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CERTIFICATE OF THE SECRETARY OF ENERGY AND ENVIRONMENTAL AFFAIRS
ON THE
ENVIRONMENTAL NOTIFICATION FORM

PROJECT NAME : I-90 Allston Interchange Project
PROJECT MUNICIPALITY : Boston
PROJECT WATERSHED : Charles River
EEA NUMBER : 15278
PROJECT PROPONENT : Massachusetts Department of Transportation
DATE NOTICED IN MONITOR : November 5, 2014

Pursuant to the Massachusetts Environmental Policy Act (G. L. c. 30, ss. 61-62I) and Sections 11.03 and 11.11 of the MEPA regulations (301 CMR 11.00), I have reviewed the Environmental Notification Form (ENF) and hereby determine that this project **requires** the preparation of an Environmental Impact Report (EIR). The Massachusetts Department of Transportation (MassDOT) should submit a Draft EIR (DEIR) in accordance with the Scope below.

This project offers a tremendous opportunity to address longstanding transportation capacity and safety issues, increase access to transit, expand and enhance parkland and support redevelopment of a large swath of Allston into a transit-oriented mixed-use development. I commend MassDOT for presenting the project in a comprehensive manner, for its commitment to a detailed environmental review, and for its support of ongoing public review and input of the project, including restructuring of the Task Force to guide the subsequent environmental review and design.

The project offers tremendous opportunities. At the same time, the current state of transportation funding threatens our ability to maintain safe roads and bridges. It will force

identification of priorities for major infrastructure projects and will require significant compromises to align goals and objectives with available funding. The ability to deliver the many potential benefits of this project identified in many thoughtful and detailed comment letters will be directly linked to the ability of MassDOT, the City of Boston and Harvard University to work cooperatively on transportation and land use planning, to identify a fair share of responsibility for construction and maintenance costs, and to develop public-private partnerships for financing.

Project Description

As described in the ENF, the project consists of the reconfiguration and reconstruction of the Interstate 90 (I-90), also known as the Massachusetts Turnpike (MassPike), Allston/Brighton interchange in conjunction with the Commonwealth's transition to all-electronic tolling (AET). The transition to AET will include the removal of the existing Allston/Brighton toll plaza and presents opportunities for design and safety improvements to the roadway network, facilitation of future development in the Allston neighborhood, enhancement of multi-modal access within and to Allston, and creation of expanded and more accessible open space. Specifically, the project includes demolition and reconstruction of the I-90 viaduct, construction of West Station and a commuter rail layover facility, reconstruction of Cambridge Street, expansion and enhancement of parkland along the Charles River, and improved and expanded bicycle and pedestrian access including reconstruction of the Lincoln Street Pedestrian Bridge.

The project is comprised of the following components.

I-90 Viaduct and Soldiers Field Road – The existing viaduct, constructed in 1965, is described in the ENF as deteriorating and nearing the end of its useful life. Maintenance of the viaduct is becoming increasingly expensive and MassDOT has determined it should be replaced to avoid escalating costs. The viaduct extends from just east of the Allston/Brighton toll plaza approximately 2,500 feet to the east, passing over the MassDOT commuter rail and Grand Junction railroad tracks and terminating west of the Commonwealth Avenue/I-90 overpass. MassDOT proposes to completely reconstruct the viaduct to modern interstate highway design standards with four travel lanes in each direction, shoulders and a breakdown lane. MassDOT proposes cantilevering the new viaduct over the eastbound lanes of SFR in the area immediately west of the Grand Junction Railroad Bridge. This realignment could facilitate a relocation of a portion of SFR away from the Charles River resulting in the creation of additional parkland along the Charles River and the Paul Dudley White bike path.

Allston/Brighton Interchange – The interchange will be reconfigured to meet modern interstate highway design standards. MassDOT, in conjunction with the project's 50-member Task Force, evaluated a series of suburban-style and urban-style interchanges. MassDOT has determined that an urban-style interchange is preferred for this project as they generally use a system of signal-controlled access roadways to provide connections from the highway to local street system that resemble a typical urban street network. The ENF did not identify a specific preferred interchange alternative, but did identify three variants that will be explored as part of the DEIR. These variations include:

- Alternative 3J-1: connections between I-90 to a two-way Cambridge Street;
- Alternative 3J-2: connections between I-90, a one-way Cambridge Street, and a one-way parallel roadway south of Cambridge Street; and
- Alternative 3J-3: connections between I-90, a two-way Cambridge Street, and a two-way parallel roadway south of Cambridge Street.

West Station – MassDOT will design and construct a new MBTA commuter rail station along the existing Framingham/Worcester commuter rail tracks located at the southern boundary of the project site. As proposed in the ENF, this station will consist of two platforms serving service tracks with access provided via a station structure located at a mezzanine level over the platforms, local street connections for pedestrians and bicycles to Malvern Street and Babcock Street, and a busport with connections to the I-90 interchange via a viaduct loop over the layover facility. MassDOT will provide a bicycle/pedestrian connection from the Babcock Street station access point to the Paul Dudley White Bike Path at SFR.

Commuter Rail Layover Facility – MassDOT will construct a commuter rail layover facility within the BPY to meet its current need for additional layover capacity for MBTA commuter rail operations, particularly on the tracks west of South Station. The need for this layover facility was identified as part of the South Station Expansion (SSX) Project (EEA #15028). The SSX Project DEIR is currently under review by the MEPA office, and a Certificate on the DEIR will be issued on December 31, 2014. As requested by MassDOT, the specific environmental impacts associated with the construction and operation of the BPY layover facility are included in the Scope of the DEIR for the I-90 Allston Interchange project.

Cambridge Street – This roadway will be redesigned in accordance with MassDOT and City of Boston Complete Streets' design guidelines. The existing overpass over the I-90 ramps at the eastern end of Cambridge Street will be removed. As presented in the ENF, conceptual design includes sidewalks on either side of the street separated by a planted buffer from a proposed cycle track, a separate parking lane (with bus stops at intervals), and travel and/or turning lanes as warranted. The design of Cambridge Street is dependent on the selection of the interchange alternative and varies in width, number of travel lanes, and location of turning lanes at specific intersections.

Multi-Modal Improvements – MassDOT will incorporate bicycle and pedestrian access throughout the project components. Specifically, it will include:

- Bicycle and pedestrian accommodations on Cambridge Street, the roadway segments to be constructed south of Cambridge Street, and roadway connections to West Station;
- Bicycle and pedestrian connections from West Station south to Ashford Street;
- Construction of a shared-use pathway providing a more direct connection from the Cambridge Street/Lincoln Street area to the Charles River and the Paul Dudley White Bike Path, including a new bicycle/pedestrian bridge over SFR;

- Multi-modal access connections to West Station; and
- Improvements to the Lincoln Street pedestrian bridge across I-90 (immediately west of the Cambridge Street overpass) to meet Americans with Disabilities Act/Architectural Access Board (ADA/AAB) requirements. These upgrades are likely to require construction of retaining walls and may require private property takings to comply with ADA/AAB requirements.

Project Site

The approximately 150-acre project site includes the area encompassed by the former Beacon Park Yards (BPY) and bounded by Ashford Street to the south, the Commonwealth Avenue Bridge and Soldiers Field Road (SFR) to the east, and Cambridge Street to the north and west. The project limit to the west on I-90 includes the Lincoln Street pedestrian bridge over I-90. The project site includes the Framingham/Worcester branch of the Massachusetts Bay Transportation Authority (MBTA) commuter rail line, the Grand Junction Railroad and CSX facilities. According to the ENF, most of the land within the project area is presently owned by Harvard University. The I-90 interchange and railroad facilities operated by MassDOT and CSX Corporation (CSX) are located within easements. MassDOT and the MBTA will need to acquire from Harvard, easement rights over portions of the project site (in which Harvard will also have retained rights), in order to build the project. The remainder of the project site will remain unencumbered, Harvard-owned land.

The project area is bordered by the Charles River Basin Historic District and the Harvard Avenue Historic District, both of which are listed in the State and National Registers of Historic Places. The Charles River Basin Historic District includes, but is not limited to, SFR, the BU Bridge, the Grand Junction Railroad Bridge, and the River Street Bridge. The ENF also identified several properties included in the *Inventory of Historic and Archaeological Assets of the Commonwealth* that are near, but not within, the project area. There are no State Register-listed or recorded archaeological sites within the project area. The ENF noted that the project area has been heavily impacted by past highway, railway and utility construction, limiting the likelihood of intact archaeological resource on-site. The project will require review by the FHWA, the FTA, and the Army Corps of Engineers (ACOE) in compliance with Section 106 of the National Historic Preservation Act (36 CFR 800) and the National Environmental Policy Act (NEPA).

The project is located adjacent to the Charles River. Stormwater runoff from the project area received limited pre-treatment prior to discharge via culverts to the Charles River. The segment of the Charles River adjacent to the project area (Segment MA 72-36) is listed as an impaired water body in the *Final Massachusetts Year 2012 Integrated List of Waters* due to the following impairments: fish-passage barrier, Non-Native Aquatic Plants, Chlorophyll-a, Dichlorodiphenyltrichloroethane (DDT), *Escherichia coli* 1 (*E. coli*), Fishes Bioassessments, Nutrient/Eutrophication Biological Indicators, Oil and Grease, Dissolved Oxygen, polychlorinated biphenyl (PCB) in Fish Tissue, High pH, Total Phosphorus, Secchi disk transparency, Sediment Bioassays – Acute Toxicity Freshwater, and other flow regime alterations. Total Maximum Daily Loads (TMDLs) for nutrients and pathogens have been

established for the Charles River which will require the implementation of specific stormwater BMPs by MassDOT as part of the preferred project alternative.¹

The ENF identified the presence of State-regulated wetland resource areas within the project limits, including Bank and Riverfront Area associated with the Charles River. Given the level of conceptual project design, the ENF did not provide estimates of direct wetland resource area alteration. Potential modifications to stormwater outfalls, construction of the proposed bicycle and pedestrian SFR overpass, expansion and enhancement to parkland, and modifications to SFR will result in temporary or permanent impacts to wetland resources.

The project area contains jurisdictional tidelands along the Charles River and SFR from the BU Bridge to the Cambridge Street/River Street intersection. Proposed work within these jurisdictional tidelands will require c.91 licensure and will be required to comply with applicable Waterways Regulations (310 CMR 9.00) and associated performance standards. The ENF also noted that portions of the reconfigured interchange may be located on areas of filled jurisdictional tidelands and landlocked tidelands (310 CMR 9.02).

The ENF identified 88 Massachusetts Contingency Plan (MCP) Release Tracking Numbers (RTNs) within or in the near vicinity of the project boundaries. Each RTN - 53 on-site, 35 in the vicinity - represents a release of oil and/or hazardous materials (OHM) considered reportable to MassDEP under the MCP. Reportable levels of metals and polycyclic aromatic hydrocarbons (PAHs) have also been observed in site soils. The ENF included a listing and review status under the MCP of each RTN. MassDOT, upon review of the MassDEP database, determined that none of the RTNs have associated Activity and Use Limitations (AULs) at this time. Furthermore, all but two of the RTNs have reached some measure of resolution in accordance with the MCP. The two open sites (RTN 3-0030413(CSX International) and RTN 3-0026896 (Genzyme) are in Phase II (Comprehensive Site Investigation) and Phase IV (Remedy Implementation, respectively).

Environmental Impacts

Potential environmental impacts associated with the project include an increase in new non-water dependent use of tidelands by 1.3 acres, impacts to wetland resource areas including Bank and Riverfront Area associated with the proposed pedestrian bridge, addition of 70 parking spaces, and an increase of 5,700 gallons per day (gpd) each of water use and wastewater generation. The project will reduce acres of impervious area by 4.7 acres from 67 to 62.3 acres.

According to the ENF, the reconstruction and realignment of the I-90 viaduct and project area roadways in and of themselves are not expected to increase trip generation on the I-90 interchange (currently at 147,000 average daily trips (adt)). An estimated 7,000 adt are projected to be added to the interchange by the year 2035 based on predicted 0.25% annual growth in regional traffic. As noted previously, future development within the project area by others (e.g., Harvard University, etc.) will likely generate new environmental impacts (impervious area, traffic, water and wastewater, etc.), the specific details of which are not currently available.

