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

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	: December 6, 2017

Pursuant to the Massachusetts Environmental Policy Act (M.G. L. c. 30, ss. 61-62I) and Section 11.08 of the MEPA regulations (301 CMR 11.00), I have reviewed the Draft Environmental Impact Report (DEIR) and hereby determine that it **adequately and properly complies** with MEPA and its implementing regulations. The Proponent may prepare and submit for review a Final Environmental Impact Report (FEIR).

This project consists of major changes to transportation infrastructure in Allston, including realignment and reconstruction of Interstate 90 (I-90)/Massachusetts Turnpike (MassPike), the I-90 Allston interchange and rail facilities in the former Beacon Park Yard (BPY). The project will affect the character, livability and accessibility of the neighborhoods and surrounding communities, and the regional transportation system. It provides a tremendous opportunity to address longstanding transportation capacity and safety issues, increase access to transit, enhance and expand parkland and support sustainable mixed-use development within a large area of Allston. Acting on the significant public interest in this project and the opportunities it presents, the Massachusetts Department of Transportation (MassDOT) initiated MEPA review at a conceptual level of design such that the MEPA process can fully support development and

analysis of alternatives and has consulted with the Allston I-90 Interchange Improvement Project Task Force (Project Task Force) throughout development of the DEIR. This consultation resulted in the inclusion in the DEIR of a detailed evaluation of three alternatives for the "throat" section. Each of these alternatives will have significant impacts associated with the extent, complexity and duration of construction.

The project lies at the crossroads of high travel demand in both east-west and north-south directions. The rail and highway corridor bisecting the area presents both an obstacle and an opportunity to achieving important regional transportation goals. Many thoughtful comments recognized the transformative nature of this project and its potential to help realize longstanding transportation goals, such as facilitating transit service between Cambridge and Boston along the Grand Junction Railroad (GJR), improving commuter bicycle routes through Allston and along the Charles River, creating pedestrian links between the Charles River and areas along Commonwealth Avenue that are geographically nearby but functionally distant, and establishing transit service between destinations in Allston and Cambridge north of I-90 and the Longwood Medical Area and other areas to the south. The DEIR described components of the project that will help achieve some of these goals, such as West Station and the at-grade crossing to the Charles River parkland. MassDOT also identified project design features that could facilitate regional transportation improvements that it considers beyond the scope of the project, such as the GJR connection.

I received more than 500 comment letters on the DEIR, including comments from elected officials representing Allston and other parts of Boston, Brookline, Cambridge and other communities. Three significant themes are identified: importance of transportation access and choices; need for and the opportunity to restore and expand parkland; and the opportunity to connect neighborhoods, businesses and institutions through transportation and development. The construction and timing of West Station has been identified by the majority of commenters as a vital element of this project which they believe should be constructed as the first phase of the project and/or included as an interim station. While acknowledging the necessity and potential benefits of the project, residents continue to express concerns with the significant construction period impacts and advocate for construction, design and operational measures to avoid and minimize impacts.

Comments expressing an opinion on the Throat Area alternatives heavily favored the at-grade alternative conceptualized by A Better City (ABC). In many cases, support for this alternative was coupled with a desire that the project include a plan developed by the Charles River Conservancy and WalkBoston that would provide pedestrian and bicycle facilities in the Throat Area on fill or pile-supported structures in the Charles River.

The City of Boston and other commenters have identified the need for short-term and long-term transit planning within the project area. These studies should be collaborative efforts including the participation of MassDOT, the City of Boston and adjacent communities, and property owners and other stakeholders. The City has suggested that Metropolitan Area Planning Council (MAPC) could help coordinate this effort and MAPC has offered its assistance. The short-term plan should consider options for adding transit service prior to the completion of Phase 1 of the project. I expect that this study would evaluate transit service that could be

provided at an interim West Station, such as bus routes with stops at the station, bus routes that provide north-south transit links, and commuter rail service. The City has proposed that a long-term study will address potential service from permanent West Station across the GJR, the addition of Bus Rapid Transit (BRT) facilities in the project area, and expanded transit service in the context of an analysis of ridership demand.

The Certificate on the ENF highlighted the challenge of aligning goals and objectives with the availability of funding for the project and the availability of information regarding land use development. Many comments advocate for designs or project elements (e.g. elimination of viaduct, the West Station "flip" design) based, in part, on the ability to facilitate air rights development. As noted by MAPC, major landowners in the area have not adopted or proposed clearly defined and detailed plans for the size, density and mix of land uses that could occur on the parcels that they own within the study area timeframe. Without this information, the ability to effectively address comments regarding land use and development are limited. I expect MassDOT will continue to consider how the project design can support shared planning objectives to the extent reasonable and feasible based on the availability of resources and information. In addition, MassDOT should continue to assess how flexibility can be incorporated into design and construction such that it will support the ability to act on significant opportunities and, at a minimum, will not preclude them.

The Scope included in this Certificate is informed by the DEIR, public comments and agency review. Major elements of the Scope include:

- Transit and West Station
    - Reassess ridership demand
    - Analyze the feasibility of an interim station
    - Evaluate the West Station "flip" alternative
    - Address potential impacts to service on the Worcester/Framingham line
    - To the extent that the short-term transit planning study proposed by the City of Boston is underway, incorporate analyses and conclusions into the FEIR, response to comments and project design.

- Provide a detailed analysis of project cost, construction staging, construction-period impacts and life-cycle costs associated with Throat Area alternatives

- Consider additional measures to enhance parkland including restoration, establishment of a wider buffer between SFR and the Charles River Reservation, and evaluation of additional pedestrian and bicycle connections, including an additional connection to the Charles River

Project Description

As described in the DEIR, the purpose of the project is to address critical transportation and infrastructure needs including the following:

- Structural deficiencies in the I-90 viaduct between the interchange and Commonwealth Avenue;
- Substandard safety and traffic operations on I-90;
- Reconfiguration of the interchange in conjunction with the Commonwealth's transition to all-electronic tolling (AET);
- Provision of layover capacity for the Massachusetts Bay Transportation Authority's (MBTA) commuter rail service;
- Insufficient multi-modal transit options in the area; and
- Lack of pedestrian and bicycle facilities.

The project 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, construction of a new on- and off-ramp system, reconstruction of Cambridge Street, construction of a new street grid in the area currently covered by the interchange ramps, 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 and a connection from Cambridge Street to the Charles River. Major project components are described below.

The project design and phasing have been refined and developed by MassDOT through its engineering analysis, consideration of public comments on the ENF and ongoing consultation with the Project Task Force.

Allston/Brighton Interchange – The interchange will be reconfigured as an urban-style interchange. The existing ramps between I-90 and Cambridge Street and Soldiers Field Road (SFR) will be replaced by a street grid with connections to SFR. A reconstructed and redesigned Cambridge Street will include pedestrian and bicycle facilities designed in accordance with MassDOT Complete Streets guidelines. SFR will be realigned to create two acres of riverfront open space east of the interchange area. A section of SFR will be reconstructed in a boat section to provide a direct surface bicycle and pedestrian connection from Cambridge Street to the Charles River and the Paul Dudley White (PDW) path. The curved section of I-90 passing through the interchange will be straightened and shifted to the south, closer to the rail yard. The "3K" interchange design proposed in the DEIR is a refinement of the 3J concepts described in the ENF.

