, some intersections cannot be effectively mitigated in a manner that improves LOS beyond LOS E or F without impacting accommodations for pedestrians and bicyclists.

MassDOT will prepare a Construction Management Plan (CMP) for review and approval by the Boston Transportation Department (BTD) to minimize disruption during the construction period. This CMP should specifically address maintaining safe pedestrian and bicycle

⁶ These intersections include: Atlantic Avenue at Summer Street; Purchase Street at Summer Street; Surface Road at Essex Street/Lincoln Street; Summer Street at Dorchester Avenue; Congress Street at Dorchester Avenue; Atlantic Avenue at Kneeland Street; Dorchester Avenue at West Broadway/Traveler Street; and Dorchester Avenue at West 4th Street.

accommodations in the South Station study area and provide dedicated areas for passenger drop-off and pick-up (particularly for shuttle services to the Seaport/Innovation District) throughout the construction period. The FEIR indicated that MassDOT proposes to only monitor traffic during the construction project. While the Preferred Alternative does not include the previously considered joint/private development and parking garage elements, I strongly encourage MassDOT to implement a monitoring program post-construction to evaluate and confirm assumptions regarding use of Dorchester Avenue and Atlantic Avenue access points, mode share assumptions, passenger pick-up and drop-off areas, shuttle services and pedestrian and bicycle accommodations/LOS.

The FEIR included a cross-section layout and conceptual design for Dorchester Avenue, prepared in coordination with the City of Boston, that prioritizes pedestrian and bicycle accommodation on the Fort Point Channel side of the roadway. The design includes a 20-foot wide Harborwalk, a 15-foot wide cycle track, two 11-foot travel lanes, one 11-foot parking or curb lane closest to the headhouse, and a 32-foot sidewalk/storefront zone adjacent to the headhouse. I strongly encourage MassDOT to evaluate, and implement as feasible, opening Dorchester Avenue to pedestrian, bicycle, and Harborwalk access on an interim basis upon demolition and relocation of the USPS during early phases of the construction period.

Re-opening Dorchester Avenue may allow for the establishment of an MBTA bus stop at the South Station headhouse. Locating a stop in this location will facilitate direct service to the Seaport/Innovation District while avoiding Dewey Square. MassDOT should continue to coordinate with the MBTA regarding opportunities to establish/modify routes that would use Dorchester Avenue to enhance bus service. MassDOT should consult with the MBTA to determine necessary bus berthing requirements and bus stop amenities prior to finalizing design of the Dorchester Avenue cross-section and layout. The proposed cycle track on Dorchester Avenue will connect with existing bicycle infrastructure and complement City plans such as the South Bay Harbor Trail and the Summer Street Corridor cycle track.

Public Transit

The expanded headhouse will provide a physical and visual link to the waterfront and improve passenger access to South Station from the eastern side of the site. Passenger boarding will occur from both the trackhead and an elevated concourse, which will be connected to each existing and new platform. The elevated concourse will facilitate circulation by linking the historic headhouse to the tracks and platforms, the bus terminal, and Atlantic and Dorchester Avenues. All existing and new platforms will have direct access to the bus terminal and the Red and Silver Lines and will have at least three points of egress per NFPA requirements. Elevators, escalators and stairs will improve accessibility and will meet ADA requirements, as applicable. The final design should ensure that connections to the Silver Line transitway and Logan Airport are maintained and improved wherever possible.

According to the FEIR, the new station has been designed to provide adequate space and facilities to safely and conveniently manage the projected peak hour pedestrian demand based on a 2035 ridership estimate of 20,000 passengers per day arriving at South Station. MassDOT

operational and design goals include an LOS C during peak periods to accommodate passengers at South Station public circulation spaces, waiting areas and station platforms.

The Preferred Alternative does not include a water transportation connection. The FEIR stated, that as a nonwater-dependent infrastructure facility, the project is exempt from the regulatory standards at 310 CMR 9.51 (Conservation of Capacity for Water-Dependent Use), 310 CMR 9.52 (Utilization of Shoreline for Water-Dependent Purposes), and 310 CMR 9.53 (Activation of Commonwealth Tidelands for Public Use). The FEIR indicated that water transportation may be reassessed if joint/private development is proposed. I received several comments noting the opportunities to provide water connections to South Station. I encourage MassDOT to reassess the feasibility of water transportation at South Station on a recurring basis to determine if this travel mode option is viable. At a minimum, MassDOT, in completing the design of the harborwalk and Dorchester Avenue, should not preclude future accommodations for water transportation infrastructure.