¹ *Total Maximum Daily Load for Nutrients in the Lower Charles River Basin, Massachusetts, October 17, 2007 and Total Maximum Daily Load for Pathogens within the Charles River Watershed, May 22, 2007.*

Many elements of the project inherently contribute to MEPA's goals of avoiding, minimizing and mitigating environmental impacts. This includes incorporating multi-modal access at the core of the project design, expanding and enhancing parkland, improving stormwater management, reducing air quality impacts associated with traffic congestion. However, achieving these project goals will require direct environmental impacts to wetland resource areas and State-jurisdictional roadways; water, stormwater and wastewater infrastructure impacts; and potential generation of additional noise and vibration impacts. The scope for the DEIR outlines the additional analysis MassDOT must undertake to identify and assess potential environmental impacts and establish mitigation measures where these impacts cannot be avoided or minimized.

Jurisdiction and Permitting

The project is undergoing MEPA review because it will create a new non-water dependent use of tidelands (301 CMR 11.03(3)(b)(5)); require the construction of a new roadway one-quarter or miles in length (301 CMR 11.03(6)(b)(1)(a)); and result in the widening of an existing roadway by four or more feet for one-half or more miles (301 CMR 11.03(6)(b)(1)(b)). The ENF also indicated that the project will result in the direct alteration of 50 or more acres of land, a mandatory EIR threshold identified at 301 CMR 11.03(1)(a)(1). For the purpose of establishing whether a project is subject to MEPA review, land alteration is typically defined as new alteration of undisturbed land. Subsequent to the filing of the ENF, the MEPA office concluded that given the current disturbed and paved condition of the project site, this mandatory EIR threshold does not apply. Regardless, MassDOT has agreed to prepare and file an EIR for the project presented in the ENF.

The project will require a Construction and Access Permit from the Department of Conservation and Recreation (DCR), a Chapter 91 (c.91) License from the Massachusetts Department of Environmental Protection (MassDEP), and an 8(m) Permit from the Massachusetts Water Resources Authority (MWRA). A Sewer Use Discharge Permit, a Group Permit, or a General Permit (to be determined) will also be required from the MWRA. The project will require Federal Consistency Review from the Office of Coastal Zone Management (CZM) and review by the Massachusetts Historical Commission (MHC) under M.G.L. c.9, ss.26-27C as amended by c.254 of the Acts of 1988 and Section 106 (36 CFR 800). The project is subject to review under the May 2010 MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol ("the GHG Policy").

The project will require an Order of Conditions from the Boston Conservation Commission, or in the case of an appeal, a Superseding Order of Conditions from MassDEP, and will likely require other review and approval by the City of Boston.

The project also requires a National Pollutant Discharge Elimination System (NPDES) Construction General Permit, a NPDES Dewatering General Permit, and a NPDES Multi-Sector General Permit (for railroad maintenance) from the U.S. Environmental Protection Agency (EPA). This project will also be subject to Section 4(f) review and National Environmental

Policy Act (NEPA) review by the Federal Highway Administration/Federal Transit Administration.

The project will be funded by Metropolitan Highway System (MHS) funds and other non-federal aid funding. Therefore, MEPA jurisdiction for this project 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 ENF

A MEPA site walk at BPY and scoping session at Brighton High School were held the afternoon and evening of November 20, 2014. An extension of the 30 day comment period by two weeks was granted at the request of MassDOT, resulting in a comment period commencing upon notice in the Environmental Monitor on November 5, 2014 and concluding on December 15, 2014.

MassDOT convened a 50-member Task Force of residents, business owners, city officials, and other local stakeholders to build consensus about the project's conceptual design and assist in the review of interchange alternatives. The ENF included a list of Task Force members and their affiliations, the dates of the ten (10) meetings held to date, a link to meeting minutes posted online, and a summary of the key areas of concern or preferences voiced by the Task Force as part of the interchange design concept review process. Notable issues raised by the Task Force include:

- Overall emphasis on neighborhood cohesion;
- Integration and location of West Station into the project;
- Incorporation of a shared-use pathway providing a route from North Allston to the Charles River;
- Inclusion of bicycle and pedestrian connections throughout the project with connections to the Charles River, Cambridge, West Station and the BU area; and
- Defining the scale of Cambridge Street to create an urban streetscape.

Additional public outreach by MassDOT included two public informational meetings in Allston (April 10 and September 18) to present project details and solicit additional input. MassDOT also met with area stakeholder groups including the Boston Redevelopment Authority, the Boston Transportation Department (BTD), Harvard University, BU, Cambridge City Council, and the Cambridgeport Neighborhood Association.

The ENF described the project's consistency with the goals set forth in a number of MassDOT planning documents including: the Massachusetts Bicycle Transportation Plan (September 2008), the Massachusetts Pedestrian Transportation Plan (1998) and the Long Range Transportation Plan – Paths to a Sustainable Region (amendments through 2013).

The current interchange does not meet interstate highway standards set by the American Association of State Highway Transportation Officials (AASHTO) guidelines. These deficiencies include a decrease in travel lanes within the interchange (four lanes to three), the

location of piers within narrow curbed medians, improperly designed exit ramps, insufficient acceleration and merging lengths, left-hand exits, and non-compliant shoulder widths and lateral offsets. The ENF described the current condition of the I-90 viaduct deck, superstructure, and substructure, noting its generally poor condition and indications of significant past repair and maintenance activities.

MassDOT has not identified a Preferred Alternative for the project. The ENF identified a total of 16 conceptual interchange design alternatives considered by MassDOT and the Task Force. As part of the preliminary alternative analysis, alternative modes of travel (i.e., pedestrian, bicycle, transit) were incorporated into each alternative including features such as, but not limited to, cycle tracks, on-road bike lanes, access to West Station, and bus stop accommodations.

Each of the alternatives presented in the ENF include the following six components. Additional development and evaluation of these project elements will be required as part of the DEIR. These components included:

- *I-90 highway re-alignment*: upon removal of the toll booths, the highway will be realigned on a new, large radius curving to the south into the most northerly portion of the rail yard. Within the proposed interchange, between the initial exit ramp and the subsequent entrance ramp in both directions, I-90 will consist of three travel lanes in each direction and shoulders. One of the four travel lanes approaching the proposed interchange from each direction will be dropped at each of the two new exit ramps with the fourth lane in each direction added back to the interstate at the new entrance ramps. The I-90 median will consist of an inside shoulder in each direction, a concrete barrier with offsets on each side, and a capped median area between the two barriers reserved for construction of support structures to facilitate air-rights development.
- *I-90 Viaduct Reconstruction*: the viaduct will be completely removed and replaced with a new viaduct in approximately the same location. As presented in the ENF, this includes cantilevering a portion of the viaduct over SFR. From east to west, the new viaduct will begin at its current easterly abutment and will curve south to meet the proposed new alignment of I-90, ending at a new full-height abutment where the new I-90 profile will descend adjacent to the proposed commuter rail yard. In the ENF, MassDOT proposed increasing the viaduct width to accommodate inside shoulders, deceleration and acceleration lanes for the easternmost ramps on the new I-90 interchange and/or outside shoulders as a means to increase road safety. MassDOT has concluded that I-90 traffic must be maintained within the viaduct corridor during the construction period and cannot be detoured. A key factor associated with reconstructing the viaduct also includes maintaining existing railroad lines under the viaduct (two commuter rail lines, Grand Junction Railroad, and a spur line to Houghton Chemical Company) during and after construction. Maintaining these rail uses, the location of a large MWRA sewer interceptor on-site, and necessary grade transitions to the existing portions of I-90 beyond the viaduct led MassDOT to dismiss reconstructing I-90 at-grade or in a shallow tunnel due to unacceptable project risk, schedule impact, and implementation challenges.

- *West Station:* a new multi-modal transit station is proposed in a location 0.9 miles east of the new Boston Landing Station and 1.3 miles west of the Yawkey Way Station. The station will include a high two-platform, four-track arrangement to facilitate existing service along the Worcester/Framingham Branch of the MBTA commuter rail system and potential future two-track service along the Grand Junction Railroad branch into Cambridge.
- *Commuter Rail Layover Yard:* a commuter rail layover yard will be constructed to meet existing and future MBTA layover needs, particularly in a location west of South Station. The facility will be located within the BPY and provide storage for up to 20 eight-car trainsets in a parallel track arrangement and support facilities for MBTA operations. The ENF noted that layover facilities would include a pit track, a wheel truing facility, crew quarters, a car wash (trains), a power substation, maintenance crew parking areas, and related utility infrastructure. An access roadway will be provided to the facility from local streets for use by staff and delivery vehicles.
- *Replacement of the Bicycle and Pedestrian Bridge over I-90:* a new bicycle and pedestrian bridge over I-90 will be constructed that meets the ADA/AAB requirements and maintains connections from the Franklin Street/Lincoln Street area to Cambridge Street.
- *Soldiers Field Realignment:* SFR will be realigned southward to create additional accessible open space closest to the Charles River, providing separation from the roadway and the Paul Dudley White Bike Path and opportunities for construction of a new bicycle/pedestrian ramp and bridge system spanning SFR and the Houghton Chemical Company railroad spur line.

The ENF acknowledged the opportunity to enhance access to the space between I-90 and Cambridge Street as a means to facilitate future development and relieve existing traffic congestion exacerbated by the poor design of the current interchange configuration. To reduce traffic congestion, the interchange alternatives seek to distribute traffic along Cambridge Street at different intersections. Cambridge Street will remain the principal terminal location for the interchange connectors, with additional connections proposed south of the Double Tree Suites to SFR eastbound and another connection proposed at the SFR eastbound west frontage roadway north of the River Street intersection (“North Connector”).

The ENF described each of the 16 interchange alternatives, including conceptual graphics depicting proposed roadways, bridges, West Station, Grand Junction and Houghton Chemical Company rail connections, bicycle and pedestrian connections, and a shared use pathway. Each alternative was also included in a comparative chart, indicating overall positive, neutral, or negative impacts for various categories of screening criteria (i.e., traffic operation, multi-modal connectivity, streetscape, environmental impacts, land use, construction, cost/schedule, and meets purpose and need).

Generally, two distinct types of interchanges were evaluated – suburban and urban interchanges. Suburban interchanges (Options 1A-1D and Options 2A and 2B) were dismissed as being incompatible with a number of the screening criteria and did not maximize access to, and development of, future uses adjacent to the interchange. The urban interchange alternatives

considered include configurations to limit the footprint, more successfully disperse traffic to a local street network and terminal roadways (i.e., Cambridge Street and SFR), and accommodate increased pedestrian and bicycle accommodations throughout the project area. Ten variants of an urban interchange were assessed, with varying connecting roadways between I-90 and Cambridge Street, one-way and two-way traffic patterns, and adding a parallel road south of Cambridge Street. An iterative process was undertaken based upon a split diamond interchange configuration, with early concepts (Options 3A-3H) eliminated due to traffic operations and safety issues, incompatibility with accommodating future land development, and insufficient multi-modal connectivity to West Station and throughout the project area.

The ENF proposed Option 3J as the preferred interchange configuration. This split diamond interchange includes I-90 entrance and exit ramps positioned closely adjacent to the I-90 horizontal alignment. On the southern side of I-90, eastbound traffic will exit onto a collector-distributor roadway that will provide connections to Seattle Street Connector, East Drive Connector, and West Station. This split I-90 eastbound entrance ramp configuration will minimize the risk of queues backing up onto I-90 eastbound travel lanes. Design development during the DEIR will consider feasibility of a two-way bus loop, a “kiss and ride” area, as well as provisions for shuttles and taxis.