West Station – The project includes a new multi-modal transit station with bus layover and parking facilities on an upper level and two platforms providing access to the MBTA's Framingham/Worcester commuter rail service on the Worcester Main Line (WML). It is designed to support potential passenger service on GJR. Vehicular, pedestrian and bicycle access to the station will be provided from the street grid to the north. Pedestrian and bicycle ramps will provide access to Commonwealth Avenue via Malvern Street and Babcock Street south of the station. The phasing schedule in the DEIR proposed to construct West Station in 2040 as part of Phase 3 of the project.

Commuter Rail Layover Facility – A commuter rail layover facility within the BPY will be constructed to meet the existing need for additional layover capacity for MBTA commuter rail operations. The need for this layover facility was identified as part of the South Station Expansion (SSX) Project (EEA #15028). Layover space is necessary to improve reliability of the commuter rail system.

I-90 Viaduct and Soldiers Field Road – East of the interchange, a viaduct carries I-90 through a narrow strip of land south of the Charles River and SFR referred to as the Throat Area. Below the viaduct, rail lines extend east of the rail yard to South Station or to Cambridge via bridges spanning SFR and the river. In the ENF, MassDOT proposed to replace the viaduct. The DEIR identified and analyzed each of three alternatives with respect to its consistency with the project purpose and need and environmental impacts. The alternatives include:

- At-grade ("ABC") variation: This design was developed by A Better City (ABC). The design does not include any viaducts and all rail lines and roadways are at approximately the same grade. The two WML tracks are relocated to the south, partially outside of the existing highway easement. Two GJR tracks are located to the north of the WML tracks. I-90 is located north of the GJR tracks. Travel lanes on I-90 and SFR are reduced in width and minimal shoulders provided. The wide ground-level cross-section of this variation creates less open space along SFR than the other alternatives and may require a small amount of fill to maintain PDW at its current width. The reconstruction of the GJR bridge will realign SFR south of its current location, create additional parkland and straighten the PDW.

- Rail viaduct ("AMP") variation: This design was developed by a Task Force member who authors the "Amateur Planner" (AMP) blog. It reconstructs I-90 essentially at-grade with a viaduct carrying two GJR tracks and a shared use path over the southerly (eastbound) lanes of I-90. Travel lanes on I-90 and SFR are reduced in width and minimal shoulders provided. The WML tracks are relocated to the south, partially outside of the existing highway easement. Additional riverfront open space and a wider PDW are created along SFR. The reconstruction of the GJR bridge will realign SFR south of its current location, create additional parkland and straighten the PDW.

- Highway viaduct ("HV") variation: This design resembles existing conditions, with a new, wider viaduct carrying I-90 and railroad tracks below the viaduct. I-90 includes wider travel lanes and shoulders. Travel lanes on SFR remain 11 feet but the roadway is shifted to the south to create additional riverfront open space and a wider PDW.

All three Throat Area Variations and associated impacts were described in detail in the DEIR to provide an opportunity for public review and comment and to inform the selection of a Preferred Alternative.

MassDOT has identified the 3K design as the Preferred Alternative for the interchange. As described in the DEIR, it was developed through modification of the 3J designs presented in

the ENF and incorporates elements of the City of Boston's I-90 Allston Interchange Placemaking Study. Significant changes to the 3J concept that resulted in the 3K design include:

- Changing the eastbound and westbound I-90 connections to the street grid;
- Lowering the profile and elevation of the easterly I-90 overpass bridge by locating it to the west where the I-90 profile is lower;
- Shifting SFR to the west to create more open riverfront open space;
- Depressing SFR in a boat section to create an at-grade pedestrian and bicycle connection to the Charles River rather than the pedestrian bridge over SFR proposed in earlier designs;
- Adding vehicular connections to SFR from Cambridge Street South to reduce the scale of Cambridge Street;
- Eliminating the SFR off-ramp at River Street to widen PDW and add open space;
- Shifting Cambridge Street South to the south to improve the geometry of the street grid and create more developable land north of I-90;
- Shifting I-90 to the south to increase the distance between Cambridge Street and the I-90 overpass bridges and reduce the steepness of north-south connector roads; and
- Adding another north-south road (Cattle Drive).

Since the ENF was filed, Houghton Chemical agreed to abandon its rail spur line located between its facilities south of Cambridge Street and the WML tracks under the I-90 viaduct. The planned abandonment of the rail spur removed a significant constraint and facilitated changes to the interchange design, including the addition of open space, improved roadway realignment, and the elimination of at-grade railroad crossings.

The DEIR identified project phasing. Phase 1 will be completed by 2025 and consists of new and realigned roadways and bicycle and pedestrian facilities, adjustments to rail lines, improvements to the rail yard including layover space for eight train sets (under the ABC and HV Throat Area alternatives) and construction of noise barriers. Phase 2 will be completed prior to 2040 and includes additional work in the rail yard, including construction of layover space for an additional eight train sets, crew quarters utilities and storage sheds. Phase 3 will be completed by 2040 and includes the construction of West Station and associated roadways, pedestrian and bicycle paths, and additional main line tracks and signals.

Project Site

The approximately 150-acre project site includes the area encompassed by the BPY and is bounded by Ashford Street and a portion of the Boston University (BU) campus to the south, the Commonwealth Avenue Bridge and SFR to the east, and Cambridge Street to the north and west. The project limit to the west includes the Lincoln Street pedestrian bridge over I-90. The project site includes the WML used by the MBTA's Framingham/Worcester commuter rail line, the GJR and CSX Corporation (CSX) facilities. 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 are located within easements. MassDOT and the MBTA will need to acquire easement rights over portions of the project site from Harvard to build the project. The remainder of the project site is owned by Harvard and will remain unencumbered.

The project site includes the Department of Conservation and Recreation's (DCR) Charles River Reservation. This parkland is under the care, custody and control of DCR and is protected by Article 97 of the Amendments to the Constitution of the Commonwealth of Massachusetts. The project area is bordered by the Charles River Basin Historic District and the Harvard Avenue Historic District (CRBHD), both of which are listed in the State and National Registers of Historic Places. The CRBHD includes, but is not limited to, SFR, the BU Bridge, the GJR Bridge, and the River Street Bridge. The DEIR identified properties included in the *Inventory of Historic and Archaeological Assets of the Commonwealth* that are near, but not within, the project area. The site does not contain archaeological sites listed in the State Register.

The project area includes wetland resource areas and filled tidelands associated with the Charles River. Stormwater runoff from the project area currently receives 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 or 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]

Environmental Impacts

Potential environmental impacts associated with the project and alternatives assessed in the DEIR include the use of between 15,250 and 47,000 sf of parkland protected under Article 97; impacts to wetland resource areas including up to 3,960 sf of Land Under Water, up to 440 linear feet of Bank and up to 2,300 cubic feet (cf) of Bordering Land Subject to Flooding (BLSF); the addition of 20 parking spaces for rail yard maintenance staff; consumption of up to approximately10,800 gallons per day (gpd) of water and generation of approximately 660 gpd of wastewater. The project will generate noise and vibration impacts during its construction and operation. It will require new and relocated water, wastewater and other infrastructure.

The project, including reconstruction and realignment of the I-90 viaduct and other roadways, will not in itself increase trip generation on the I-90 interchange (currently at 154,000 average daily trips (adt)). Additional trips may be generated in connection with dropping off and picking up passengers from West Station. Project roadways have been designed to accommodate regional growth, including planned development within the project area by Harvard University and others.