Pedestrian and Bicycle Accommodations

The SSX project will enhance pedestrian and bicycle connection between South Station and adjacent streets, the Harborwalk, and through and around South Station to the adjacent neighborhoods (i.e., Fort Point Channel, Seaport District, South Boston, Chinatown, Leather District, etc.). This includes design elements of the station headhouse and platforms themselves, which will allow cross-connections from Atlantic Avenue to Dorchester Avenue, as well as intersection improvements to improve pedestrian safety and bicycle accommodations along both Atlantic Avenue and Dorchester Avenue. The FEIR indicates that the approximate size and location of long-term and short-term bicycle parking will be determined as designs for the station and Dorchester Avenue progress. Bicycle parking should be determined based on bicycle usage data and mode share goals. The City of Boston recommends bike parking for at least 750-1,000 bicycles. Bicycle parking and cycle track/lanes will complement existing Hubway bike share stations on-site, as well as a new Hubway station on Dorchester Avenue.

Wetlands and Waterways

The FEIR summarized the location and type of wetland resource areas on the South Station and Readville Yard 2 sites (there are no wetland resource areas within the Widett Circle site). Impacts to LSCSF and Coastal Bank are expected at the South Station site and minor impacts to Riverfront Area are proposed at the Readville Yard 2 site. MassDOT will file a Notice of Intent with the Boston Conservation Commission for work on both sites and describe how the project will meet applicable performance standards in accordance with the Wetlands Protection Act (WPA). The FEIR also identified a total of five isolated vegetated wetlands (IVW) totaling approximately 0.64 acres in area at the Readville Yard 2 site that will be impacted by the project. MassDOT assessed these wetlands to determine if they meet the criteria to be classified as Isolated Land Subject of Flooding (ILSF) or are federal wetlands under Section 401 and 404 of the Clean Water Act. On-site evaluation and digital hydrological volume estimations concluded that these isolated wetlands are not jurisdictional under the WPA as ILSF, but do meet criteria for consideration as Waters of the United States. MassDOT should consult with USACE as design advances to determine the federal jurisdiction of these wetland areas and

confirm whether a Section 401 Water Quality Certificate from MassDEP will be necessary to complete the Readville Yard 2 expansion.

The FEIR discussed how the South Station site will meet the c. 91 licensing criteria for a new nonwater-dependent infrastructure license for the construction of the tracks, platforms, and new headhouse on Dorchester Avenue. The project is not expected to negatively impact water-related public interests such as marine commerce or industry, public access, water quality goals, living marine resources, or historic or cultural resources. The FEIR described how the project will be designed to reduce flood and erosion-related hazards on LSCSF and enhance public waterfront access and views of the natural and built environment along the water's edge. As noted by MassDEP, additional information will be required during the c. 91 licensing process to clarify how the proposed open space programming will meet the standard of 310 CMR 9.55(2) that requires reasonable measures to create open space for active or passive public recreational use at or near the water's edge.

The FEIR included a discussion of how the project will comply with the Public Benefit Determination (301 CMR 13.00) criteria established for non-water-dependent projects located completely or partially within tidelands or landlocked tidelands for the project (South Station site and Widett Circle). The FEIR identified the following public benefits: removal of the nonwater-dependent USPS facility from filled Commonwealth Tidelands; expansion of South Station to meet current and future intercity and commuter rail service needs; reopening of approximately five acres of filled tidelands to public access; provision of approximately 0.5 miles of newly opened public roadway; and creation of approximately three acres of public open space.

I will issue a Public Benefit Determination in compliance with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts ch. 168, sec.8) within 30 days of the issuance of this Certificate.

Stormwater

The FEIR included a stormwater analysis, with supporting data and graphics, for the South Station expansion and layover facilities. This analysis described how the project will be designed to comply with the SMS, as applicable for redevelopment projects. MassDEP comments indicate that the Readville Yard 2 site may not be considered a redevelopment project and may be considered a new development for the purposes of the meeting the SMS. MassDOT should consult with MassDEP on this issue and review stormwater management calculations prior to submission of a Notice of Intent to the Boston Conservation Commission.

The stormwater analysis described existing site conditions, existing and proposed drainage conditions, and proposed stormwater best management practices (BMPs). Selected BMPs will be used to meet Total Maximum Daily Load (TMDL) and Land Uses of Higher Potential Pollutant Load (LUHPPL) requirements. MassDOT evaluated on-site soils and hydrology data to inform the conceptual design of the stormwater management system. Additional soils testing will be required prior to final stormwater management system design. The proposed drainage systems for the project will be sized using the storm event rainfall totals and distributions from the *Northeast Regional Climate Center Extreme Precipitation Analysis*,

which updates data annually, to account for recent trends in larger, more extreme rain events. MassDOT will also cross-check calculations with BWSC's 2015 *Wastewater and Storm Drainage System Facilities Plan Final Report*, which identifies recommended annual rainfall volumes for use in identifying the frequency, overall magnitude and operation costs of future wet weather discharges, as well as the 10-year, 24-hour design storm to use for drainage and conveyance calculations.