On the northerly side of I-90, Option 3J provides four connectors with Cambridge Street and one connector to Soldiers Field Road. Exiting I-90 westbound traffic descends under the elevated easterly connector to an at-grade roadway that runs closely parallel to I-90. This roadway continues westward, also passing under the westerly connector, as a collector-distributor roadway all the way to the I-90 westbound entrance ramp. Two roadways exiting from the collector-distributor provide connections to Cambridge Street and parallel roadway couplet. The most easterly of the exiting roadways is two-way, ending at a signalized intersection opposite the planned future alignment of East Drive. The other roadway is two way, ending at a signalized intersection opposite Seattle Street. Two roadways enter the collector-distributor, providing access to I-90 for westbound traffic. The most easterly roadway, the two-way roadway previously mentioned, enters the collector-distributor roadway at a traffic signal that is proposed to meter traffic to avoid an undesirable weave to the next exiting roadway. The next entering roadway is east of North Harvard Street and it enters the collector-distributor roadway on its own lane. West beyond this point, the two lanes on the collector-distributor roadway must merge on the I-90 entrance ramp. Design refinements will be considered during the DEIR including, but not limited to, further analysis of making the East Drive Connector at-grade and elevating Stadium Way Connector.

The ENF presented three alternative designs for the reconstruction of Cambridge Street: a Two-Way Alternative, a One-Way Parallel Street Alternative, and a Two-Way Parallel Street Alternative. Design goals for Cambridge Street include maintaining adequate vehicular capacity while providing traffic calming measures and multi-modal transit accommodations. The Two-Way Alternative includes significant street widths (up to 100 feet at major intersections), while the parallel street alternatives result in shorter pedestrian crossing distances (approximately 30 feet or less). The parallel street alternatives include construction of a new roadway south, and parallel to, Cambridge Street separated by the width of a city block (approximately 250 feet). Each alternative will be constructed in accordance with the City of Boston’s Complete Streets guidelines. The ENF described the various multi-modal features (e.g., cycle tracks, sidewalks,

etc.) for each alternative, potential lane configurations and signals, and possible conflicting vehicle movements with pedestrians and cyclists. These three design scenarios for Cambridge Street, combined with the preferred interchange alternative of Option 3J, result in the creation of three alternatives - Option 3J-1 (Two-Way Cambridge Street); Option 3J-2 (One-Way Parallel) and Option 3J-3 (Two-Way Parallel Street) – that MassDOT will consider moving forward in the design process.

The ENF also described a No-Build Alternative. The No-Build Alternative includes the construction of the BPY commuter rail layover yard, the removal of the existing toll plaza and construction of AET gantries east and west of the interchange, the installation of barriers in the area of the toll plaza to narrow the highway to four lanes in each direction, and the construction of Stadium Way by Harvard University. The No-Build Alternative will not include: modifications to the interchange ramps, Cambridge Street, or the intersection of Cambridge Street/River Street with SFR; the construction of West Station or accommodation of a second track for future DMU service on the Grand Junction line; construction of a shared-use pathway, pedestrian and bicycle accommodations and other multi-modal improvements; relocation of SFR and creation of additional parkland; and implementation of stormwater runoff improvements and highway noise mitigation measures.

As noted in the ENF, conceptual design for the project is only five percent complete. MassDOT acknowledged that advancement of the project will require further evaluation and analysis of numerous project features and potential environmental impacts. In addition, many elements will require approval from landowners, including Harvard. These include:

- Shared-use pathway location, width, features, etc.;
- Replacement of the pedestrian bridge over I-90;
- Sidewalk and cycle treatment along Cambridge Street and other facilities;
- Travel/lanes/intersection layout for Cambridge Street;
- Other roadways, including parallel roadways north and south of Cambridge Street;
- Location of bicycle/pedestrian bridge over SFR;
- Extent of relocation of SFR;
- Allocation of open space within the area of relocated SFR;
- West Station (including connections north and south);
- Rail layover yard configuration and operations;
- Viaduct configuration;
- Approach streets to West Station;
- Incorporation of the Central Transportation Planning Staff (CTPS) regional traffic study;
- Noise, vibration, and air quality analysis;
- Providing a design that could support and does not preclude a two-track Grand Junction Railroad crossing;
- Stormwater treatment and Best Management Practices (BMPs);
- State Highway “No Access” limits on connecting roadways; and
- Construction staging concepts.

The ENF provided a preliminary discussion of the proposed location, layout and configuration of West Station. In determining the proposed location of the station, MassDOT weighed many factors including distance to adjacent stations, travel-time headways to maximize system efficiency, impacts to the residential neighborhood on Wadsworth and Pratt Streets. Various track alignments and platform heights were also considered by MassDOT prior to opting for the two-platform/four-track arrangement with high platforms presented in the ENF.

MassDOT has an agreement in principle with Harvard University to use approximately 22 acres of the BPY for commuter rail layover, a maintenance facility and a rail station. As part of the SSX MEPA review, MassDOT presented the results of a Tier 1 alternatives analysis identifying 28 potential layover facility locations to meet South Station's current and projected future layover needs (2035). Of the 28 candidate sites, ten sites were advanced to the Tier 2 screening process and MassDOT developed conceptual designs and preliminary operating plans, and identified infrastructure requirements. The results of the Tier 2 analysis were presented in the Expanded ENF filed by MassDOT for the SSX project. Based upon a series of site selection criteria (e.g., consistency with zoning, operational efficiency, environmental impacts, etc.), three potential locations were advanced to the Tier 3 screening process. These locations include the BPY, the BTM Tow Lot, and Readville-Yard 2, all located within the City of Boston. The Secretary's Certificate on the Expanded ENF for the SSX Project also required the addition of the Widett Circle area to the Tier 3 screening process. The SSX DEIR currently under review by the MEPA office includes the results of the Tier 3 screening process and identifies the BPY layover facility as the preferred location for a new layover facility west of South Station. MassDOT has indicated that its projected layover demand in 2035 cannot be fully met with current facilities and BPY alone. A determination of creating additional layover space at Widett Circle and/or Readville-Yard 2 will be made by MassDOT prior to submitting the Final EIR (FEIR) for the SSX Project.² As indicated in the ENF and the SSX DEIR, MassDOT will continue environmental review associated with the implementation of layover activities at BPY as part of the I-90 project. This will ensure that cumulative on-site impacts of all of MassDOT's proposed projects and operational impacts within the 150-acre project area will be reviewed comprehensively.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this scope.

Project Description and Permitting

The DEIR should include a detailed description of the each project element and describe any changes to the project since the filing of the ENF. The DEIR should include updated site plans for existing and post-development conditions for each project alternative. Given the numerous project elements, MassDOT may include overall plans for regional and local context

² The SSX DEIR dismissed the BTM Tow Lot as a viable layover location.

supplemented by plans that focus on specific project areas (e.g., West Station, SFR, Cambridge Street) or amenities (e.g., pedestrian connections, bicycle accommodations, etc.) to allow for the presentation of details at a legible scale. Existing and proposed conditions site plans should clearly identify environmental resources including: wetland resource areas; c.91 jurisdictional limits; stormwater, wastewater and water supply infrastructure; and historic resources. These plans should also identify roadway infrastructure (classified by at-grade or above-grade), bicycle and pedestrian corridors, on-street accommodations and access points to key destinations, the type and location of potential vehicle and bicycle parking (including expanded shared bicycle infrastructure), track placement and dedicated rail facilities (i.e., Houghton Chemical Company, CSX, etc.), rail activity support buildings or structures, and adjacent land uses. MassDOT, CSX and Harvard University must work cooperatively to ensure proper access to the project site to ensure the acquisition of data in support of the preparation of the DEIR.

Given the myriad land ownership, easement rights, and roadway jurisdictional conflicts on-site, the DEIR should include graphics that clearly delineate and describe either existing land ownership or acquisitions, easements and associated rights (e.g., rail operations, sewer lines, drainage culverts, etc.) required for project construction, and roadway and intersection jurisdictions. The DEIR should also provide plans at a reasonable scale to discern limits of roadway rights-of-way and adjacent Article 97 and/or parkland/open space, particularly in the area within and adjacent to SFR between the BU Bridge and the Cambridge Street/River Street intersection. The DEIR should also clarify the current allowed uses on-site, as granted to CSX and MassDOT by Harvard University, which form the basis of the No-Build Alternative. The ENF noted that a No-Build Alternative would include the construction and operation of a layover facility at BPY, although Harvard University disputes the inclusion of this activity in the No-Build scenario.

MassDOT and the MBTA will need to acquire from Harvard, easement rights over portions of the project site (in which Harvard will also have retained rights), in order to build the project. As noted in Harvard University's comment on the ENF, given these land development rights, MassDOT's project should be designed to optimize and not hinder, future transit-oriented growth and maximize the feasibility and viability of air rights development.

The DEIR should clarify the proposed activities to be undertaken at the BPY layover facility. The DEIR should describe the nature of each activity, anticipated frequency, potential environmental impacts (e.g., wastewater discharge, noise and vibration, etc.), and hours of operation. The DEIR should discuss the purpose and need for these activities at this particular location, and if they are not performed at BPY, if there is an alternative location where these activities will be conducted. MassDOT should clarify assertions made by Harvard University that wheel truing and car wash facilities would preclude the ability to construct decking necessary to support future air rights development over the layover facility.

The DEIR should include a discussion of future permitting requirements associated with the project, identifying permitting requirements specific to each project element. Additionally, while this project is not subject to the EEA Environmental Justice (EJ) Policy, MassDOT has committed to evaluate the project for potential impacts to EJ communities based on federal and State guidelines. The effects, positive and negative, of the project alternatives on EJ populations

will be evaluated relative to their overall effects to determine whether impacts in the No Build and Build conditions will be disproportionate or adverse on EJ communities or populations.

The DEIR should expand the discussion presented in the ENF regarding project compliance or consistency with local and regional planning documents. In particular, the project's relationship to DCR's Charles River Basin Master Plan, local and regional bicycle plans, and current MassDOT transportation planning and capital expenditure documents. In the absence of a clear planning directive for the future development of Harvard University's property within the Study Area, advancement of many critical components will be delayed. I strongly encourage Harvard University and the BRA to work cooperatively with MassDOT on land use assumptions. The commencement of a visioning process concurrent with the development of land use assumptions would support advancement of the project and associated MEPA review.

As noted in the ENF, a Task Force was convened to assist MassDOT in the preparation of interchange alternatives and other project elements. MassDOT has committed to continue to hold quarterly public meetings to update the public on project details, progress on the completion of the EIR, and to solicit future input. The DEIR should include a proposed format and protocols for future input by a Task Force as additional components of the project are analyzed and enter preliminary design, either as part of the MEPA review process or upon commencement of advanced construction and design efforts. The protocol should address the extent to which establishment and ongoing participation of the Task Force is contingent upon the scheduled funding and design of the project.

Alternatives Analysis

MassDOT has not identified a preferred alternative for each element of the project; however, there appears to be support for the proposed interchange configuration presented in the ENF. The DEIR should include an expanded alternative analysis that fleshes out the various project elements and conceptual design both individually, and as a cohesive and integrated system, to allow for adequate assessment of how the project avoids, minimizes and mitigates Damage to the Environment. Each alternative presented should include conceptual site layout plans, a summary of potential environmental impacts associated with each of these alternatives, preferably in tabular format, and a supporting narrative. For those project elements that may directly impact operations, the alternatives analysis should compare efficacy (LOS, 95th percentile queues, etc.) between each alternative in the 2020 build and 2035 future build scenarios.

Assessment of each alternative should consider potential impacts on existing or planned rail (freight or commuter) operations within and through the site. If alternatives will preclude or require the relocation of rail operations, the DEIR should explicitly state as such, identify relocated track locations (if applicable), and discuss the specific ramifications to maintaining rail service within the study area. Finally, as design alternatives are advanced, MassDOT should consider how the project will shape future air-rights development over West Station, BPY or other on-site rail infrastructure and avoid constraining feasibility of construction.

For purposes of comparison, the DEIR should present a No-Build Alternative representative of the current conditions and allowed uses on-site. This No-Build Alternative should also be expanded to consider background growth and identified infrastructure projects (either by the City of Boston, City of Cambridge, MassDOT, BWSC, MWRA, or others) in the study area that can reasonably be expected to be funded and constructed by the 2020 project completion date.