[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, providing public access to tidelands, improving stormwater management, and reducing air quality impacts associated with traffic congestion. The project will result in an increase of 6.6 to 7.3 acres of open space, including up to 3.59 acres that will be transferred to DCR and an overall reduction in impervious area of 3.6 to 6.3 acres.

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 consented to prepare and file an EIR.

The project will require a Construction and Access Permit from the Department of Conservation and Recreation (DCR), a Chapter 91 (c.91) License and 401 Water Quality Certificate (WQC) 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 is subject to review under the May 2010 MEPA Greenhouse Gas (GHG) Emissions Policy and Protocol ("the GHG Policy").

The project will require 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) of the National Historic Preservation Act. 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 reviews and approvals by the City of Boston.

The project will require authorization under Section 404 of the Clean Waters Act and Section 10 of the Rivers and Harbor Act from the Army Corps of Engineers (ACOE) and 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 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 (FHA)/Federal Transit Administration (FTA).

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 DEIR

Notice of the availability of the DEIR for public review was published in the Environmental Monitor on December 6, 2017. MassDOT requested that the standard 30-day public comment period be extended to 65 days, with a comment deadline of February 9, 2018. Within the comment period, MassDOT held public informational meetings in Allston (December 5, 2017), Brookline (December 12, 2017) and Cambridge (January 3, 2018).

The DEIR was generally responsive to the Scope included in the Certificate on the ENF. It provided a detailed project description, identified environmental impacts and proposed mitigation measures. The DEIR analyzed alternative designs of project components, including West Station, vehicular and non-vehicular access to and from the station and the replacement of the Franklin Street Pedestrian Bridge. The three Throat Area variations were fully evaluated with respect to project goals, compatibility with other project components, environmental impacts, consistency with planning goals and constructability. Technical appendices, including but not limited to studies of traffic operations, transit ridership, air quality, and design alternatives, provided detailed data and analysis in support of the findings presented in the DEIR. The DEIR included responses to comments on the ENF and draft Section 61 Findings.

The DEIR reviewed MassDOT's public process for this project, including meetings with the Project Task Force and the general public, and how it influenced the evolution of the project design. MassDOT has also committed to voluntarily evaluating the project in accordance with the EEA Environmental Justice (EJ) Policy, including enhanced public participation. According to the DEIR, the project's impacts potentially affecting EJ communities include land acquisition and job displacement, air quality and increased noise levels and traffic congestion; however, MassDOT does not believe that these impacts will disproportionately affect EJ communities.

The ENF presented the project design at a conceptual level. Further development of the project design and construction phasing has resulted in changes. The Opening Year for Phase 1 of the project, including most roadways and bicycle and pedestrian facilities, has been adjusted from 2020 to 2025 to reflect status of the project design and permitting. To establish future conditions, the project design year was adjusted from 2035 to 2040 to be consistent with the planning, land use and infrastructure assumptions for other MassDOT projects and transportation planning in the Boston metropolitan region.

Alternatives Analysis

The DEIR included analyses of alternative designs and options of key project components, including the Throat Area Variations; the design of West Station; pedestrian, bicycle and vehicular connections between West Station and areas to the north and south; the rail yard; and the replacement of the Franklin Street Bridge. It compared the interchange Preferred Alternative, known as 3K, to the 3J design presented in the ENF. Where appropriate, the DEIR included a comparison of the alternatives to a No Build alternative and, in the case of the

transportation analyses, to a 2025 Opening Year alternative. This section includes an analysis of the three Throat Area alternatives; alternative design options for other project components are included in the sections describing those components.

Existing I-90 Viaduct and Throat Area conditions

As described previously, the existing viaduct is deteriorating and requires significant repair or replacement. The viaduct is approximately 2,500 feet long and 108 feet wide. It carries four 11.5-foot wide travel lanes in each direction with shoulders averaging one foot in width. The western end of the viaduct is bordered to the south by BPY. East of BPY, buildings and facilities on the Boston University campus abut the southern edge of the viaduct. The viaduct generally runs parallel to the Charles River, which is located approximately 100 feet to the north. The four-lane SFR runs between the river and the viaduct, with two 11-foot lanes in each direction, a four-foot wide median and one-foot wide shoulders. The PDW is located between SFR and the river and is generally 8.5-ft wide in this section. Two WML tracks run under the southern side of the viaduct and a single GJR track extends from the Throat Area. At the eastern end of the viaduct, I-90 veers away from the river before passing under Commonwealth Avenue, and the GJR crosses over SFR and across the Charles River on a multi-span bridge.

Evaluation criteria

The No Build and 3K-HV, 3K-ABC and 3K-AMP Build alternatives were evaluated based on the following criteria: pedestrian, bicycle and transit mobility; traffic safety; traffic operations; community cohesion; future development; rail operations for commuter rail service, GJR and layover; cost; construction schedule; and, regulatory compliance.

No Build Alternative

The No-Build alternative includes rehabilitating the structure, upgrading its structural load capacity, and slightly increasing its travel lane width with new bridge railing and median barriers and eliminating the existing safety walks. The rehabilitation would include:

- Replacement of the bridge deck, including new safety barriers that conform to current crash standards and placement of an asphalt overlay to improve the driving surface and provide additional protection for the bridge deck.
- Replacement of all steel stringers to improve the load rating of the viaduct.
- Strengthening and repair of the cross girders.
- Strengthening and repair of the concrete columns and foundations, including Fiber-Reinforced Polymer (FRP) wrap to improve lateral capacity, repair of the interface between columns and pile caps where necessary and replace the bearings under cross girders to reduce load onto the foundations.

Many comments request that the No-Build Alternative be rejected. Inclusion of a No-Build Alternative in an EIR is required by MEPA regulations and a standard element of transportation analysis. It establishes existing and future conditions for the purpose of comparing

impacts of the proposed project and alternatives. As such, analysis of the No Build Alternative must be included in the FEIR.

Highway Viaduct Variation ("3K-HV")

This alternative is a refinement of the design presented in the ENF. As described in the DEIR, this option resembles existing conditions, with I-90 on a viaduct and SFR and railroad tracks at grade. This design includes the following features:

- A viaduct with a total width of 126 feet and 9 inches overhanging SFR by approximately 6 feet;
- The cross-section of I-90 in each direction includes four 12-foot travel lanes, 4-foot wide left shoulders and 8-foot wide right shoulders;
- A single GJR track crosses SFR over the existing rail bridge but the design preserves the ability to construct a second GJR track;
- Two GJR tracks below the viaduct continue into the rail yard and through West Station;
- Similar alignment of the two WML tracks as under existing conditions;
- SFR relocated to the south with two 11-foot travel lanes in each direction; and
- A landscaped buffer up to 12 feet wide is provided between the PDW and SFR and PDW increases in width from 8.5 feet to 12 feet.