For the South Station site, improvements to the existing stormwater management system will be designed based on BWSC's *Regulations Governing the Use of Sanitary and Combined Sewer and Storm Drains of the Boston Water and Sewer Commission* (1998) and stormwater management for the tracks and platforms will be based on the MBTA *Commuter Rail Design Standards Manual*. Impervious coverage at South Station will be reduced by 25 percent and permeable areas may include low impact development measures such as: pervious pavers with underdrains for the sidewalks and Harborwalk; vegetated open spaces; bioretention areas; green roofs and/or tree box filters.

Based on the conceptual design of the layover facilities and potential constraints on stormwater infiltration, the FEIR proposed BMPs for three potential stormwater management approaches: infiltration for all BMPs, a combination of infiltration and non-infiltration BMPs dependent upon available soils subsequent to additional Phase II environmental testing, and a design with no infiltration BMPs. Potential pre-treatment BMPs include: catch basins with deep sumps, drip pans, and oil/water separators. Potential treatment BMPs include: lined or unlined porous pavement, lined or unlined surface BMPs (e.g., vegetated swale, gravel wetland), leaching basins, infiltration basins, or green roofs. The FEIR included conceptual design plans for stormwater management BMPs at each layover facility.

MassDOT should review comments from MassDEP regarding revisions to the conceptual stormwater management system to meet applicable TMDLs, discharges in shellfish growing areas, and the MBTA's potential designation as a Municipal Separate Storm Sewer System (MS4). MassDOT will finalize stormwater system design and demonstrate compliance with applicable SMS and BWSC requirements during review by the City of Boston.

The FEIR identified the location of project area stormwater infrastructure (i.e., pipes, easements and outfall locations) and CSO connections and described the condition of the stormwater and CSO pipes and outfalls to Fort Point Channel. No additional outfalls into Fort Point Channel are proposed. Construction of a dedicated drainage system for the South Station and Readville Yard 2 sites was dismissed as a feasible alternative as it would require easements and additional utility relocation work with minimal benefit to reduce peak flow rates to CSOs. During the advanced design phase for Readville Yard 2, MassDOT will inspect the condition of the 54-inch drainage pipe that outfalls to the Neponset River to determine whether the pipe should be relocated, replaced, or if a structural liner could be installed.

Climate Change Adaptation

The FEIR discussed proposed climate change and adaptation and resiliency measures that will be implemented, or reserved for future review, at the South Station and Widett Circle sites.

The FEIR updated data and analysis to its climate change vulnerability assessment including: newly available flood information from the Federal Emergency Management Agency (FEMA);⁷ and results of the MassDOT-Federal Highway Administration (FHWA) Boston Harbor Flood Risk Model (BH-FRM).⁸ In absence of mitigation, a future sea level rise scenario of two-feet combined with the 1% annual chance (100-year storm) floodplain (FEMA maps) would encompass approximately 28 acres of the South Station site and completely inundate the 30-acre Widett Circle Site. The BH-FRM model predicts both flooding extent and flood depths in a sea level rise scenario of 0.62 feet by the year 2030 and 3.2 feet by the year 2070 in addition to a 1% coastal flood exceedance probability (CFEP) flood event. These data indicate that shallow flooding will occur within the South Station project footprint under current and 2030 conditions. In the 2070 condition, portions of the South Station platform areas could flood to depths between 0.5 feet and 1.5 feet while the portion of the site, including tracks, extending west away from South Station and south towards Widett Circle could flood to a depth of between 1.0 and 2.5 feet. In the 2070 scenario, Widett Circle, as well as much of the surrounding area, is predicted to flood to depths between 1.5 and 2.0 feet.

Site-specific elements to mitigate impacts due to sea level rise and severe storms will continue to be evaluated during the design process and selected based upon further analysis of projected climate change impacts. MassDOT should revisit adaptation strategies on a regular basis as new sea level rise and flooding projections are made available to ensure proactive responses to potential climate change impacts. These climate change adaptation and resiliency mitigation measures are described later in this Certificate. I strongly encourage MassDOT to focus not only on mitigation measures at the South Station site, but those that may allow for climate change adaptation at the Widett Circle site to avoid potential loss of critical infrastructure during a major storm event. Furthermore, design of some of these climate change adaptation measures, particularly increasing the elevation of the Fort Point Channel seawall, will be subject to review under the Wetlands Protection Act.

Water and Wastewater

The FEIR included an updated table of estimated existing and proposed water usage and wastewater generation at the South Station, Widett Circle, and Readville Yard 2 sites. These estimates considered the removal of existing uses on site (i.e., USPS facility, commercial/industrial uses at Widett Circle) in determining the net increase in water and wastewater volumes. As only light maintenance activities are proposed at the layover facilities, no industrial wastewater will be generated by the project. Wastewater at the South Station site is collected through a series of BWSC sanitary sewer mains, combined sewer mains, and combined sewer overflows (CSOs), the latter of which discharge to the Fort Point Channel. MassDOT will confirm (through data collection and/or field inspection) all existing outlet discharge flows to Fort Point Channel outfall pipes during final design. These data should be provided to the MWRA and BWSC. Demolition of the USPS Facility and South Station construction activities will be required to maintain the structural integrity and outlet protection for the BWSC's 81-inch by 81-inch Kneeland Street CSO.