I-90 Interchange and Cambridge Street

The DEIR should describe any modifications to the preferred interchange configuration, 3J, since the filing of the ENF. The DEIR should discuss potential design refinements including, but not limited to, making the East Drive Connector at-grade and elevating Stadium Way Connector and note comparative operational or environmental impact reductions to the configuration presented in the ENF. Additionally, the alternative analysis should explore means to limit roadway elevation changes, while maintaining rail service, to maximize accessibility to West Station and potential north-south connections across the site between the BU area and Cambridge Street and the Charles River.

As noted in the ENF, MassDOT should advance three design scenarios for Cambridge Street— Option 3J-1 (Two-Way Cambridge Street); Option 3J-2 (One-Way Parallel) and Option 3J-3 (Two-Way Parallel Street) – modified as necessary based upon adjustments to the interchange alternative (3J) and informed by other project goals and the results of the alternative analyses described below.

I-90 Viaduct

The project includes opportunities to expand open space and bicycle and pedestrian access and accommodations to the Charles River and beyond. The DEIR should include an alternatives analysis that explores the feasibility of cantilevering the I-90 viaduct over a realigned SFR. At a minimum, MassDOT should assess a configuration that extends over a portion of a relocated SFR, or a configuration wherein SFR is relocated in its entirety under a new I-90 viaduct. For each alternative, the DEIR should include parkway cross-sections, proposed locations of key viaduct superstructure, impacts to rail operations (freight and commuter), future rail, bike, and pedestrian connections across the Grand Junction Railroad bridge, available open space/parkland adjacent to the Charles River, connections or expansion of the Paul Dudley White Bike Path, and potential intersection modifications to accommodate a realigned SFR. The DEIR should identify in more detail why removal of the viaduct and reconstruction of I-90 at-grade was dismissed as a viable alternative.

In concert with this analysis, the DEIR should discuss proposed viaduct cross-section widths, consistency with AASHTO standards, the design implications of seeking design exceptions from the federal highway standards, and how reductions in the viaduct cross-section would impact the cross-section of the at-grade portion of the I-90 interchange. The alternatives analysis should include an alternative based on reconstruction within the current cross-section, noting potential benefits and potential design exceptions for shoulders, lane width, etc. required to achieve this layout. Furthermore, the analysis should consider the implication of alternative

design exceptions, not necessarily consistent with the existing cross-section and describe the types and locations of other MassDOT projects with design exceptions and their overall performance with regard to operations and safety. The DEIR should also discuss if requests for design exceptions may impact the fundability or approval of the project by State and federal officials.

Open Space

The majority of commenters note the opportunity the project provides to significantly expand and enhance parkland along the Charles River. I note the conceptual designs created as part of the Boston Society of Architect's charrette and comments from stakeholders regarding the creation of an "Allston Esplanade" along the Charles River, facilitated by a relocated SFR. I encourage MassDOT to review these conceptual designs to inform their preferred alternative for expanding open space in Allston. Each project alternative should seek to maximize publicly accessible open space to the extent practicable between the BU Bridge and River Street Bridge, given ownership and easement rights, necessary railroad operations, and traffic operations and safety considerations along SFR and other roadways. Alternatives should consider how these open spaces can be integrated into the broader system of parks and recreational areas associated with the Charles River, nearby institutions, and the Cities of Boston and Cambridge. The DEIR should indicate potential ownership and maintenance responsibilities of these open spaces. Finally, shifting SFR to expand open spaces may result in improved traffic operations and provide opportunities to reduce the SFR cross-section at other intersections near the Charles River as suggested in comment letters. MassDOT should consider these opportunities when performing the traffic analysis for the project and evaluating open space options.

Bicycle and Pedestrian Accommodations

Bicycle and pedestrian connections within and through the project area are critical to advancing MassDOT's mode share goals for the Commonwealth. The DEIR should describe the route width, separation of bicycles and pedestrians (if any), conceptual elevations and slopes, and need for bridges or tunnels to reduce conflicts with vehicles or train operations. The DEIR should conduct an alternatives analysis that focuses on key bicycle and pedestrian routes including:

- Crossing SFR to the Paul Dudley White Bike Path (including connections to potential bicycle/pedestrian access across the Grand Junction Railroad);
- Connections north to south across the site (Commonwealth Avenue area to North Allston and SFR); and
- A dedicated corridor from west to east (the "People's Pike").

The analysis should discuss how the routes will be integrated with one another and create a safe environment for pedestrians and bicyclists alike. The analysis should consider varying locations for the bridge span over a relocated SFR, design parameters, and minimizing direct parkland impacts associated with conceptually designed ramps and footings. The DEIR should address required easement rights for portions of these facilities that may be located on land owned by Harvard University. It should identify how alternative designs retain a feasible

connection to the Grand Junction Railroad bridge (e.g., provide available area for a multi-use path on the eastbound side of SFR, etc.). The DEIR should identify opportunities to expand the width of the Paul Dudley White Bike Path within the project area based upon the configuration of the relocated SFR and I-90 viaduct placement.

MassDOT should evaluate bicycle and pedestrian routes that traverse the West Station and BPY layover facilities to create connections between the Commonwealth Avenue/BU area and SFR, as well as connections to bicycle and pedestrian routes to the North Allston neighborhood and Harvard University. The route through and/or over West Station and BPY layover facilities should be accessible at all times and not limited to MBTA operational hours. The DEIR should describe how this route may connect to other portions of the existing and proposed pedestrian and bicycle network to reach destinations in North Allston, including Harvard University and Western Avenue. Conceptual designs for this potential connection should include cross-sections depicting elevation and grade changes to facilitate crossing over the BPY layover facility and railroad tracks.

Numerous comments highlight a desire for a dedicated bicycle and pedestrian corridor (the People's Pike) connecting North Allston neighborhoods (near the Lincoln Street/Cambridge Street intersection) to SFR and the proposed bridge crossing to the Paul Dudley White Bike Path. MassDOT should continue to evaluate this project feature and advance design alternatives with varying routes, cross-section widths, separation of bicycle and pedestrian uses, and landscaping buffers to determine the most effective way to integrate this multi-modal element into the overall project design. This analysis should seek to design the path in a manner that prioritizes bicycle and pedestrian modes of travel (e.g., separate bicycle signals, etc.) for all user types and limits conflicts with vehicles (particularly at intersection locations).

As part of the DEIR, I encourage MassDOT to consider additional ways to reduce impacts to environmental resources through design modification or the addition of features to further mitigate potential impacts. Additional recommendations provided in this Certificate may result in a modified design that enhances the project's ability to avoid, minimize, or mitigate Damage to the Environment. The DEIR should discuss steps MassDOT has taken to further reduce the impacts of the project since the filing of the ENF, or, if certain measures are infeasible, the DEIR should discuss why these measures will not be adopted.

Land Impacts

A key opportunity associated with the project is to improve access to underdeveloped land within the vicinity of the interchange. However, MassDOT has no control over the land use, zoning, and development decisions on the Harvard University property, outside of uses granted to MassDOT through easement rights or other agreements. Land use, zoning, and development decisions are under the purview of the landowner (Harvard University) and the Boston Redevelopment Authority (BRA). While Harvard University has an Institutional Master Plan (IMP) for its Allston Campus approved by the BRA and is subject to a Special Review Procedure (SRP) for MEPA review of its Ten-Year Master Plan projects (EEA # 14069), the

IMP Area and associated projects are located outside the I-90 project area.³ Finally, given the expected transition from underutilized railroad and industrial space, existing zoning requirements cannot be used to guide conceptual design build scenarios, as they will likely be replaced with zoning more favorable to creating a vibrant, mixed-use urban neighborhood envisioned by Harvard and the community.

Therefore, it is imperative that MassDOT, Harvard University, the City of Boston and relevant stakeholders work together in advance of preparation of the DEIR to establish future land use development assumptions. These assumptions will be critical to inform the 2035 future build traffic analysis, air quality analysis, and ongoing Commonwealth efforts to meet travel mode shift goals and GHG emissions mitigation. These design assumptions should be clearly stated in the DEIR and note key planning features such as, but not limited to, density (floor-to-area ratios (FAR)), heights, block size, open space, parking ratios, and accommodations for features that enhance multi-modal access. Design assumptions should reflect a context-sensitive design that addresses the potential transition from the predominately single-family and two-family housing in North Allston to mixed-use commercial/office/retail/institutional spaces in this potential development area. The City of Boston comment letter provides additional recommendations regarding proposed urban street network design and development of future land use assumptions.

The DEIR should discuss opportunities to deck over the BPY layover facility and West Station to facilitate future air rights development by Harvard University. It is unclear when Harvard University may choose to exercise its development rights in this location. As such, the DEIR should describe how the BPY layover and West Station facilities may be constructed to accommodate support structures and decking in the future. The DEIR should discuss the benefits and challenges of constructing decking concurrent with, or after completion, of the I-90 project, development cost implications (present and future), opportunities for public/private partnerships, and potential constraints on MassDOT rail operations. Many commenters urge MassDOT to commit to decking over the turnpike to support redevelopment. Such a commitment would have to be predicated on well-defined land-use assumptions and an agreement by Harvard University or others to contribute to associated design and construction costs.

The DEIR should include a description of how the project will alter land uses or require the relocation or accommodation of existing uses. The DEIR should provide conceptual estimates of earth removal and/or fill to achieve the grades proposed as part of the Preferred Alternative. Based upon these estimates, MassDOT should indicate whether a net import or export fill condition is anticipated and how potentially contaminated soils will be excavated, stored and disposed. As noted previously, I encourage MassDOT to limit elevation changes and transition area as feasible throughout the site to facilitate non-vehicular modes of transit to and through the project site, utility locations, and maximize future development potential for Harvard University.

³ Stadium Way is identified in Harvard's "Long-term Vision" planning document as a future roadway to be connected to Cambridge Street. Harvard committed to the completion of 25% design of the roadway within 24 months of the approval of the IMP. It is unclear when or if this roadway will be constructed within the Ten-Year Master Plan schedule or if it will remain within Harvard's Long-Term Vision.

Project components may result in direct impacts to land held in accordance with Article 97 of the Amendments to the Constitution of the Commonwealth (Article 97 land) and/or easement rights. The DEIR should identify the extent and boundaries of Article 97 land and easements, the potential amount and location of parkland impact, and how the project seeks to minimize impacts to these designated open spaces. In conjunction with the alternatives analysis for the relocation of SFR, viaduct reconstruction, and potential expansion of open spaces along the Charles River, MassDOT should evaluate compliance with the provisions of the Section 4(f) requirements (including shadow and noise impacts), the requirements of Article 97 legislation and Executive Office of Energy and Environmental Affairs' (EEA) Article 97 Land Disposition Policy.

The DEIR should identify the extent and location of potential private property takings based on the conceptual design for the new pedestrian bridge over I-90 near Franklin and Lincoln Streets. I encourage MassDOT to meet with landowners prior to preparation of the DEIR to discuss potential project-related impacts.

Traffic and Transportation

The DEIR should include a Traffic Impact and Access Study (TIAS) prepared in accordance with EEA/MassDOT Guidelines for EIR/EIS Traffic Impact Assessments. As noted in the ENF, the TIAS will examine existing and future 2020 and 2035 No Build and Build alternative transportation conditions. The TIAS should use data and methodologies provided through collaborative efforts with Central Transportation Planning Staff (CTPS), BTD, the City of Cambridge, Harvard University and BU to identify study area intersections, mode-split data, and data forecasting. The TIAS should discuss existing and proposed traffic volumes and conditions, anticipated trip generation rates across all modes (vehicles, pedestrians, bus, rail, etc.), crash rate data, level-of-service (LOS) operations at signalized and unsignalized intersections, public and private parking, proposed access points to West Station and the BPY layover facilities (staff and deliveries only), and consistency with State policy goals. Consideration should be given to truck traffic distribution within the study area due to use restrictions on SFR. The TIAS should also include a draft transportation monitoring protocol for implementation by MassDOT. This monitoring plan should include, but not be limited to, an evaluation of intersection operations, and bicycle, pedestrian, and transit mode shares.

The TIAS should include average and 95th percentile queuing data for each intersection, with a particular focus on the proposed series of signalized intersections along Cambridge Street to ensure that lengthy queues will not form potential blocking intersections. Existing or future anticipated "No Access" limitations on the ramps and street network should be described and identified in the DEIR, with a focus on limiting these restrictions.