The DEIR reviewed three additional modifications of the 3K-HV alternative that vary with respect to the width of the proposed viaduct. All three of the modifications include four 12-foot travel lanes in each direction but two were designed with wider shoulders than 3K-HV and one with narrower shoulders. According to the DEIR, the HV-1 option would comply with AASHTO standards by providing full 12-foot wide shoulders on both sides of the highway in each direction and have a total width of 159 feet. Alternative HV-2 would include a viaduct that is 135 feet and 9 inches wide with shoulders that do not meet the AASHTO standard. Alternative HV-4 was designed to have similar dimensions as the existing 108-foot wide viaduct, but would have 12 foot travel lanes and an overall width of 113 feet. According to the DEIR, the wider shoulders included in the HV-1 and HV-2 designs are preferable for their traffic safety and constructability benefits, but would have significant parkland impacts. The HV-4 design would allow SFR to be relocated to the south more than any other alternative and would expand the riverfront parkland by 20 feet, but would not significantly improve traffic safety conditions. The 3K-HV alternative was selected for further evaluation because it provides overall benefits to both traffic safety and open space compared to other HV alternatives.

Appendix B of the DEIR evaluated the feasibility of locating the eastbound lanes of SFR under the northern section of the HV viaduct in order to reduce the cross-section width of this variation and create more riverfront open space. According to the analysis, I-90 and SFR are coincident in this area for approximately 1,200 feet, but the horizontal curves needed to transition SFR under the viaduct would limit the length SFR that could be placed under I-90 to approximately 850 feet. This alternative was determined to have several disadvantages. The northernmost columns supporting the viaduct would have to straddle the SFR eastbound lanes, placing the columns closer to the river and requiring a wider SFR median. In addition, the

northernmost columns would be constructed over the existing location of an MWRA sewer line and could require its relocation.

Railroad Viaduct Variation ("3K-AMP")

This alternative features at-grade roadways with a viaduct carrying two GJR tracks and a shared use path.

- I-90 is constructed slightly below existing grade;
- I-90 cross-section with four 11-foot wide travel lanes in each direction with 2-foot left and right shoulders in the eastbound direction and 3-foot left and right shoulders on the westbound side;
- The two WML tracks are located south of their existing location, requiring the acquisition of 7 feet of property from Boston University;
- Two GJR tracks and a 12-foot wide shared-use path connecting West Station to PDW are carried on a 48-foot wide viaduct over the I-90 eastbound travel lanes;
- A new two-track GJR bridge is constructed over SFR;
- SFR includes two 10-foot travel lanes in each direction and the eastbound land is slightly elevated above I-90 westbound lanes to provide a noise barrier;
- The reconstruction of the GJR bridge provides additional riverfront open space and a straightens the alignment of PDW;
- A landscaped buffer up to 12 feet wide is provided between the PDW and SFR and PDW increases in width from 8.5 feet to 12 feet.

At-grade Variation ("3K-ABC")

- I-90 is constructed slightly below existing grade;
- I-90 cross-section with four 11-foot wide travel lanes in each direction with 2-foot left and right shoulders;
- The two WML tracks are located south of their existing location, requiring the acquisition of 7 feet of property from Boston University;
- Two GJR tracks are located slightly above grade north of the WML tracks;
- A new two-track GJR bridge is constructed over SFR;
- SFR includes two 10-foot travel lanes in each direction and the eastbound land is slightly elevated above I-90 westbound lanes to provide a noise barrier;
- The expanded at-grade cross section of this alternative does not add buffer space between the PFW and SFR and does not permit widening of the PDW in the Throat Area;
- The design may require filling a 420 -sf area of the Charles River to maintain the PDW; and
- The reconstruction of the GJR bridge provides additional riverfront open space and straightens the alignment of PDW.

According to the DEIR, the 3K-HV alternative meets all of the evaluation criteria based on the following. It would achieve the traffic safety and railroad operations goals to a greater

extent than any of the other alternatives. Safety will be improved by providing 12-foot wide travel lanes and shoulders of sufficient width to accommodate break-downs, crashes and manage snow. The alternative provides the greatest degree of flexibility for rail operations and maintains rail service during the construction period. According to the DEIR, the HV variation is comparable to the other Throat Area alternatives with respect to achieving mobility, traffic operations and community cohesion goals. It is comparable to the ABC Variation in terms of cost and construction schedule and similar to the AMP Variation with respect to regulatory compliance. The DEIR indicated that the No-Build alternative is the least expensive option, has the shortest construction period and complies with regulatory requirements; however, it does not include features to improve mobility or traffic or rail operations, and does not meet the evaluation criteria regarding traffic safety, community cohesion or future development.

Additional details of each alternative are provided in the sections below. Comments from ABC assert that the DEIR did not identify all benefits associated with the at-grade alternative and did not sufficiently detail aspects of the HV variation that compare unfavorably to the other options. As detailed in the Scope, the FEIR should provide additional analysis in response to ABC's comments.

Transportation

Pedestrian and Bicycle Facilities

The DEIR reviewed existing and proposed bicycle and pedestrian facilities in the study area. Existing facilities include:

- Sidewalks along both sides of the existing local streets with ramps and pedestrian signals at most intersections;
- Bicycle facilities on Cambridge Street, Western Avenue and North Harvard Street that provide connections to the Paul Dudley White (PDW) shared-use path along the Charles River;
- The 18-mile long PDW shared use path on both sides of the Charles River between Watertown Square and the New Charles River Dam; and
- Franklin Street pedestrian bridge over I-90 from the intersection of Franklin Street and Lincoln Street north of the highway to Cambridge Street south of I-90.

According to the DEIR, intersections with inadequate pedestrian facilities include Cambridge Street at SFR westbound off-ramp/I-90 off-ramp, which lacks pedestrian signals and is not fully equipped with crosswalks and ramps; North Harvard Street at SFR eastbound ramps, which lacks ramps on the south side of the intersection; and Cambridge Street at I-90 on-ramps, where neither crosswalks nor ramps are provided on the south side of the intersections. The PDW averages 8.5 feet in width within the project area.

The project has been designed to improve pedestrian and bicycle facilities in the project area and to establish new and enhanced north-south and east-west connections to adjacent areas. This section will review proposed facilities common to all three Throat Variations.

New and reconstructed roadways within the street grid will be designed in accordance with MassDOT's Complete Streets guidelines, except for the sections of West Connector and East Drive Connector leading to the I-90 ramps. The streets have been designed with the following facilities:

- Cambridge Street: 8-ft wide sidewalks and 6.5-ft one-way bike lanes on each side of the street with buffers between pedestrian and bicycle paths and the bike lane and vehicular way;
- Cambridge Street South: 8-ft wide sidewalk with a 5-ft wide shoulder on its south side and an 8-ft wide sidewalk separated by a planting strip from an 11-ft wide two-way bike path on its north side extending to PDW;
- Sections of West Connector and East Drive Connector north of Cambridge Street South: 8-ft wide sidewalk with a 5-ft wide shoulder;
- Sections of Seattle Street Connector and Cattle Drive Connector between West Station and Cambridge Street: 8-ft wide sidewalk and 6.5-ft wide one-way bike lane on each side of the street; and
- North Connector and Cattle Drive between Cambridge Street and North Connector: 8-ft wide sidewalk with a 5-ft wide shoulder on both sides of the street.