⁷ FEMA, Flood Insurance Rate Maps for Suffolk County, Massachusetts, revised March 16, 2016.

⁸ MassDOT-FHWA, Pilot Project Report: Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery, June 2015.

The SSX project will include water efficiency measures, such as low flush toilets and fixtures, to minimize water use and wastewater generation. According to the FEIR, the BWSC has indicated that there is adequate capacity in its water and sewer mains in the vicinity of South Station and both layover facilities to accommodate the increased water demand and sewer flows. The FEIR noted that depending upon the construction staging and final location of service connections, the sewer main within Dorchester Avenue may require replacement. MassDOT should continue to coordinate this matter with BWSC during final design and construction sequence planning.

New wastewater flows generated at the South Station site will require offsets by reducing inflow and infiltration (I/I) in hydraulically connected sewers systems in accordance with MassDEP policy. Offsets must be provided at a 4:1 ratio (602,240 gpd total). MassDOT will work with MassDEP and BWSC to develop an I/I plan as station design advances. This I/I plan should demonstrate that CSO impacts from the new wastewater flows are avoided or fully mitigated at the CSO outfalls associated with the BWSC sewer system serving South Station and those further to the north along the downtown waterfront (CSO 057 and CSO 060). According to the FEIR, BWSC has indicated that it is unlikely that adequate piping is available in the immediate vicinity of the project site to meet the I/I requirements. Therefore, additional areas of mitigation may need to be identified. Each layover facility is exempt from the I/I requirement, as they generate less than 15,000 gpd of wastewater.

The FEIR acknowledged that sea level rise could affect downstream CSOs and MWRA facilities and, therefore, the performance of the wastewater collection system. Three CSO outlets to the Fort Point Channel (CSO 064, CSO 065 and CSO 068) may require additional mitigation measures to minimize the inflow of seawater into these CSO's. MassDOT will coordinate with BWSC as the project progresses to comply with BWSC's plan to modify CSO and storm drain outfall operations in response to sea level rise. The BWSC plan includes:

- Ensuring all outfalls have tide gates to protect facilities and operations from flooding due to a combination of storm surge and sea level rise;
- Use of recommended design flood elevations (18 to 22 feet Boston City Base (BCB)) to determine if and when backflow prevention is required on storm drain outfalls; and
- Periodic reevaluation of the frequency and procedures for tide gate and outfall maintenance and replacement to assure proper operations under more frequent submergence due to higher sea levels.

Air Quality

The project will generate emissions from locomotives entering and leaving South Station, activities at layover facilities, and through the addition of vehicular traffic. As demonstrated in the DEIR, the project will not result in exceedances of the Massachusetts or National Ambient Air Quality Standards (MAAQS and NAAQS). The air quality analysis, using PM_{2.5} as a surrogate, concluded on a qualitative basis, that the project will result in an increase in diesel particulate matter (DPM) and ultrafine particulates (UFPs) compared to a No-Build Alternative.

At this time, DPMs and UFPs do not have established MAAQS or NAAQS. As the Preferred Alternative will not include enclosed spaces where potential pollutants may become concentrated, no additional air quality modeling was necessary in the FEIR.

The Preferred Alternative station design and platform and track layout will not alter predicted noise and vibration characteristics from those presented in the DEIR. This assessment was performed in accordance with FTA criteria and standards to evaluate project impacts on noise-sensitive receptor locations. The FEIR identified the location, type and elevation of proposed noise barriers within the SSX project areas to mitigate noise and vibration impacts from the Preferred Alternative. Proposed noise and vibration mitigation measures for both the construction and operational periods are identified later in this certificate. The FEIR indicate that the noise barrier at South Station will provide far greater noise reduction than required. Therefore, MassDOT has not proposed post-construction noise monitoring at this location. Vibration monitoring is also not proposed due to the slow speed of trains entering and exiting the station. I strongly encourage MassDOT to reconsider this monitoring approach at both South Station and Readville Yard 2 in the post-construction condition to confirm modeling accuracy and the efficacy of proposed noise mitigation measures. Noise mitigation measures should consider the maximum potential noise impacts at Readville Yard under certain conditions where locomotive shore power connections are not feasible such as extreme cold conditions.