Assumptions regarding future transit operations should be clearly identified in the DEIR to justify proposed ridership data in 2020 and 2035. The DEIR should analyze impacts on ridership (positive and negative) to connecting subway and bus routes, most notably the Green Line's B Branch.

The DEIR should describe anticipated modifications to the existing roadway network, including physical modifications to the State Highway Layout, DCR roadways, and City of Boston or City of Cambridge streets. The DEIR should indicate whether the proposed urban street grid generally located south of Cambridge Street will be public or private roadways. The DEIR should include conceptual drawings depicting these required modifications to demonstrate their feasibility and overall integration into the roadway network. Roadway cross sections and plans identifying proposed road, bicycle accommodation, and sidewalk widths, utility corridors, lane striping and assignment (e.g., left-turn only, etc.) should be provided at a legible scale. To assist in review, the DEIR should also provide cross-sectional renderings of the project depicting elevation changes and the relationship of various project elements to elevated structures (e.g., bridge access to West Station, I-90 viaduct to SFR, etc.). Finally, graphics should be included identifying typical travel routes to and from key destinations given the proposed new traffic patterns and roadways (e.g., Masspike eastbound to Memorial Drive; Western Ave to West Station, etc.).

The DEIR should include a discussion of background infrastructure projects assumed to be in place in the 2020 and 2035 Build Condition and how they may affect proposed interchange modifications. In particular, the DEIR should discuss proposed interim improvements to Cambridge Street by the City of Boston and proposed River and Western bridges improvements by MassDOT. The DEIR should discuss the design and construction status and how these projects would be advanced separately, or in conjunction with the project, or will be consistent with proposed interchange improvements. Cycling and pedestrian accommodations for these two projects should make logical connections to the I-90 project to ensure continuity.

The ENF indicated that Stadium Way and East Drive will be constructed by Harvard University. The DEIR should include a comparative analysis of study area traffic operations (vehicle, bicycle, pedestrian) if Stadium Way and East Drive are not completed prior to the projected I-90 project opening date of 2020 with these two roadways being constructed and operational.

The project proposes two new ramps affecting SFR, an off-ramp from the eastbound side of the SFR north of Cambridge Street and an on-ramp to SFR eastbound south of Cambridge Street. The TIAS should specifically address project-related impacts to SFR mainline operations at these new on- and off-ramp locations.

Numerous comments requested that the project be expanded to include a vehicular connection from West Station to Commonwealth Avenue. The DEIR should analyze the feasibility of such a connection including the potential impacts and benefits, including environmental impacts, traffic distribution and LOS, transit connection improvements, grading and elevation challenges, land takings to accommodate roadways or bridge abutments to span the commuter rail tracks, and impacts on railroad operations.

I-90 Viaduct and Interchange

The DEIR should evaluate and provide a comparative analysis of LOS, queuing, and safety benefits or challenges associated with each interchange scenario evaluated in the DEIR.

These data should be weighed in conjunction with urban redevelopment and expanded multi-modal access to select a preferred interchange alternative.

The DEIR should identify any potential changes to LOS, queuing or safety along the I-90 viaduct between a cross-section that meets AASHTO standards and studied alternatives that implement design exceptions (i.e., limited shoulders, etc.).

The DEIR should describe how the selected viaduct and interchange improvements will impact the reverse/U-turn directional loop ramp to travel from I-90 westbound to I-90 eastbound traffic movement.

West Station

The DEIR should include a conceptual station design for West Station, based upon anticipated future ridership and operations (2020 and 2035), that effectively integrates and connects the station to the existing and proposed future layout of the surrounding area. The DEIR should justify MassDOT's selected location for the station based on operational efficiencies and minimization of environmental impacts (e.g., noise and vibration, etc.) and describe how this location will maximize neighborhood connections and ridership. The DEIR should include a timetable for West Station operations (both commuter rail and bus service).

Conceptual layout plans for West Station should be provided at a legible scale depicting proposed platform lengths and location; elevator and stair access to the platforms; pedestrian and bicycle access points; bicycle parking or bike share accommodations; conceptual mezzanine dimensions, location and elevation cross-sections; sheltered amenity space (i.e., Charlie Card machines, waiting areas, etc.); and proposed shuttle and taxi accommodations, bus berths, and "kiss-and-ride" drop-off/pick-up locations. The DEIR should also discuss how the proposed station design is consistent with Harvard University's desire to optimize the potential for future air rights development that is both technically feasible and economically viable.

Multi-modal connections to West Station are critical to ensuring maximum use and forwarding the Commonwealth's mode share goals. The DEIR should include a circulation plan depicting proposed access routes for pedestrians, bicycles, transit vehicles, taxis/shuttles, and private vehicles to and from West Station. The DEIR should include an analysis of current bus routes and how they may be altered to provide direct connections to other bus routes or commuter rail service at West Station. The DEIR should evaluate how the West Station design and access loop will provide adequate capacity for future transit and shuttle vehicles based upon future ridership estimates for the facility. The DEIR should include a feasibility analysis of a two-way bus/shuttle loop and/or use of bus priority lanes or signalization to facilitate bus access in and out of the station.

The DEIR should identify the location of "kiss-and-ride" accommodations. If a vehicular drop-off/pick-up location is not located on the south side West Station (near Ashford/Malvern/Babcock Streets), the DEIR should discuss how a lack of a formalized drop-off/pick-up area in this location may impact ridership and traffic patterns and congestion within the neighborhood. Furthermore, as no commuter parking is proposed at West Station, MassDOT

should describe existing or potential parking control measures that may be implemented to mitigate commuter parking on neighborhood streets.

The DEIR should conceptually describe the extent and type of multi-modal features or streetscape improvements along proposed station connections from the Commonwealth Avenue area (i.e., Malvern Street, Babcock Streets, etc.), through connections from the station to the Paul Dudley White Bike Path, and the elevated connector bridge from the Cambridge Street area to create an accommodating, pleasant, and safe access route to West Station. These connections to Commonwealth Avenue, Cambridge Street or other thoroughfares should be designed consistent with adjacent streetscape design and urban context.

Future Rail and Transit Service

The DEIR should discuss how construction and operation of the West Station commuter rail station and proposed use of the BPY layover site will be designed to preserve alternatives for future projects (such as potential DMU service to Kendall Station), anticipated future Amtrak service in the year 2035, potential bicycle and pedestrian connections using the Grand Junction Railroad bridge, and existing freight service. The DEIR should describe these future projects, note their planning and funding status, and discuss design assumptions used to complete the assessment. The DEIR should describe anticipated commuter rail ridership in 2020 and 2035 at West Station and include an analysis of how the predicted increases in rail ridership and changes to operations may impact existing and future capacity on MBTA commuter rail, subway and bus routes.

I note comments from ABC identifying proposed alignments for the Locally Preferred Alternative of the Urban Ring Bus Rapid Transit (BRT) Route 6 crossing the project site. The DEIR should discuss the design and funding status of the Urban Ring project and how the proposed I-90 project can accommodate and/or, at a minimum, not preclude potential implementation of this project.

The DEIR should describe existing rail operations, ownership and legal rights within BPY, including use of sidings and the Grand Junction Railroad. The DEIR should discuss freight and commuter rail services, frequency of use, types of trains, and connections between rail lines within or approaching BPY. The DEIR should discuss the feasibility of alternative locations or changes in elevation of the railroad tracks to facilitate project construction and operations.

The DEIR should discuss the current condition, ownership and use of spur sidings connecting BPY to areas north of Cambridge Street. The DEIR should indicate whether these sidings will be retained in the final design configuration, or if they are to be abandoned, discuss the protocol and permitting requirements to do so. The DEIR should also describe the current condition, ownership and use of the rail connection to the Houghton Chemical Company. For each alternative investigated in the DEIR, MassDOT should indicate whether this connection will be retained in place, relocated, or abandoned. The DEIR should discuss the legal and permitting ramifications of relocating or abandoning this rail connection, if necessary, on continuing operations for Houghton Chemical Company.

Bicycle and Pedestrian Accommodations

The DEIR should contain a description of existing and proposed bicycle accommodations within the study area including their location, type, width, and routes between key destinations. Supporting graphics depicting proposed roadway cross-sections and routes should be included in the DEIR to facilitate review. As noted previously, the DEIR should explore additional route and cross-section alternatives in conjunction with design advancement of bicycle and pedestrian facilities within the Study Area.

Air Quality

The DEIR should analyze the potential operational and construction period noise impacts associated with the relocation of I-90, West Station and the BPY layover facility (operations and maintenance activities). The DEIR should include the results of a noise and vibration impact analysis performed in compliance with the MassDOT Noise Policy, the Federal Highway Administration (FHWA) Procedures for Abatement of Highway Traffic Noise and Construction Noise, and the Federal Transit Administration (FTA) Transit Noise and Vibration Impact Assessment Manual. MassDOT will conduct a noise and vibration monitoring program to establish ambient background noise levels within the project area and proposed layover facility location to develop the project criteria noise limits using applicable guidelines. I strongly encourage MassDOT to include study receptors in the Cambridgeport neighborhood, even if these locations do not meet procedures and protocol requirements for study. The DEIR should present the results of the noise and vibration modeling for the 2014 No-Build Alternative, the Build and No-Build 2020 Completion Year Alternatives, and the 2035 Design Year. The DEIR should describe proposed abatement measures to mitigate anticipated noise or vibration impacts that may exceed the FTA, FHWA or other applicable criteria and demonstrate that these measures will reduce noise and vibration impact to acceptable levels per applicable standards. Consideration should be given to how decking or future air-rights development may ameliorate projected noise and vibration impacts.

I encourage MassDOT to implement noise and operational best management practices (BMPs) equal to or more stringent than those currently utilized at other layover facilities along the commuter rail. To ensure compliance with modeling assumptions, I expect that MassDOT will provide documentation of these BMPs, and contractual obligations associated with the operator of the railroad in the DEIR. Specific consideration should be given to the hours of operation at the layover facility and West Station, potential idling times of locomotives, buses or shuttle services, and proximity to sensitive receptors. The DEIR should include a feasibility assessment of potential mitigation measures, a phasing plan for their implementation, and identification of responsible parties for their construction and maintenance.

The DEIR should include an air quality analysis consisting of a regional emissions inventory for criteria pollutants (volatile organic compounds (VOCs), oxides of nitrogen (NO_x), carbon monoxide (CO), sulfur oxides (SO_x), and particulate matter (PM₁₀/PM_{2.5}). These emissions inventories should include daily and annual emissions from the diesel locomotives and motor vehicles on roadways in the air quality study area for the 2014 No-Build Alternative, the Build and No-Build 2020 Completion Year Alternatives, and the 2035 Design Year. MassDOT

should work with MassDEP prior to the preparation of the DEIR to establish the appropriate extent of the study area and modeling methodology. I encourage MassDOT to expand the pollutants analyzed to include air toxics, diesel PM and ultrafine particulates. Assumptions regarding locomotive technologies and MBTA bus fleet vehicles that can reasonably be expected to be in place in 2020 and 2035 and corresponding air quality benefits should be clearly stated in the DEIR. This discussion should also include the use of plug-in facilities at layover yards and the potential air quality benefits thereof and indicate whether locomotives will remain idling during layover, particularly during cold weather. The DEIR should discuss possible mitigation measures to offset potential air quality impacts pending the results of the air quality analysis. Similar to the noise and vibration assessment, MassDOT should consider how projected air-rights development and decking of the West Station and BPY sites may influence the concentration or dispersion of air pollutants.

MassDOT should conduct a mesoscale analysis to estimate the total daily emissions of VOCs, NO_x and CO in the project study area for the 2014 No-Build Alternative, the Build and No-Build 2020 Completion Year Alternatives, and the 2035 Design Year. The ENF indicated that MassDOT does not intend to analyze associated mitigation scenarios since the project does not specifically include any traffic-generating projects. However, the DEIR should consider traffic generated by the proposed West Station as this specific project is may create new traffic trips within the Study Area.