A key connection to be provided by the project is the at-grade pedestrian and bicycle link to PDW via Cambridge Street South. This connection will be established where SFR will be routed in an underpass and realigned to the west to create a widened section of riverfront parkland. Within this new area of parkland, the project will provide separate 12-ft wide bicycle and pedestrian paths; elsewhere, the PDW will be widened to 12 feet throughout the project area, with the exception of the Throat Area where it would be 8.5 feet wide under the ABC variation. The project will also improve conditions for pedestrians and bicyclists by removing the SFR outbound exit ramp to River Street; this space would be used for the separate paths south of the intersection, which would combine into a 16-ft shared use path with an open space adjacent to SFR at the intersection.

The AMP Throat Area variation includes a shared use path on the rail viaduct between West Station and the Charles River near the BU and GJR bridges. Comments from ABC and others note that the at-grade ABC Throat Area variation could accommodate pedestrian and bicycle connections to this area of the Charles River via I-90 overpasses from the Boston University campus and Commonwealth Avenue.

The project will replace the Franklin Street Bridge to the west of its current location in a straighter alignment close to the sections of Franklin Street on either side of I-90. The DEIR reviewed two alternative locations for this bridge. One alternative would be close to its current location, but would require a switchback ramp at the southern end that may have a negative effect on the historic Boston & Albany Railroad Depot. A second alternative considered a similar alignment as the Preferred Alternative, but its southern ramp system would have greater impacts on a developable parcel along Braintree Street.

Two new pedestrian ramps will be constructed to provide pedestrian and bicycle connections between the project area north of I-90 and the neighborhood south of the rail yard.

The project will include twelve-foot wide ramps from West Station to Malvern Street and Babcock Street. Prior to the construction of West Station, the project will include a 12-foot wide bridge connecting Malvern Street to the Seattle Street Connector; this bridge will be modified to connect to the bus concourse of West Station once it is completed. The Malvern Street bridge will require the acquisition of a privately-owned 15-ft wide strip of land.

Public Transportation

The DEIR reviewed existing public transportation service in or near the project area. The MBTA's Framingham/Worcester line includes 27 trips in each direction on weekdays with approximately 26,000 daily boardings. The nearest stations are Boston Landing to the west and Yawkey to the east. The MBTA's Green Line Branch B runs along Commonwealth Avenue south of the project area and carries approximately 26,000 passengers per day. The MBTA operates five bus lines within an approximate half-mile of the proposed location of West Station, including:

- Route 57/57A- Watertown to Kenmore Square;
- Route 64- Oak Square to Kendall Square/MIT or University Park;
- Route 66- Dudley Square to Harvard Square;
- Route 70/70A- Waltham to University Park; and
- Route 86- Sullivan Square and Reservoir.

Bus Routes 57 and 66 are among the most heavily-used in the MBTA's system, with, respectively, 10,094 and 13,933 riders per day. Routes 64 and 66 pass through the project area on Cambridge Street and North Harvard Street.

West Station

The project will include the construction of West Station, a multi-modal transportation facility that will provide a new stop on the Framingham/Worcester commuter rail line, accommodations for bus service, pedestrian and bicycle facilities and vehicular access for passenger drop-off and pick up. The station will be centrally located within the rail yard with a bus concourse level constructed above the southernmost tracks side of the rail yard. The station will include three 380-foot long ground-level platforms from which passengers may board the two commuter rail and two GJR tracks. Access to the concourse level for pedestrians, bicyclists, busses and automobiles will be provided from the north at Seattle Street Connector and Cattle Drive Connector. Bicycle and pedestrian ramps will connect the concourse level to the neighborhood south of the rail yard at Malvern Street and Babcock Street. The AMP Throat Area variation would also provide an approximately 0.5-mile long, 12-foot wide shared use path between West Station and the PDW along the GJR viaduct proposed in that alternative. The station will be fully accessible with elevators and stairs and include benches, trash receptacles, signage, fire protection, back-up power for lighting, and crew quarters. The station design will accommodate rail operations, including CSX and commuter rail train movements, layover space for eight commuter rail train sets and maintenance services.

According to the DEIR, the station was designed to meet the following requirements:

- Platform access to four revenue tracks, including two Worcester Main Line tracks and two GJR tracks;
- A minimum of 18.5 feet clearance above the rail to accommodate trains;
- Limit elevation of the station so as to not preclude air rights development above the rail yard;
- At-grade access to platforms for maintenance and emergency vehicles;
- A bus layover platform with a minimum of five bus loading berths and five bus layover berths; and
- Establish pedestrian and bicycle connections between the neighborhood south of the rail yard and PDW via Cambridge Street South.

Appendix A of the DEIR evaluated alternative West Station design and location options, potential vehicular connections from the station to the south, bus routing on the concourse level and pedestrian and bicycle ramps. The results of the alternatives analysis included the following findings:

- The station and platforms will be centrally located within the rail yard. This location was selected over locations to the east or west because it is not too close to the adjacent Yawkey Way and Boston Landing Stations; the rail yard is at its widest, ensuring that sufficient space will be available for rail operations compared to the narrower sections of the yard to the east and west; and it situated between desirable locations for pedestrian and bicycle ramps at Babcock and Malvern Streets.
- A two-level station design was selected because it will provide access for all users at a lower cost than a three-level station, which would have the advantage of providing pedestrian and bicycle access at a lower level from vehicular access.
- A three-platform configuration, including one 380-foot by 36-foot center platform and two 380-foot by 18-foot side platforms, was selected because it would allow passengers to transfer between the commuter rail and GJR from the center platform and provide at-grade pedestrian access to the southerly Worcester Main Line platform from the south. A two-platform configuration would not allow transfers between the two rail lines. The AMP Throat Area Variation would require a two-platform station design without a platform connection between the GJR and Worcester Mail Line because the tracks would not be at the same grade.
- A two-way bus loop on the concourse level was selected rather than a one-way loop. The two-way loop will maximize loop services while providing bus parking spaces, separation of bus loading form other uses, convenient walking paths between bus and train loading access points, internal and external traffic circulation and pedestrian and bicycle access.
- Pedestrian ramps at Malvern and Babcock Streets were selected over four other alternatives because they minimized the length and area of structure required and associated impacts to adjacent buildings and uses. According to the DEIR, a connection to Agganis Way was rejected because of concerns expressed by Boston University about safety and operational impacts to the campus.

The DEIR analyzed a potential vehicular connection from West Station to Malvern Street with the goal of improving north-south connectivity between the interchange and Commonwealth Avenue. Two options were considered: a roadway connection open to general traffic and one limited to busses only. The transportation-related effects of these alternatives are reviewed in the section of this certificate reviewing traffic operations. No bus or general vehicle connection from West Station to Malvern Street is proposed in the DEIR; however, the design of the station would not preclude such a connection in the future.

West Station Ridership

The DEIR included an analysis of projected commuter rail and bus ridership in the study area, including daily boardings at West Station. The analysis was based on the regional travel demand model prepared by CTPS that was used for the traffic analysis. It reviewed regional transit demand in for 2025 and 2040 under Build (including the proposed interchange) and No Build conditions (without the proposed interchange). The 2025 scenarios assumed the existing level of MBTA services within or in the vicinity of the project area, the operation of a new shuttle bus route between Harvard Square and Barry's Corner (intersection of North Harvard Street and Western Avenue) in Allston, and the development of 1.3 million sf of office/R&D space and a 200-room hotel in the project area as described in Harvard University's Institutional Master Plan. The 2040 No Build scenario was based on the same transit service options as the 2025 models, but included additional development by Harvard for a total of 2.9 million sf.