Greenhouse Gas Emissions

The FEIR described the project's consistency with the *MEPA Greenhouse Gas Emissions Policy and Protocol* (the Policy) and proposed measures to avoid, minimize, and mitigate GHG emissions. The FEIR did not include revised building energy modeling, as the data remain unchanged from the DEIR analysis. The FEIR did clarify the modeling inputs (e.g., R-values, U-values, efficiencies, lighting power density, etc.) for items such as equipment, walls, ceilings, windows, lighting, HVAC units, etc. that were modeled in the Baseline Case (Massachusetts Building Code, 8th edition, ASHRAE 90.1-2010) and Build with Mitigation Case (demonstrating compliance with the Stretch Energy Code) to allow for comparison with Building Code requirements. I note that the GHG modeling results for the Preferred Alternative only indicate a reduction in energy use intensity (EUI) of 10%, well below the requirement necessary for compliance with the Stretch Energy Code. Given the timeframe for project development and construction, it is likely that building code requirements will become more stringent than those modeled in the DEIR. I remind MassDOT that they will be required to demonstrate compliance with the applicable Building Energy Code in effect at the time construction commences. To achieve compliance, additional energy efficiency measures will likely be necessary. MassDOT should review the recommendations from the Department of Energy Resources (DOER) comment letter to identify additional energy efficiency measures for consideration during final design. The structures at the two layover facilities will be required to comply with the applicable building energy code and Stretch Energy Code prescriptive energy efficiency measures. MassDOT will consider implementation of Leadership in Energy and Environmental Design (LEED) standards and the FHWA Infrastructure Voluntary Evaluation Sustainability Tool (INVEST) as guidance during final design.

As currently proposed, the new headhouse will be constructed as either a separate addition or as a new adjacent building on the property and will utilize new independent building systems, including ventilation. I note that many of the key building energy model inputs for the project do not include improvements beyond the base building code requirements. MassDOT should reevaluate these measures as project design advances, particularly in light of preliminary modeling indicating that the Stretch Energy Code requirements have not been met with the current design. Total stationary source GHG emissions for the Preferred Alternative are estimated at 2,192 tons per year (tpy) a 195 tpy (or 8%) reduction from the Base Case of 2,387 tpy.

The FEIR analyzed the feasibility of connecting to the Veolia steam system, which includes a mix of combined heat and power (CHP) sources (from Kendall Generating Station (KGS) in Cambridge) and traditional boilers (primarily from Kneeland Street Station in Boston) as an additional GHG reduction measure. The FEIR assessed a scenario where the project would have 100% of its heating needs (building heat and domestic hot water) and 100% of its building cooling needs (through the use of absorption chillers instead of electric chillers) supplied by Veolia district steam. This analysis indicated that this scenario would further reduce project-related stationary source emissions by approximately 20%. MassDOT will conduct an energy cost analysis during the design phase and work with Veolia on possible connection terms. Selection of this GHG mitigation measure will be contingent upon economic, reliability, complexity, and environmental factors.

The FEIR provided additional discussion of potential solar photovoltaic (PV) or solar hot water (SHW) systems. As noted in the DEIR, usable roof area is predicted at 35,000 sf due to dedicated mechanical space and shadowing. This size array is estimated to generate approximately 420 kW of peak direct current (DC) and offset approximately 166 tons of CO₂ annually. A SHW system could generate approximately 4,200 MMBtu per year, exceeding the expected domestic hot water demand for the terminal expansion (559.3 MMBtu/year). A SHW system would displace fuel use in a natural gas-fired boiler, offsetting approximately 245 tpy of CO₂. The analysis identified two potential challenges to implementing solar PV on-site: likely future shadowing due to development in the area and connections to the electrical grid via spot network vaults. Spot network connections are estimated to limit on-site generation to less than 40kW. Challenges to implementing SHW include excess supply, future shadowing potential, interconnections with Veolia steam, and available financial incentives. MassDOT should continue to assess options to incorporate solar PV or SHW based upon the final design and known implementation challenges. At a minimum, all roofs should be solar-ready.

The FEIR analyzed an on-site gas-fired CHP system to produce electricity and hot water and reduce the need for natural gas for domestic hot water heating while providing a portion of the building's electricity needs. The analysis indicated that a feasible CHP technology designed to meet the project's thermal load will be small (5 or 10kW). The FEIR evaluated a 10kW micro-CHP, as a larger system would remain idle during the spring and fall due to the project's energy demand profile. Electric interconnection issues will also likely preclude use of an on-site CHP larger than 40kW. The GHG analysis indicates that a 10kW CHP system will provide only a nominal GHG emissions reduction (less than one tpy) and, therefore, is not proposed.

The GHG analysis considered the GHG impacts of locomotive plug-ins and Amtrak trains. The GHG analysis compared scenarios where locomotives did not plug in, to a case where trains spend 3.5 hours plugged in per layover.⁹ The analysis considered equivalent operations 365 days per year; it did not account for reduced weekend service. Total electric load associated with plug-ins is estimated at approximately 7,486 MWh per year, or 2,717 tpy of CO₂. This is a substantial reduction in CO₂ emissions compared to idling on the diesel engine, which is estimated at approximately 18,933 tpy of CO₂. The GHG analysis also assumed the addition of eight new daily electric Amtrak trains that will idle at South Station for 30 minutes per day and move to and from the Tower 1 Interlocking. Total daily electric use for these trains is estimated at 1,680 kWh, equating to approximately 222.6 tpy of CO₂.