The DEIR should also include a localized microscale assessment of CO hotspot, or intersection analysis, using the EPA's CAL3QHC model for BPY layover facility and at each traffic study intersection with a projected LOS equal to D, E, or F where the project adds ten percent or more traffic volume. The microscale analyses should evaluate conditions in the 2014 No-Build Alternative, the Build and No-Build 2020 Completion Year Alternatives, and the 2035 Design Year. Predicted CO concentrations should be compared to the State and National Ambient Air Quality Standards (NAAQS). If violations of the NAAQS are projected to occur, the DEIR should identify appropriate mitigation measures.

MassDOT should determine if a PM quantitative hotspot analysis is needed and if data are available, conduct a quantitative PM hotspot analysis that focuses only on the emissions from the diesel trains and the motor vehicles in the air quality study area following current EPA guidelines. PM hot-spot analyses are required for projects of "local air quality concern" which include certain highway and transit projects that involve significant levels of diesel vehicle traffic and any other project identified in the PM State Implementation Plan as a localized air quality concern.⁴ If data are unavailable or if consensus with the MassDEP cannot be reached on the analysis area or the methodology, MassDOT should conduct a qualitative analysis following joint FHWA and U.S. EPA previous guidance dated March 2006. MassDOT should also conduct a screening analysis of nitrogen dioxide (NO₂) using dispersion modeling.

⁴ Per EPA's November 2013 Guidance document *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas*. Under the EPA Transportation Conformity Rule (40 CFR Part 93), project-level air quality conformity determinations may be required for certain projects. Section 93.123(b)(1) of the conformity rule defines the projects that require a PM_{2.5} or PM₁₀ hot-spot analysis and includes: (iii) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.

The DEIR should discuss how the project will comply with applicable anti-idling regulations during the construction period and during layover facility and West Station operations.

Wetlands, Waterways and Tidelands

The project area contains and is adjacent to wetland resource areas regulated under the Massachusetts Wetlands Protection Act (WPA). Project-related stormwater infrastructure (most notably discharge outfalls) and the bicycle/pedestrian bridge connecting to the Paul Dudley White bike path are potential sources of wetland resource area impacts. The DEIR should confirm the presence of State-regulated wetland resource areas, characterize these wetland resource areas and estimate potential temporary or permanent impacts associated with each project alternative. The DEIR should describe how each element will be designed and constructed in a manner consistent with relevant performance standards established in the WPA Regulations (310 CMR 10.00). If impacts will result in the direct alteration of wetland resources and require mitigation, the DEIR should include plans depicting and quantifying wetlands replication areas and describe how altered wetland functions will be restored. The DEIR should include an assessment of how the project will be designed and implemented in a manner consistent with CZM policies.

The DEIR should include graphics that overlay key c.91 jurisdictional criteria (e.g., Historic Mean High and Mean Low Water Marks, Ordinary High Water Marks, filled tidelands, landlocked tidelands, etc.) on project area conceptual designs. The DEIR should include a table summarizing project impacts to filled tidelands and landlocked tidelands for each project element. The DEIR should identify areas on or adjacent to the project site that have existing c.91 Licenses and identify site attributes approved in conjunction with those historic licenses. MassDEP has determined that the proposed project, as presented in the ENF, is a nonwater-dependent infrastructure project pursuant to 310 CMR 9.55; therefore, the requirements of 310 CMR 9.51 through 9.53 shall not apply. The DEIR should demonstrate how project alternatives will be designed to meet performance standards outlined in 310 CMR 9.55(1)(a-f) for the proposed uses. I strongly encourage MassDOT to meet with the MassDEP Waterways program prior to preparing the DEIR to ensure that sufficient information is provided in the DEIR to assist MassDEP in providing meaningful comments on the project's consistency with c.91 licensing standards.

The project site is subject to the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts ch. 168) (the Act).

Section 3 of the Act requires that any project that is subject to MEPA review and proposes a new use or structure or modification of an existing use or structure within landlocked tidelands address the project's impacts on tidelands and identify measures to avoid, minimize or mitigate any adverse impacts on these rights.

In making said public benefit determination, the secretary shall consider the purpose and effect of the development; the impact on abutters and the surrounding community; enhancement to the property; benefits to the public trust

rights in tidelands or other associated rights, including, but not limited to, benefits provided through previously obtained municipal permits; community activities on the development site; environmental protection and preservation; public health and safety; and the general welfare; provided further, that the secretary shall also consider the differences between tidelands, landlocked tidelands and great pond lands when assessing the public benefit and shall consider the practical impact of the public benefit on the development.

The DEIR should include a discussion of how the project complies with the Public Benefit Determination (301 CMR 13.00) criteria established for nonwater-dependent projects located completely or partially within tidelands or landlocked tidelands. At the conclusion of the MEPA process (i.e., in conjunction with a Final EIR) I will issue a Public Benefit Determination in compliance with the provisions of the Act.

Stormwater

The DEIR should discuss how each project element (including the BPY layover facility) will be designed in compliance with MassDEP Stormwater Management Regulations (SMR) and its associated Stormwater Policy, as applicable, and provide supporting drainage calculations. The DEIR should identify and describe the location of existing storm drain systems that will receive stormwater flows generated by the project. The DEIR should provide a history of drainage management on-site, including the conversion of Salt Creek from a wetland area to a culverted conveyance. The DEIR should describe existing connections of stormwater flows to Boston Water and Sewer Commission (BWSC) or MWRA sanitary or combined sewers. The DEIR should indicate if stormwater flows to sanitary or combined sewers will be removed in conjunction with the project and how flows from these removed connections will be redirected to the storm drain system and associated discharge points (Charles River or otherwise).

MassDOT should confirm with MassDEP that each element of the project will be reviewed under the “redevelopment” standards of the SMR. The DEIR should include a conceptual discussion of proposed BMPs that may be selected in the final design phase. MassDOT should demonstrate in the DEIR that the project’s conceptual designs include sufficient measures capable of conveying and treating estimated stormwater flows generated by the project, including a discussion of existing and proposed stormwater infrastructure, outfall locations, and connections to infrastructure susceptible to combined sewer overflows (CSOs). The stormwater analysis should evaluate and compare storm-event peak flow rates and volumes to existing conditions based upon conceptual designs for the project. The DEIR should explain how water quality and quantity impacts will be controlled in compliance with associated performance standards and the City of Boston’s Storm Water Program.

As required by MassDEP, the DEIR should contain an analysis to substantiate that the claim that the stormwater standards at 310 CMR 10.05(6)(k) are met to the maximum extent practicable and improve existing conditions pursuant to 310 CMR 10.05(6)(k)(7) and 310 CMR 10.05(6)(o)(2). Also in accordance with the wetland regulations in 310 CMR 10.05(6)(o)(2), a complete evaluate of appropriate stormwater management measures for the project site is required, including environmentally sensitive design and low impact development (LID)

techniques, structural BMPs, pollution prevention, and other applicable stormwater control measures. I also note that compliance with Boston's Complete Streets Initiative, MassDOT must incorporate green infrastructure into street design (e.g., landscape plantings, rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces). Opportunities for stormwater management within a proposed multi-use path that extends from west to east across the site, with potential connections to other planned facilities, should be explored. If this evaluation demonstrates that full compliance cannot be achieved, then the DEIR must demonstrate that the highest practical level of stormwater management is proposed.

As noted previously, the Charles River segment adjacent to the project is listed as an impaired water body according to the *Massachusetts Year 2014 Integrated List of Waters*. Several TMDL's have been established to address impairments due to phosphorus (total), nutrient/eutrophication biological indicators, Secchi disk transparency, and *E.coli*. The DEIR should evaluate the project's proposed stormwater management system for consistency with these TMDLs, note the types of BMPs designed to address specific pollutants, and consider opportunities to minimize runoff impacts to the Charles River.

The BWSC requires project in the lower Charles River watershed to infiltrate all stormwater discharging from impervious surfaces to meet the phosphorous TMDL. The DEIR should demonstrate that sufficient area exists on-site to accommodate necessary recharge areas and confirm that soil and depth to groundwater conditions are conducive to meeting these recharge requirements. The DEIR should discuss BMPs to be implemented within the layover facilities to manage and treat locomotive/rail car or car washing stormwater discharges.

Water Supply and Wastewater

The DEIR should provide an estimate of wastewater generation and water usage, tabulated by use (West Station, BPY layover) and location. The DEIR should clearly state assumptions used to generate these estimates. The DEIR should include a description and supporting graphic characterizing the existing water and wastewater system associated with the project site from the point of origin to the point of treatment and/or discharge (e.g., ownership, state of repair, diameter, etc.). The DEIR should clarify what infrastructure is solely for sanitary purposes and what infrastructure conveys combined flows (sanitary and stormwater). As noted by comments from the MWRA and the BWSC, several existing pipes currently traverse the project site. The MWRA letter noted the likely requirement for MassDOT to obtain an 8(m) permit in accordance with Section 8(m) of Chapter 372 of the Acts of 1984 to protect existing water infrastructure (Sections 9, 2 and 3, WASM4 and Shaft 8 of the City Tunnel Extension). The DEIR should confirm the availability of sufficient water and sewer conveyance capacity for each of the project alternatives and identify if new water or sewer mains will be necessary to construct the project's various components. The DEIR should identify easements associated with existing infrastructure and note if relocation of these utilities will be necessary in conjunction with the conceptual project plans. MassDOT should coordinate with the MWRA and the BSWC to ensure that conceptual and final design plans are consistent with applicable requirements and maximize potential benefits to the wastewater system at large.

The DEIR should clarify if the project includes the construction of new water mains and wastewater infrastructure within Cambridge Street and the proposed urban street grid (i.e., North Connector, East Drive Connector, Stadium Way Connector, Seattle Street Connector, and Wets Connector). If so, MassDOT should use future land use assumptions to appropriately size proposed infrastructure. The DEIR should clarify if the BPY layover facilities will utilize water for rail car or equipment washing or for repair and maintenance activities, and whether the associated wastewater is considered “industrial wastewater” requiring permitting by MassDEP. The DEIR should elaborate on the proposed use of recycle water for the proposed car washing facilities, including the potential potable water savings afforded by implementation of this technology. In addition, the DEIR should indicate whether the project will be required to offset new flows by assisting in the removal of inflow and infiltration (I/I) from a hydraulically related portion of the sewer system. Finally, MassDOT’s plans for exterior spaces around West Station and roadways should include provisions for a variety of drought-tolerant, native species to limit or eliminate project demand for irrigation.

Greenhouse Gas Emissions

The DEIR should include a GHG analysis prepared in compliance with the MEPA Greenhouse Gas Policy and Protocol (“the Policy”). The Policy requires projects to quantify carbon dioxide (CO₂) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis quantifies the direct and indirect CO₂ emissions associated with the project's energy use (stationary sources) and transportation-related emissions (mobile sources).

The GHG analysis should evaluate CO₂ emissions for two scenarios as required by the Policy including 1) a Base Case and 2) a Build with Improvements Condition. In the case of the structures associated with the BPY layover facility and West Station, the Build with Improvements alternative should include energy efficiency design measures in order to meet the Stretch Energy Code (Stretch Code), while the Base Case should be consistent with the applicable State Building Code in effect at the time the ENF was filed.⁵ MassDOT should meet with staff from the MEPA office, the Department of Energy Resources (DOER) and MassDEP prior to performing the GHG analysis to confirm modeling assumptions and methodology.

The City of Boston has adopted the Stretch Code subsequent to its designation as a Green Community under the provisions of the *Green Communities Act of 2008*. Therefore, the project will be required to meet the applicable version of the Stretch Code in effect at the time of construction. The Stretch Code increases the energy efficiency code requirements for new construction (both residential and commercial) and for major residential renovations or additions in municipalities that adopt it. Projects may meet the Stretch Code requirement of 20-percent better energy efficiency than the State’s base energy code by either meeting the standard of 20-percent better than the base code, or by using a prescriptive energy code. The DEIR should demonstrate that the project can be designed to meet the Stretch Code requirements. As applicable, project elements may also be required to be Leadership in Energy and Environmental Design (LEED) certifiable in accordance with Article 37 of the Boston Zoning Code.