The 2040 Build scenario included the operation of West Station and assumed a total of approximately 7 million sf of new development in the project area.[2] The model included existing MBTA services and three bus shuttles operating between Harvard Square and West Station, Kendall Square and West Station via Central Square, and Ruggles Square and West Station via the Longwood Medical Area. The 2040 analyses also incorporated regional transit projects, including increased service on the Worcester Main Line and the extension of the MBTA's Green Line to College Avenue and Union Square in Somerville. Based on this analysis, 250 commuter rail riders and 2,250 shuttle bus riders are expected to board at West Station on a daily basis in the Build 2040 scenario.

The DEIR evaluated West Station ridership projections under two additional scenarios. Stadium Way may be constructed by Harvard University as a bus-only street in the southbound direction; with this modification, daily boardings would increase to 270 on the commuter rail and 2,300 on the shuttle buses. The second case evaluated ridership if a vehicular connection open to general vehicle use were made from West Station to Commonwealth Avenue. According to the DEIR, this alternative would result in 220 daily commuter rail boardings and 650 shuttle bus boardings. Traffic operations associated with these alternatives are discussed below.

The DEIR reviewed future capacity of the transit system serving the project area and determined that the project will not cause any exceedances in capacity. Service on the Green Line, Bus Route 66, Bus Route 64, and Bus Route 70/70A will be over capacity in at least one direction during peak periods in the 2025 and/or 2040 Build scenarios. However, the analysis

[2] According to the DEIR, Harvard also has air rights over an approximately 1.5 million sf area over I-90, the interchange and railyard. The potential development of air rights was not included in the transportation model.

demonstrated that capacity on these routes would be exceeded under No Build conditions and would not significantly worsen and may improve under Build conditions.

Traffic

New Allston Interchange and Street Grid

The existing interchange, with at-grade and elevated ramp connections between I-90 eastbound and westbound and Cambridge Street, will be replaced with on- and off-ramps connected to a new urban street grid. The street grid will include a southerly extension of Seattle Street, an easterly extension of Lincoln Street, three new north-south streets called West Connector, Cattle Drive and East Drive Connector, a realigned and reconstructed Cambridge Street and a new east-west street between Cambridge Street and I-90 called Cambridge Street South. The streets will have two 11-ft travel lanes in each direction with additional left and/or right turn lanes at some intersections. Sections of Cambridge Street will also include on-street parking or additional space for bus stops. As described above, pedestrian and bicycle facilities will be included along each street.

The existing I-90 eastbound left-lane exit will be replaced with a right-lane exit on the south side of I-90 that will provide access to the street grid north of I-90 via left turns at signalized intersections at Seattle Street Connector and Cattle Drive. Access to eastbound I-90 will be provided through these intersections in the reverse direction. The I-90 westbound off-ramp will provide access to the street grid via a free right turn at East Drive Connector and a signalized intersection of the West Connector and Lincoln Street Connector intersect with the off-ramp. A ramp to westbound I-90 will be accessed from East Drive Connector and West Connector. Connections to Allston neighborhoods north and south of I-90 will continue to be provided via Cambridge Street.

Under existing conditions, Soldiers Field Road (SFR) is connected to the I-90 ramps either directly or via Cambridge Street. The project will create new connections between both directions of SFR and I-90 and local streets at the eastern end of Cambridge Street South. A new one-way street north of Cambridge Street called the North Connector will provide access from SFR inbound to the street grid at Cattle Way and the existing right turn onto SFR inbound will be maintained. As described in the DEIR, MassDOT proposes to eliminate the existing SFR westbound off-ramp at River Street, which currently provides access to Cambridge Street/I-90 and River Street, will be removed to accommodate a wider shared-use path and improved traffic operations. Vehicular access to River Street by westbound traffic on SFR will be provided via the SFR exit at Cambridge Street South, followed by right turns at East Drive Connector and Cambridge Street.

Traffic Operations under Existing and Proposed Conditions

The DEIR included a detailed Traffic Operations Study in Appendix C that described existing and proposed traffic volumes and conditions, anticipated trip generation rates, crash rate data, and level-of-service (LOS) operations at signalized and unsignalized intersections in the

transportation study area. Future conditions were modeled for the proposed roadway configuration and were based on estimates of future traffic volumes.

The study area included the following local and regional roadways and intersections:

- I-90 eastbound and westbound mainline;
- I-90 eastbound and westbound on- and off-ramps;
- Soldiers Field Road;
- Memorial Drive;
- Cambridge Street;
- North Harvard Street;
- Western Avenue;
- Harvard Avenue;
- Linden Street;
- Cambridge Street at Harvard Avenue;
- Cambridge Street at Lincoln Street;
- Cambridge Street at North Harvard Street;
- Cambridge Street at Windom Street;
- Cambridge Street at I-90 eastbound/westbound off-ramps and SFR;
- River Street at Memorial Drive;
- Western Avenue at North Harvard Street;
- Western Avenue at Hague Street and Batten Way;
- Western Avenue at SFR;
- Western Avenue at Memorial Drive;
- North Harvard Street at SFR eastbound ramps;
- North Harvard Street at SFR westbound ramps;
- North Harvard Street at Memorial Drive and JFK Street;
- Cambridge Street at Linden Street;
- Cambridge Street at Sorrento Street;
- Cambridge Street at Seattle Street; and
- North Harvard Street at Spurr Street.

Existing Conditions

Traffic volumes in the study area were derived from counts of vehicular traffic collected from 2012 to 2014. The counts were adjusted to reflect average annual conditions and increased by 0.25 percent per year to estimate conditions in the 2015 base year. According to the DEIR, the analysis of roadway and intersections was conducted in accordance with the methodology defined in the Transportation Research Board's 2010 *Highway Capacity Manual* (5^{th} edition) using SYNCHRO software. Vehicle queuing at intersections was simulated using SimTraffic. Traffic operations during morning (AM) and evening (PM) peak hours were summarized using the Level of Service (LOS) indicator. For highways, LOS is calculated based on the density of passenger cars on a roadway segment or area influenced by vehicular merge/diverge movements at on- or off-ramps. Vehicular operations are defined by LOS values ranging from A to F, where LOS A represents a relatively low density of vehicles and LOS F indicates that the capacity of

the highway has been exceeded. The LOS of an intersection reflects the average delay per vehicle. According to the DEIR, LOS D, representing a delay of 35 to 55 seconds, is considered the design standard for suburban intersections; LOS E represents delays up to 80 seconds and is considered the minimum acceptable threshold for urban intersections.

The MassPike carries approximately 154,000 average daily trips (adt). According to the analysis, I-90 generally operates at LOS D or better during peak periods; Exit 20 eastbound on-ramp and the highway section east of the on-ramp operate at LOS E due to congested conditions caused by the high volume of traffic merging onto the highway from the two-lane on-ramp.

Five of the seventeen intersections in the study area operate at LOS F during the AM and/or PM peak periods. The intersection of Cambridge Street and the I-90 off-ramps at SFR operates at LOS F during both peak periods, with delays of approximately 100 seconds or more and long vehicle queues. The intersections of Harvard Avenue at Cambridge Street, Cambridge Street at Windom Street, and Memorial Drive at River Street operate at LOS F in the AM peak period.