Overall GHG emissions for the Preferred Alternative are projected as follows:

Emissions Source	Annual CO2 emissions (tpy)
Stationary Source Direct Emissions	159
Stationary Source Indirect Emissions	2,033
Transportation Mobile Source Emissions	7,801
Indirect Emissions from Electricity for Plug-ins	2,717
TOTAL	12,710

Historic Resources

The FEIR included a matrix of potential effects to National Register-Listed or National Register-eligible historic architectural resources within the Preferred Alternative's Areas of Potential Effect (APE). There are no historic properties within the Widett Circle or Readville Yard 2 layover site study areas. MassDOT considered historic resources during its assessment of potential noise and vibration impacts from the project. The project is not anticipated to have an adverse visual effect on views to or from historic properties in the South Station APE. MassDOT completed a preliminary determination of effect analysis for historic properties in the SSX APE, concluding that the project will have either "no effect" or "no adverse effect" on identified historic resources. A Section 106 Report will be submitted to the MHC separately as part of the NEPA/Section 106 review process. That report will provide FRA determinations of effect in compliance with Section 106.

MassDOT should provide conceptual designs and architectural drawings of the proposed new construction and any modifications to the historic South Station headhouse to MHC at the 30% design stage. MassDOT should also provide MHC with engineering drawings and detailed project plans for the proposed improvements to the Fort Point Channel seawall, as the historic seawalls are listed in the National Register of Historic Places as contributing resources to the Fort Point Channel Historic District.

⁹ Average midday layover is 4.5 hours based on equipment cycles, of which 30 minutes after arrival and 30 minutes prior to departure is assumed to be spend idling on diesel.

Hazardous Materials

MassDOT completed Phase I Environmental Site Assessments (ESAs) for the South Station Site (with the exception of the USPS facility, which was not available for investigation), and the Widett Circle and Readville Yard 2 layover facility sites. The ESA's identified Recognized Environmental Conditions (RECs) and Historic Recognized Environmental Conditions (HRECs) for these properties. MassDOT will conduct Phase II ESAs for the South Station, Widett Circle and Readville Yard 2 sites. The FEIR included a draft site specific health and safety plan (HASPs) for each SSX project site. Construction activities will be conducted in accordance with the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000), likely via a Release Abatement Measures (RAM) plan, with a specific focus on soils management and potential groundwater contamination and dewatering. Final site conditions may require the placement of an Activity and Use Limitation (AUL). The FEIR noted that current remediation activities are ongoing at the Readville Yard 2 site and any future work on site will need to be coordinated with the RAM plan for this work and modified as necessary.

Construction Period

The FEIR included a draft Construction Management Plan (CMP) that addressed construction period air quality impacts, soil and sediment control, noise and vibration impacts, traffic impacts, and work hours. The FEIR described potential construction period access locations and laydown areas for station, rail and layover facilities. No traffic detours are expected as a result of construction work. The FEIR discussed potential service modifications to commuter rail, freight and Amtrak services during the extended construction period. The construction phasing schedule will focus on minimizing impacts to passenger use during peak hours. I strongly encourage MassDOT to continue to work collaboratively with the MBTA, City of Boston, Amtrak, freight users, and other stakeholders to finalize a construction phasing plan that minimizes service disruption and passenger experience while limiting the construction period to the maximum extent feasible.

Mitigation and Section 61 Findings

The FEIR identified measures to avoid, minimize and mitigate environmental impacts and included draft Section 61 Findings for use by State Agencies. Environmental mitigation commitments include:

Traffic and Transportation

- Update eight intersections to improve traffic flow, reduce queuing, and improve pedestrian and bicycle mobility:
 - Atlantic Avenue at Summer Street:
 - Restripe Atlantic Avenue to align lanes through Summer Street;
 - Optimize signal timings and phasing;
 - Eliminate double left-turn conflict from Atlantic Avenue to Summer Street.
 - Atlantic Avenue at Kneeland Street:
 - Replace traffic loops on MBTA driveway;

- Optimize signal timings and phasing.
 - Surface Road at Essex Street and Lincoln Street:
 - Include pedestrian lead intervals during pedestrian phases;
 - Install new crosswalk to meet desire line crossing Surface Road;
 - Optimize signal timing and phasing.
 - Surface Road at Purchase Street and Summer Street:
 - Install crosswalk on westbound approach;
 - Improve pedestrian phasing;
 - Optimize signal timings and phasing.
 - Dorchester Avenue at Congress Street:
 - Optimize signal timings and phasing.
 - Dorchester Avenue at Summer Street:
 - Optimize signal timings and phasing.
 - Dorchester Avenue at West Broadway:
 - Restripe West Broadway westbound approach;
 - Optimize signal timings and phasing to include concurrent pedestrian phasing.
 - Dorchester Avenue at West 4th Street:
 - Optimize signal timings and phasing;
 - Increase pedestrian walk times.
- Implement a TDM program with the following elements:
 - Incorporate bicycle parking in the new headhouse on Dorchester Avenue;
 - Participate in EPA's SmartWay Transport Program;
 - Provide electronic signage displaying transit schedule information;
 - Provide dedicated curbside space for taxicabs, passenger drop-off and pick-up, and private shuttles along Dorchester Avenue;
 - Improve bicycle accommodations on Atlantic Avenue from Kneeland Street to Summer Street in coordination with the City of Boston; and
- Increase curbside capacity by removing six parking meters from Atlantic Avenue along the project frontage;