⁵ I note that the Stretch Code is slated for revision in mid-2015. Expected revisions include energy reductions of 12 to 15 percent beyond the IECC 2012 and ASHRAE 90.1-2010 Base Code. While the Base Code in effect at the time the ENF was filed is IECC 2012 and ASHRAE 90.1-2010, the Stretch Code remains at energy efficiency 20 percent better than the former Base Code (IECC 2010 and ASHRAE 90.1-2007 Appendix G).

Direct stationary source CO₂ emissions include those emissions from the facility itself, such as boilers, heaters, and internal combustion engines. Indirect stationary source CO₂ emissions are derived from the consumption of electricity, heat or other cooling from off-site sources, such as electrical utility or district heating and cooling systems. Mobile CO₂ emissions include those emissions associated with vehicle use by employees, vendors, customers and others, and in the case of this project, diesel trains and buses. The Policy requires proponents to use energy modeling software to quantify projected energy usage from stationary sources and energy consumption and mobile source modeling software to predict transportation-related emissions. The DEIR should clearly state the types of modeling software used and emissions factors applied to GHG calculations.

The GHG analysis should clearly demonstrate consistency with the objectives of MEPA review, one of which is to document the means by which MassDOT plans to avoid, minimize, or mitigate Damage to the Environment to the maximum extent feasible. The DEIR should state modeling assumptions and explicitly note which GHG reduction measures have been modeled and those that cannot be modeled due to the constraints of the modeling software. The DEIR should include the modeling printout for each alternative and emission tables that compare Base Case emissions in tons with the Build with Improvements Condition showing the anticipated reduction in tons and percentage by emissions source (direct, indirect and transportation). The DEIR should include a clear and complete listing of 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. for both the Base Case and Build with Improvements Condition. The DEIR should describe additional GHG reduction measures expected to provide further benefits, but are not currently quantifiable (e.g., building orientation, building commissioning, use of an energy management system, Energy Star equipment, and water conservation and wastewater reduction measures, etc.).

West Station and the BPY layover facility should be designed and constructed consistent with MBTA sustainability and energy management goals. The DEIR should summarize these goals put forth by the MBTA and specifically identify those measures that will be implemented and/or establish design and performance goals. The DEIR should identify potential energy efficiency measures to be incorporated into station design, drawing from lessons learned and successes of other recent projects such as Yawkey Station. I encourage MassDOT to consider opportunities to design and construct structures with an energy efficient core and shell (i.e., windows, wall and roof insulation, etc.), lighting systems, and heating and cooling systems (if provided).

MassDOT should evaluate the use of renewable energy sources to offset all or a portion of the project's energy demand (i.e., solar or photovoltaic (PV) panels, geothermal power, or the purchase of green power). The DEIR should include a separate analysis to determine if PV systems (either ground-mounted or building-mounted) to off-set electric demand or for hot water heating purposes (if such demand exists) are feasible in association with West Station or BPY layover. This feasibility analysis should use online DOER and Massachusetts Clean Energy Center (CEC) resources, or MBTA data from its own installations, to calculate potential project cost, payback periods and returns on investment. MassDOT should consider both first-party and

third-party ownership/lease scenarios. The DEIR should state assumptions with regard to available area for PV equipment, efficiencies, etc. If feasible, I encourage MassDOT to commit to the use of PV systems at their facilities. At a minimum, buildings should be “solar ready” to facilitate future installation of PV systems. If PV is not financially feasible, I request that the MassDOT commit to revisit the PV financial analysis on a regular timetable and to implement PV when the financial outcomes meet specified objectives.

As part of the GHG analysis, the DEIR should specifically address how the project advances MassDOT’s targeted 7.6 percent decrease in transportation sector GHG emissions by 2020 as stated in the Massachusetts *Clean Energy and Climate Plan for 2020*. As recommended by MassDEP, MassDOT should consider expanding this analysis to assess consistency with MassDEP’s additional goal of 12.3 percent GHG reductions by 2050. Reductions in mobile source emissions are a critical component of this goal. While the project, through the improvement of the I-90 interchange, will likely result in GHG emissions reductions in and of itself, the analysis should serve to evaluate if the project is maximizing the potential reductions to the extent feasible. The DEIR should include an assessment of GHG emissions generated by mobile sources using data gathered as part of the mesoscale analysis. The DEIR should clearly state modeling assumptions, and provide separate analyses regarding study area vehicle emissions and those associated with rail operations at the BPY layover facility, West Station, or freight service. The DEIR should clarify how GHG emissions from buses or shuttle service to West Station are calculated, either as part of the broader vehicle emissions analysis, or as a discrete source. MassDOT should ensure that rail operations and equipment assumptions applied to the BPY layover facility and West Station are consistent with those presented in the SSX DEIR (or as modified in a subsequent MEPA filing). The analysis should include estimates of indirect emissions associated with the use of shore-side power at the BPY layover facility.

For vehicular traffic, the DEIR should use traffic volume, delay and speed data along with emissions factors (as described in the Policy) for a No-Build existing condition, a future (2020 and 2035) Build condition and a Future (2020 and 2035) Build with Mitigation condition. These data should be used to inform the selection of a Preferred Alternative for the interchange and Cambridge Street. The DEIR should describe mitigation measures implemented as part of the future Build with Mitigation condition modeling. These measures may include, but should not be limited to, improvements to roadway operations, physical roadway infrastructure upgrades, mode share shift, railroad operations and equipment improvements, and use of CO₂ reduction technologies.

Climate Change Adaptation and Resiliency

The DEIR should provide an analysis and discussion of potential impacts to the project site associated with predicted sea level rise, increased frequency and intensity of precipitation events and extreme heat events. To assist in the evaluation of climate change resiliency and adaptation measures the Proponent should review EOEEA’s *Climate Change Adaptation Report* (September 2011) (<http://www.mass.gov/eea/docs/eea/energy/cca/eea-climate-adaptation-report.pdf>) and the Office of Coastal Zone Management’s (CZM) December 2013 report entitled, “*Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning*” (<http://www.mass.gov/eea/docs/czm/stormsmart/slr-guidance-2013.pdf>). The

Proponent may also want to review the Boston Harbor Association's (THBA) "Preparing for the Rising Tide" report issued in 2013 for additional information. This analysis should consider floodplain areas as may be reflected in the FIRM maps issued for the project area. If a FIRM map is pending during the design/analysis phase, I strongly encourage MassDOT to use the pending maps, as recent amendments have tended to result in increased areas potentially subject to inundation during storm events. Finally, MassDOT should review currently available analyses and modeling data gathered by MassDOT and/or the City of Cambridge for the Charles River Dam under future sea level rise scenarios and modeled storm events (e.g., hurricanes). The future ability of the Charles River Dam to control the surface level of the Charles River Basin may be compromised due to climate change intensified events, potentially leading to flooding or stormwater management impacts within the project site.

Using the CZM report and available modeling data for the Charles River Dam identified above, and with consideration for the level of acceptable risk to MassDOT and the projected project lifetime, MassDOT should select a predicted sea level rise and storm intensity scenario and evaluate in the DEIR how the project may be directly or indirectly impacted. The DEIR should discuss why a specific scenario (or scenarios) was selected for evaluation, describe associated sea level rise and storm surge elevations, identify the extent of inundation areas on-site, and indicate how the project will be designed to mitigate this impact or to facilitate adaptation responses, if applicable. The project site or tributary wetlands may be subject to both inland and coastal flooding during severe weather events, and the evaluation should specifically consider the impacts of each type of flooding and the likelihood that they may occur concurrently. I encourage the Proponent to consult with the MEPA Office for additional clarification prior to undertaking this task.

If modeling scenarios indicate potential climate change-induced flooding impacts, the DEIR should demonstrate that the project includes ecosystem-based adaptation measures and proactive infrastructure design with regard to impacts related to predicted sea level rise, storm intensity and extreme heat. Modifications to SFR, I-90 viaduct and interchange, roadway grid, adjacent parklands, and stormwater management infrastructure (including outfalls to the Charles River) should be implemented in a manner to promote climate change resiliency and adaptation. Design of West Station and the BPY layover facility should consider the ability to mitigate extreme heat impacts on rail infrastructure, treatment and conveyance of more frequent and intense rainfall events, and, if modeling indicates, mitigate flooding impacts from the Charles River.

Historic Resources

The DEIR should include a complete list of historic properties and detailed project maps or plans depicting the locations of historic properties or historic district boundaries compared to project features. The DEIR should identify the Area of Potential Effect (APE) for the project for both historic and archaeological resources and identify and evaluate historic and archaeological resources therein. If necessary, reconnaissance surveys for historic or archaeological resources within each designated APE should be prepared in consultation with MHC. The DEIR should address conflicting information provided by MHC and DCR regarding the contributory status of SFR to the Charles River Parkway District (BOS.YK). The DEIR should discuss the potential

impacts and benefits to historic resources associated with the proposed realignment of SFR and pedestrian and bicycle bridge to the Paul Dudley White Bike Path.

The DEIR should include the results of any consultations conducted with the MHC in accordance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR Part 800) and State Register Review (950 CMR 71.00). Impacts associated with the project may be unavoidable. MassDOT should work with MHC and interested parties to develop appropriate mitigation measures to minimize or mitigate impacts to historic resources. The DEIR should include possible mitigation measures to be considered as part of the State Register and Section 106 Review processes. This may include the preparation of a Memorandum of Agreement (MOA) between affected parties.

Hazardous Materials

The DEIR should characterize, describe the location, review status, and responsible party for the two identified open MCP RTNs within the project area. Furthermore, the DEIR should describe how MCP-regulated conditions associated with these two RTNs, as well as the resolved RTNs identified in the ENF, may impact construction techniques (i.e., dewatering, foundation types, etc.) or potential site infrastructure (e.g., groundwater and stormwater management, new or relocated water, sewer and drainage pipes). As noted by MassDEP, the reporting concentrations of contaminants have changes, meaning that further investigation and characterization of the soils on sites with closed Response Action Outcomes (RAO) may be necessary. Of notable concern is the potential implication of historic soil and groundwater contamination on stormwater infiltration requirements for the project in accordance with the MassDEP Stormwater Standards. The DEIR should identify any State permits related to solid and hazardous waste mitigation.

The DEIR should clarify the responsible parties for remedying known oil and hazardous materials (OHM) spills within the project area (i.e., the two open RTNs), identify remediation schedules in relation to the proposed MassDOT construction periods, and describe anticipated coordination efforts between MassDOT and these responsible parties to ensure project advancement in compliance with the MCP. Beyond these identified RTNs, the project will likely require additional reviews relative to the MCP given the historic uses within the project area. If MassDOT conducts a Phase I Environmental Site Assessment (ESA), or if others have completed ESAs that identify any recognized environmental conditions associated the project area, MassDOT should summarize the results of these ESAs in the DEIR. Based upon the results of these ESAs, the DEIR should identify any MCP-regulated environmental conditions and list recommendations for further evaluation or testing.

Construction Period

MassDOT stated in the ENF that construction phasing will be based on several assumptions, including:

- Three I-90 travel lanes in each direction must be maintained during daytime peak travel periods for the duration of the construction;

- Two I-90 travel lanes in each direction must be maintained during nighttime off peak travel periods for the duration of the construction;
- Two travel lanes on SFR in each direction must be maintained during daytime peak travel periods for the duration of construction; and
- One commuter rail track, the Grand Junction Railroad line and the Houghton Chemical Company rail spur must remain in operation through the project site during the duration of construction.

The DEIR should include a conceptual construction phasing plan for each project element, noting times of concurrent activity (e.g., viaduct removal and BPY layover construction) and the estimated length of each construction phase. The DEIR should provide additional justification for the phasing assumption presented in the ENF and identify the duration of the peak and off-peak periods that will dictate lane closures and the need to establish detours during off-peak periods on SFR. Lane closures can be expected to result in depreciated roadway and intersection LOS throughout the construction period. Given the critical nature of the Masspike and the I-90 interchange within the local and regional traffic system, the DEIR should address the potential operational impacts of extended lane closures and identify measures to mitigate their impact. I note the construction staging recommendations provided in the comment letter from A Better City (ABC) and request that MassDOT evaluate the feasibility of these recommendations as part of the DEIR.