Proposed Conditions

Future traffic operations were modeled for 2040 No Build and 2040 Build conditions. In addition, the analysis included an evaluation of traffic operations under a 2025 Opening Year scenario. The roadway configuration in the 2040 No Build would be similar to the existing network, with the addition of Stadium Way that would be constructed by Harvard University between North Harvard Street and Cambridge Street. The 2040 Build condition assumes 7 million sf of development, that the proposed local street network, interchange, I-90 and SFR conditions are in place, West Station is in operation and additional roadways to be constructed by Harvard, including an extension of Stadium Way across Cambridge Street to Cambridge Street South, sections of Cattle Drive and East Drive north of the North Connector, and Hotel Drive between Cattle Drive and SFR, have been completed. The 2025 Opening Year scenario was modeled to reflect the opening year of the project roadways without West Station or the streets to be constructed by Harvard University, and it assumes the development of 1.3 million sf of office and R&D space and a 200-room hotel. According to the DEIR, the three Throat Area Variations are similar with respect to traffic volume forecasting and traffic operations; Variation 3K-HV was used in the models to represent all three variations.

Future conditions included projections of regional employment and population changes prepared by the Metropolitan Area Planning Council (MAPC) and the Boston Planning and Development Agency (BPDA). The CTPS model generated data representing future trip origins and destinations among 2,727 Traffic Analysis Zones (TAZ) in 101 municipalities in eastern Massachusetts to forecast traffic volumes on I-90, the interchange and local roadways and intersections in the traffic study area. The model included existing and proposed transit, pedestrian/bicycle and roadway conditions to determine travel mode shares for the trips among origin and destinations. Transit mode shares determined by the CTPS model are presented in Table 1; the model does not forecast any significant change in mode share, with automobile shares of 56 to 58 percent expected under all model scenarios.

Table 1: Mode Shares (Daily)

	Existing	2025 Build	2040 No Build	2040 Build
Transit	17%	15%	18%	17%
Auto	57%	58%	56%	58%
Ped/Bike	26%	27%	26%	25%

Table 2 summarizes projected trip volumes and indicators of vehicular traffic operations for the 2025 Opening Year, 2040 No Build and 2040 Build scenarios in comparison to existing conditions. Trip volumes listed for the project area include four TAZ representing areas to be developed by Harvard University.

According to the DEIR, traffic on I-90 will continue to operate at LOS D/LOS E or better for both peak hours under 2040 No Build and 2040 Build conditions. In the 2040 No Build condition, delays at intersections will generally increase, but the LOS at study area intersections is not expected to change significantly; however, with the addition of Stadium Way, traffic on North Harvard Street north of Cambridge Street will decrease, but traffic volume will increase on the section of Western Avenue providing access to Stadium Way.

As shown in Table 2, peak hour traffic in the 2040 Build condition will be significantly higher than in the Existing, 2025 and 2040 No Build conditions. Traffic operations under 2040 Build conditions are not directly comparable to Existing or 2040 No Build conditions due to changed travel patterns on the new ramp system and local street network. All 2040 Build intersections are expected to operate at LOS E or better except North Harvard Street at SFR ramps (LOS F) and Western Avenue at Memorial Drive (LOS F in PM peak hour).

Table 2: Trip Volumes (Average Daily Trips)

	Existing	2025 Build	2040 NB	2040 Build
Project Area				
Daily Person trips	38,626	51,188	66,995	96,353
Daily vehicle trips	22,208	29,857	37,637	55,600
Daily ped/bike trips	10,002	13,742	17,164	23,930
Daily transit trips	6,416	7,589	12,194	16,823
AM Total vehicle trips	979	1,458	1,850	2,748
PM Total vehicle trips	1,629	2,240	2,872	4,244
I-90				
East of Allston Interchange	154,000	157,200	162,900	160,100
West of Allston Interchange	141,000	146,200	147,000	149,500
SFR West of Western Ave	68,950	66,975	67,700	66,825
# local intersections at LOS F	5 of 17	3 of 26	6 of 17	2 of 34

The DEIR evaluated 2040 Build traffic operations under two additional scenarios. Harvard University has indicated that it may construct Stadium Way as a bus-only street in the southbound direction (toward West Station) between Western Avenue and Cambridge Street South. Turns onto Stadium Way southbound from Western Avenue, North Connector Road and Cambridge Street would be restricted to busses and automobile trips would be redistributed to other streets in the area. According to the CTPS model, this restriction would affect 295 vehicles in the morning peak hour and 405 in the evening peak hour in the 2040 Build condition. According to the DEIR, these trips could be accommodated by the other proposed north-south roadways without significant impacts to traffic operations.

Vehicular Connection to Commonwealth Avenue

As requested in the Certificate on the ENF, the DEIR analyzed traffic operations of a vehicular connection (Malvern Street Extension) across West Station linking the new street grid north of I-90 and Commonwealth Avenue. The DEIR evaluated options for the use of the connection by general traffic or by busses only. A north-south connection would provide needed additional routes between the interchange area and points north in Cambridge to the Longwood Medical Area. It was advocated by Task Force members and received strong support from many commenters. I received many comments from residents in the Malvern Street area who strongly object to the general traffic option because of its likely impacts on the neighborhood, and raised concerns about how the bus-only option could be enforced.

The northern end of the Malvern Street Extension would be at the intersection of the I-90 eastbound off-ramp and Seattle Street Connector. It would extend through West Station, intersect with Ashford Street at its existing intersection with Malvern Street and end at Packards Corner, where Commonwealth Avenue and Brighton Avenue intersect. Modifications to intersection geometry and signals would be required to accommodate this traffic pattern.

The CTPS model projected 1,065 northbound trips and 660 southbound trips on Malvern Street Extension in the morning peak hour and 1,050 northbound trips and 1,060 southbound trips in the evening peak hour. Origin/destination data was used to determine the distribution of these trips on area roadways. For this analysis, the traffic study area was expanded to include an additional 13 intersections in the vicinity of Malvern Street, Brighton Avenue and Commonwealth Avenue to assess roadway operations under both Malvern Street Extension alternatives. The analysis determined that traffic operations on Cambridge Street and Harvard Street would improve due to decreased peak period traffic volumes, but increased traffic volumes on roadways south of the rail yard would cause significant impacts to traffic operations on Malvern Street, Ashford Street and Packards Corner. The northern end of the Malvern Street Extension at the intersection of the I-90 eastbound off-ramp and Seattle Street Connector would also be affected by significantly degraded traffic operations.

Traffic operations for the bus-only option were evaluated for the same route as was used in the general traffic option, plus three additional southbound routes to Commonwealth Avenue that would avoid Packards Corner. The southbound route alternatives were evaluated because the introduction of a new traffic signal to allow southbound busses to make a left turn from Malvern Street onto Commonwealth Avenue eastbound would cause significant impacts to traffic

operations at Packards Corner. One alternative would use a route from Malvern Street to Gardner Street to Babcock Street. Two other routes would use a new bus-only roadway from the east end of West Station that would connect to the BU Service road behind Agganis Way in the vicinity of the intersection of the North Service Road and Agganis Way to Buick Street; the third alternative used this route but assumed one-way eastbound/southbound operations on North Service Road and Buick Street.