Wetlands and Waterways

- Provide public benefits including increased open space and public access on-site and along Dorchester Avenue; and
- Limit direct wetland resource area impact to the maximum extent practicable, comply with applicable performance standards in the WPA regulations, and implement soil erosion and sediment controls.

Stormwater

- Design and install structural and nonstructural stormwater BMPs to mitigate stormwater peak flow rates, runoff volumes, groundwater recharge volumes, and water quality in accordance with MassDEP SMS;
- Design and install stormwater management infrastructure consistent with BWSC design requirements and in consideration of soil/hazardous materials constraints on potential groundwater infiltration;

- Prepare a site-specific Stormwater Pollution Prevention Plan (SWPPP) in accordance with NPDES Construction General Permit requirements; and
- Develop an Operation and Maintenance (O&M) plan for each site.

Climate Change

- Raise the existing seawall and an adjacent portion of Dorchester Avenue from its current elevation of 10.5 feet to 12.5 feet to match the elevation of the seawall to the north and south of the site. This design modification is in response to a predicted two-foot sea level rise by the year 2050 above the base flood elevation of 10.0 feet;
- MassDOT will continue to evaluate mitigation measures to minimize South Station's vulnerability to flooding events. This includes: repair and maintenance procedures of underground systems during design and construction (elevating power/heating, HVAC sources and critical systems to higher elevations), designing critical equipment to accommodate seawater flooding, waterproofing subsurface site elements, and using corrosion protection elements and materials for underground structures; and
- Extreme heat impacts will be considered during final selection of sustainable design guidelines for the project.

Water and Wastewater

- Develop and implement an I/I plan in coordination with MWRA, BWSC and MassDEP to offset additional wastewater generation from South Station;
- Incorporate water efficiency measures (e.g., low flow toilets and fixtures); and
- Design and construct utility improvements consistent with BWSC requirements, including measures to limit impacts to existing utility infrastructure and maintain consistency with climate change preparedness goals for outfall locations in Fort Point Channel.

Air Quality

- Construct an 18-foot tall, 1,450-foot long noise barrier along the South Station frontage to Fort Point Channel and Dorchester Avenue to provide approximately 10-12bBA noise reduction. This noise barrier will be constructed in accordance with the current edition of AASHTO's *Guide Specifications for Structural Design of Sound Barriers*, and with MassDOT's *Standardized Foundations for Sounds Barrier Walls*;
- Reconfigure an existing 18-foot tall, approximately 400-foot long berm/noise barrier at Readville Yard 2 to provide additional noise mitigation to the single-family homes along Wolcott Street and Wingate Road and apartment buildings on Riley Road and Sierra Road. Remove approximately 200 feet of existing barrier and add up to 600 feet of a new/modified barrier (800 feet total length);
- Add electric power stations (i.e., shore power) at layover facilities to allow locomotives to be plugged in and reduce engine idling compared to facilities without shore power options; and
- Install doors to separate the headhouse from the track and platforms at South Station.

Greenhouse Gas Emissions

- The project will be required to comply with the applicable Building Energy Code and Stretch Energy Code in effect at the time project construction commences;

- The project will include plug-in capacity for locomotives reducing CO2 emissions from 18,933 tpy to 2,717 tpy compared to idling on diesel engines in equivalent idling/layover scenarios; and
- MassDOT will continue to evaluate the feasibility of connection to the Veolia steam system to realize additional GHG benefits.

Hazardous Materials

- Conduct Phase II ESAs for the South Station, Widett Circle and Readville Yard 2 sites. MassDOT will implement a soil and groundwater sampling and analysis program to provide information to establish the presence and extent of contaminated material; establish requirements for treatment and management of groundwater to be dewatered during construction; avoid exacerbation of existing groundwater or soil contamination in design for construction; and meet the performance standards of the Massachusetts Contingency Plan (MCP) (310 CMR 40.0000);
- Implement a site specific health and safety plan (HASP); and
- Identify asbestos containing materials (ACMs) and hazardous materials prior to demolition.