The construction phasing plan must consider available laydown and equipment storage areas and how they will be managed so as not to impede rail service connections through the project site, including commuter rail service, access to BPY layover facilities, and freight movement. If passenger rail and freight service will be modified during project construction (based on construction phases) the DEIR should identify how service impacts will be accommodated and minimized or mitigated. MassDOT should develop staging and construction period access plans in collaboration with the City of Boston, City of Cambridge, Harvard University, Amtrak, the MBTA and other landowners as required. I strongly encourage MassDOT to consider innovative construction techniques, including the pre-construction of viaduct components either on or off-site or use of temporary structures, to reduce construction period lengths and lane closures.

All project contractors will be required to comply with MassDOT's GreenDOT Policy Directive which requires the installation of emission control devices in all off-road vehicles. MassDOT's revised Diesel Retrofit Specification states that emission control standards must be met or technology must be used for non-road, diesel-powered construction equipment in excess of 50 horsepower on MassDOT job sites. The MassDOT will implement various construction period elements of the GreenDOT Policy, including, but not limited to, sustainable design and construction BMPs such as recycled asphalt, recycling of demolition materials, etc.

The project must comply with MassDEP's Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. c.40, §54. MassDOT should consult the MassDEP comment letter with regard to regulatory requirements and potential mitigation measures to be implemented during the construction period. Specifically, the MassDEP comment letter has provided significant information with regard to solid waste management during the construction

period, recycling of construction and demolition (C&D) waste, asbestos removal requirements, and handling of asphalt, brick and concrete (ABC) associated with demolition activities. The DEIR should include a discussion of MassDOT's recycling goals for solid waste generated as part of the project's construction and how demolition activities will comply with the goals of the Massachusetts Solid Waste Master Plan. This information may be included as part of a larger draft Construction Waste Management Plan for the project.

The DEIR should also describe potential project site construction period impacts (including but not limited to traffic management, materials management, parking, air quality and noise impacts, and other items as they related to the construction period) and analyze and outline feasible measures that can be implemented to eliminate or minimize these impacts. The DEIR should include a draft Construction Management Plan (CMP) to demonstrate how construction period impacts will be mitigated. Specifically, the DEIR should identify truck traffic routes associated with construction traffic, staging areas, and how safe pedestrian, bicycle and vehicle access will be maintained throughout the construction period for each proposed project phase. The DEIR should present a conceptual plan with a list of BMPs that could be selected by project contractors to reduce construction related erosion and sedimentation controls and air/noise pollution impacts for each project component. Erosion and sedimentation controls should be implemented and maintained in accordance with the Stormwater Pollution Prevention Plan prepared in accordance with the NPDES Construction General Permit requirements. The DEIR should also discuss potential construction-period dewatering activities and related permitting requirements. MassDOT is advised that, if sources oil and/or hazardous material (OHM) are identified during the implementation of the project, notification pursuant to the MCP (310 CMR 40.0000) must be made to MassDEP, if necessary.

Mitigation

The DEIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each State Agency that will issue permits for the project. The DEIR should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation, and contain a schedule for implementation. Local roadway improvements may be memorialized in future Transportation Access Plan Agreements (TAPAs) with the City of Boston, but should be identified in the DEIR due to the jurisdictionally-integrated roadway network in the study area. The DEIR should note the implementation schedule of mitigation measures based upon project phasing, either tying mitigation commitments to specific project elements or, most likely, traffic volumes and operations, to ensure that measures are in place to mitigate the anticipated impact associated with each development phase.

To ensure that all GHG emissions reduction measures adopted by MassDOT in the Preferred Alternative are actually constructed or performed, MassDOT must provide a self-certification to the MEPA Office signed by an appropriate professional (e.g., engineer, architect, transportation planner, general contractor) indicating that all of the required mitigation measures, or their equivalent, have been completed as a condition of a Certificate approving an FEIR. The

commitment to provide this self-certification should be incorporated into the draft Section 61 Findings included in the DEIR.

Responses to Comments

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

Circulation

MassDOT should circulate the DEIR to those parties who commented on the ENF and to any State Agencies from which MassDOT will seek permits or approvals, and to any parties specified in section 11.16 of the MEPA regulations. A copy of the DEIR should be made available for review at the Allston and Brighton Branches of the Boston Public Library and the Central Square Branch of the Cambridge Public Library. To save paper and other resources, MassDOT may circulate copies of the DEIR to commenters other than State Agencies in CD-ROM format or post to an online website, although MassDOT should make available a reasonable number of hard copies, to accommodate those without convenient access to a computer to be distributed upon request on a first come, first served basis. MassDOT should send a letter accompanying the CD-ROM or identifying the web address of the online version of the DEIR indicating that hard copies are available upon request or at local library branches, noting relevant comment deadlines, and appropriate addresses for submission of comments.

December 24, 2014
Date


Maeve Vallely Bartlett

Comments received:

- 11/16/2014 Ehren Foss
- 11/16/2014 Bradley Frank
- 11/17/2014 Anthony Toppi
- 11/18/2014 Senator William Brownsberger (2nd Suffolk and Middlesex), Representative Marjorie Decker (25th Middlesex), Representative Jay Livingstone (8th Suffolk), Representative Frank Smizik (15th Norfolk), Senator Sal DiDomenico (Middlesex and Suffolk), Representative Kevin Honan (17th Suffolk), Representative Michael Moran (18th Suffolk) and Boston City Councilor Mark Ciommo (District 9)
- 11/19/2014 Alexandra Reisman
- 11/20/2014 A Better City (testimony)
- 11/20/2014 Karen Smith

11/20/2014 Michael Monroe
11/20/2014 Jennifer Lee Mills
11/20/2014 James Fogel
11/20/2014 Karen DiFranza
11/20/2014 Scott Devlin
11/20/2014 Christopher Ott
11/20/2014 Christopher Conroy
11/20/2014 Chris Dippel
11/20/2014 Stephan Jacobs
11/20/2014 Michael Immel
11/20/2014 Debra Iles
11/20/2014 Yuriy Roman Lojko
11/20/2014 Sarah MacDonald
11/20/2014 Melissa Mattison
11/20/2014 Carol Schauer
11/20/2014 Andreae Downs
11/20/2014 Susan Donaldson
11/20/2014 Pauline Lim
11/20/2014 Paul Fein
11/20/2014 Deborah Stein Sharpe
11/20/2014 Liam Sullivan
11/20/2014 Erica Reisman
11/20/2014 Patricia Maher
11/20/2014 Megan Ramey
11/20/2014 Emily Marvosh
11/20/2014 Nicole Manseau
11/20/2014 Eric Anderson
11/20/2014 Henry Lieberman
11/20/2014 Patricia Hogan
11/20/2014 Steve Leibman
11/20/2014 Douglas Ely
11/20/2014 Alisha Fowler
11/20/2014 Meg Muckenhaupt
11/20/2014 Andrea Yakovakis
11/20/2014 Maria Simoneau
11/20/2014 Theresa Smith
11/20/2014 Andrea Love
11/20/2014 Colin Durrant
11/20/2014 Matthew Wilkinson
11/20/2014 Andrew Farnitano
11/20/2014 Miles Grant
11/20/2014 Dorothy Fennell
11/20/2014 Jane Hayes
11/20/2014 Xander Miller
11/21/2014 Jane McHale
11/21/2014 Tom Parks

11/21/2014 Xavid Pretzer
 11/21/2014 Jennifer Uhrhane
 11/21/2014 Alexander Calhoun
 11/21/2014 Molly Reiner
 11/21/2014 Matthew Welch
 11/21/2014 Lauren Greenberg
 11/21/2014 Boston Water and Sewer Commission
 11/21/2014 Jeremy Hanson
 11/21/2014 Christina Long Marin
 11/21/2014 Bruce Lederer
 11/22/2014 John and Marilyn MacDougall
 11/22/2014 Alex Epstein
 11/22/2014 Robert La Tremouille
 11/22/2014 Dimitri Kountourogiani
 11/22/2014 John Pelletier
 11/22/2014 Ania Wieckowski
 11/23/2014 Erica Mattison
 11/23/2014 Julia Hansen
 11/24/2014 Matthew Soule
 11/24/2014 Matt Lawlor
 11/24/2014 Todd Consentino
 11/24/2014 Kathryn Fahey
 11/24/2014 Allie Sherwood
 11/25/2014 Stephanie Danielson
 11/25/2014 Ari Ofsevit
 11/25/2014 Jeffery Orlin
 11/25/2014 Nina Garfinkle
 11/25/2014 Robert and Paula Alexander
 11/25/2014 Caryn Oppenheim
 11/25/2014 Tom Lamar
 11/25/2014 Cambridge Bike Committee
 11/25/2014 Massachusetts Water Authority
 12/01/2014 Joshua Bellin
 12/01/2014 Joyce Radnor
 12/01/2014 David Kuss
 12/01/2014 Drew Volpe
 12/02/2014 Arlene Mattison
 12/02/2014 Ian Hutchinson
 12/02/2014 Jason Nelson
 12/04/2014 Franklin King IV
 12/04/2014 Priscilla Anderson
 12/05/2014 Allston Village Main Streets, Allston-Brighton Community Development Corporation, Allston Board of Trade, Allston Civic Association, Allston/Brighton Bikes, Boston Cyclists' Union, Charles River Conservancy, LivableStreets Alliance, MassBike, WalkBoston, Matthew Danish, Rochelle Dunne, Paola M.

Ferrer, Esq., Anabela Gomes, Bruce Houghton, Wayne Mackenzie, Rick Parr, and
 Jessica Roberston
 12/07/2014 John Eskew
 12/07/2014 Kate Kelly
 12/08/2014 Robert La Tremouille (2nd letter)
 12/08/2014 Elizabeth Egan
 12/09/2014 Boston Properties
 12/09/2014 Rita Vaidya
 12/10/2014 Charles River Conservancy, Environmental League of Massachusetts, Friends of
 Grand Junction Path, Clean Water Action, and Watertown Bicycle/Pedestrian
 Committee
 12/10/2014 The Lawrence and Lillian Solomon Foundation
 12/11/2014 Transportation for Massachusetts
 12/11/2014 Carol O'Hare and Walter McDonald
 12/11/2014 David Read
 12/12/2014 Massachusetts Historical Commission
 12/12/2014 Harvard University
 12/12/2014 John Shetterly
 12/12/2014 Robert and Paula Alexander
 12/12/2014 Fred Maloney
 12/13/2014 Jane Stolzman
 12/14/2014 Arthur Strang
 12/14/2014 Laura Kershner
 12/14/2014 The Beacon Yards DeNovo Urbanism Studio – Northeastern University
 12/14/2014 Tim Love
 12/14/2014 Olivia Fiske
 12/15/2014 Cathie Zusy
 12/15/2014 Anthony Pangaro
 12/15/2014 Olivia Fiske (2nd letter)
 12/15/2014 Marilyn Wellons
 12/15/2014 Galen Nook
 12/15/2014 Peter Klinefelter
 12/15/2014 Harry Mattison and Alana Olsen
 12/15/2014 Brian Conway
 12/15/2014 Carol O'Hare on behalf of Phyllis and Harvey Baumann, Peggy Lynch and Jan
 Puiello, Decia Goodwin, Ibbey and Charlie Kurzon, Kristin Canavan and Ross
 Berbeco, Carolyn Shipley, Jay Shetterly, Jim Moore, Larry Kontos, Tom and
 Karen Norton, Philip Olenick, Esq., and Colleen Clark
 12/15/2014 Boston Society of Architects
 12/15/2014 Massachusetts Department of Environmental Protection – Northeast Regional
 Office (MassDEP – NERO)
 12/15/2014 Boston Transportation Department and Boston Redevelopment Authority
 12/15/2014 Department of Conservation and Recreation
 12/15/2014 Massachusetts Port Authority (Massport)
 12/15/2014 A Better City
 12/15/2014 Boston University

12/15/2014 Medical Academic and Scientific Community Organization (MASCO)
12/15/2014 City of Cambridge Community Development Department

12/16/2014 John Sanzone, Jr.
12/16/2014 Judith Motzkin
12/16/2014 Metropolitan Area Planning Council

RKS/HSJ/hsj