Construction Period

- MassDOT will develop a construction phasing schedule to balance and optimize the duration and impact of overnight work windows, weekend work outages, and strategic track closures;
- Comply with MassDOT specifications for traffic management requirements and work hour provisions;
- Submit and implement a Dust and Emissions Control Plan;
- Implement a Soil Erosion and Sediment Control Plan;
- Comply with MWRA, BWSC and/or MassDEP regulations and standards for construction period dewatering;
- Conduct work in compliance with MCP requirements, including soil management procedures and construction monitoring by a Licensed Site Professional (LSP), as required; and
- Implement noise and vibration controls, including, but not limited to:
 - Install temporary noise barriers;
 - Apply acoustic enclosures and setting acoustic shield requirements for jackhammers, chainsaws, and pavement breakers;
 - Establish protocols for reporting noise monitoring results, noise reduction measures used, and responses to the community;
 - Locate stationary construction equipment as far as possible from noise-sensitive sites;
 - Conduct noise monitoring after service starts (with proposed mitigation in place) to evaluate whether the actual noise levels correspond with the modeled values and take corrective actions if actual values are higher than projected;
 - Use pre-augering holes to reduce vibration impacts from pile driving; and
 - Minimize and/or avoid the use of impact and vibratory equipment that generates higher vibration levels (104 to 110 VdB at a distance of 25 feet from the pile

driver), to avoid potential damage to buildings located within 65 feet of such equipment.

The FEIR provided draft Section 61 Findings for use by State Agencies. These draft Section 61 Findings should be revised in response to this Certificate and provided to State Agencies to assist in the permitting process and issuance of final Section 61 Findings.

Conclusion

Based on a review of the FEIR, comment letters and consultation with State Agencies, I find that the FEIR adequately and properly complies with MEPA and its implementing regulations. Outstanding issues will be addressed during State and local permitting processes. The Proponent and State Agencies should forward copies of the final Section 61 Findings to the MEPA Office for publication in accordance with 301 CMR 11.12.



August 12, 2016
Date

Matthew A. Beaton

Comments received:

6/21/2016	New Boston Food Market Development Corporation (received 7/18/16)
7/12/2016	Graham W. Jenkins
7/20/2016	Frank S. DeMasi
7/20/2016	Dr. David L. Westerling
7/22/2016	Robert J. La Tremouille
7/28/2016	Massachusetts Historical Commission
7/31/2016	State Representative Frank I. Smizik, 15 th Norfolk District; State Representative Sean Garballey, 23 rd Middlesex District; State Representative Carmine L. Gentile, 13 th Middlesex District; and State Representative Chris Walsh, 6 th Middlesex District
8/1/2016	League of Women Voters of Massachusetts
8/2/2016	Andrew Jennings
8/3/2016	Sandra Peters
8/3/2016	Medical Academic and Scientific Community Organization (MASCO)
8/3/2016	David Martin
8/3/2016	Steve Hollinger
8/4/2016	Robert Gilmore
8/4/2016	George Schwartz
8/4/2016	Richard Koch

8/4/2016 Yanni Tsipis, on behalf of WS Development
 8/4/2016 Dusty Rhodes
 8/4/2016 David Hancock
 8/4/2016 Lawrence DiCara
 8/4/2016 Related Beal
 8/4/2016 A Better City
 8/4/2016 Massachusetts Convention Center Authority
 8/4/2016 Mayor Setti D. Warren, City of Newton
 8/4/2016 U.S. Representative Michael Capuano, 7th District, Massachusetts
 8/4/2016 State Representative Carmine L. Gentile, 13th Middlesex District
 8/5/2016 Boston Children's Museum
 8/5/2016 Boston Harbor Now
 8/5/2016 Young K. Park, Berkeley Investments
 8/5/2016 Paola M. Ferrer, Harry Mattison, Steven Miller, Galen Mook, Ari Ofsevit
 (Livable Streets Alliance), Rich Parr, and Carol Ridge Martinez (Allston-
 Brighton CDC)
 8/5/2016 Seaport TMA
 8/5/2016 P.E. Kutcher
 8/5/2016 Karen Cord Taylor
 8/5/2016 Brad Bellows
 8/5/2016 James RePass Sr.
 8/5/2016 Massachusetts Water Resources Authority
 8/5/2016 Frederick Salvucci
 8/8/2016 Cambridge Innovation Center
 8/5/2016 Metropolitan Area Planning Council
 8/5/2016 Frederick A. Kramer
 8/5/2016 Stephen H. Kaiser
 8/5/2016 Sierra Club Massachusetts
 8/5/2016 The Drew Company
 8/5/2016 Massachusetts Port Authority (Massport)
 8/5/2016 Massachusetts Department of Environmental Protection – Northeast Regional
 Office (MassDEP-NERO)
 8/5/2016 Ed Mueller
 8/5/2016 Robin Pope
 8/5/2016 Harvard College, Office of the Executive Vice President
 8/5/2016 Massachusetts Office of Coastal Zone Management
 8/5/2016 City of Boston
 8/10/2016 Heidi A. Wolf, General Manager Residences at the InterContinental
 8/11/2016 Department of Energy Resources

MAB/HSJ/hsj