According to the DEIR, Malvern Street to Gardner Street eastbound to Babcock Street southbound to Commonwealth Avenue is the least disruptive southbound route. In the northbound direction, the DEIR recommended a more direct route from Commonwealth Avenue westbound to Brighton Avenue to Malvern Street and West Station. These bus routes would not be expected to have a significant impact on Packards Corner and would minimize impacts to the Boston University campus. Boston University expressed concern about the use of Babcock Street for this bus route because of its heavy use by students and other users of its athletic complex, and recommended that a southbound route using Malvern Street alone or in conjunction with Alcorn Street should be considered

According to the analysis, the bus-only option would not have significant impacts at most study area intersections. However, it would cause increased delays and congestion at three intersections east of Packards Corner and degrade the LOS at Pleasant Street at Harry Agganis Way and St. Paul Street at Buick Street.

Rail Operations

The MBTA has identified the need for additional rail layover space to address existing and future Amtrak and MBTA service expansions and other planned improvements. Layover facilities are used to store, service, inspect, and maintain trains when they are not in service. The need for layover space and an analysis of 38 potential layover locations was included in the reviewed by MEPA in connection with the MBTA's South Station Expansion project (EEA # 15028). The former BPY area was identified as a location that will allow the MBTA to meet its current need for additional layover capacity for commuter rail operations on the tracks west of South Station.

Existing Conditions

The rail yard currently has six layover tracks located adjacent to the two tracks of the WML. The WML is used by the MBTA's Worcester and Framingham commuter rail line, Amtrak's Lake Shore Limited service and CSX freight service. The WML is connected to the west end of the rail yard just west of the Cambridge Street bridge and to the east end through crossovers located in the Throat Area. The GJR is a single-track branch of the WML that runs from the rail yard through the Throat Area and across the Charles River to the MBTA's Commuter Rail Maintenance Facility and the Fitchburg Line. It provides an important link between trains serving the MBTA's southern commuter rail lines and the maintenance facility. The GJR is also used by Amtrak to transfer equipment between the north and south sides of its system and by CSX to deliver freight to the New England Produce Center in Chelsea. Trains

accessing the GJR from the Worcester Main Line must first enter the rail yard and cross-over in the Throat Area.

Proposed Conditions

The project will provide layover space for MBTA commuter rail trains and improve operations in the rail yard. Rail yard improvements include new and reconstructed tracks, welded rail to minimize noise generated by moving trains, new turnouts, and power plug-ins to provide power to trains when the engine is off. The four existing layover tracks, accommodating 8 train sets, will be reconstructed and realigned in Phase 1. Four additional permanent layover tracks will be constructed north of the MBTA easement area in Phase 2. The temporary layover tracks will be removed in Phase 3 in connection with the construction of West Station. According to the DEIR, the AMP Throat Area variation does not permit the temporary expansion of layover space because of track changes associated with the transition of the GJR tracks from the viaduct to the rail yard grade.

The project will improve railroad operational flexibility by adding siding tracks and upgrading interlockings. The two siding tracks will extend from the eastern project limits near Commonwealth Avenue to Boston Landing Station west of the rail yard. Together with upgrades to interlockings, the sidings will provide flexibility to railroad operations by facilitating the movement of trains from one track to another to reduce the number of operational conflicts.

Rail operations would be affected differently by each of the Throat Area variations. According to the DEIR, the HV variation would provide the most efficient rail operations in this area. The HV variation would add two tracks in the Throat Area to provide more flexible connections to the GJR. Two existing crossovers, which enable a train to be diverted between two parallel tracks, will be moved from their current location in the eastern part of the project area to the Throat Area to allow more flexibility in switching trains between all of the rail lines. This configuration will allow non-revenue train movements into or out of the rail yard to clear the WML on the GJR and clear WML track space for passenger trains. The two GJR tracks to be provided will merge into a single track before traveling over the GJR bridge.

According to the DEIR, the ABC variation would also improve rail operations in the Throat Area by relocating the crossovers to the west. However, this variation requires that the GJR cross I-90 on a bridge in the eastern section of the Throat Area. The change in the grade of the GJR would prevent trains from switching back and forth between the WML and GJR tracks, and the crossovers would have to be located west of grade change. Due to space restrictions, the distance between successive crossovers would be less than the length of a train and could lead to operational delays.

Because the AMP variation would place the GJR tracks on a viaduct east of West Station, it would not be possible to make connections between the WML and GJR due to grade differences between the tracks. The crossovers would be relocated west of West Station, requiring all GJR-bound freight and non-revenue trains to pass through the station to access the elevated GJR tracks.

Parkland

The project site includes 11.7-acres of parkland in DCR's Charles River Reservation, including SFR, the PDW and adjacent open space areas. These areas are protected as parkland under Article 97. Within the project area, parkland is generally confined to the 8.5-ft wide PDW shared use with little buffer between the path and SFR.

As described above, each of the Throat Area variations would require the use of DCR parkland. According to the DEIR, constructing I-90 at grade would require the use of 47,000 sf (1.08 acres) of parkland in the ABC alternative and 24,000 sf (0.55 acres) of parkland in the AMP design. The I-90 viaduct option (HV) would require the use of 15,250 sf (0.35 acres) of parkland for support piers and realignment of the GJR.

Conversion of parkland protected under Article 97 requires a two-thirds vote of the Massachusetts legislature. The DEIR reviewed the project's compliance with the EEA Article 97 Policy, including the six criteria for determining when "exceptional circumstances" exist such that a disposition of Article 97 land may be appropriate:

- *The Proponent of the disposition must conduct an analysis of alternatives, commensurate with the type and size of the proposed disposition, that achieve the purpose of the disposition without the use of Article 97 land, such as the use of other land available within the appropriate market area;*

  According to the DEIR, the roadways and rail tracks must be located in this area and space constraints make impacts to parkland unavoidable by all three alternatives. A highway viaduct design with a narrower cross-section that could avoid encroachment into parkland would not provide roadway safety improvements.

- *The disposition of the subject parcel and its proposed use may not destroy or threaten a unique or significant resource (e.g., significant habitat, rare or unusual terrain, or areas of significant public recreation);*

  None of the alternative designs would destroy or threaten a unique or significant resource because the impacts are generally located where transportation uses currently exist and impacts to the river are avoided or minimized.

- *Real estate of equal or greater value, and of significantly greater resource value is granted to the disposing agency;*

  The DEIR identified new open space that will be created by the project and land area to be conveyed to DCR. Each alternative would convert DCR land currently occupied by SFR to publicly accessible open space and convey land to DCR in excess of its impact:

- HV variation: convert 3.71 acres of DCR land to open space and convey 3.59 acres of land to DCR;
- AMP variation: convert 3.77 acres of DCR land to open space and convey 3.53 acres of land to DCR; and
- ABC variation: convert 3.28 acres of DCR land to open space and convey 3.22 acres of land to DCR.

- *The minimum necessary area of Article 97 land should be included in the disposition and the existing resources continue to be protected to the maximum extent possible;*

  According to the DEIR, each variation will minimize the use of Article 97 land needed to implement the design and will enhance and expand parkland.

- *The disposition serves an Article 97 purpose or another public purpose without detracting from the mission, plans, policies and mandates of EEA and its appropriate department or division; and*

  The parkland used by the project serves a public purpose related to the transportation use of I-90, SFR and the railroads.

- *The disposition is not contrary to the express wishes of the person(s) who donated or sold the parcel or interests to the Commonwealth.*

  The parkland was acquired by DCR's predecessor agency in the late 1800s- early 1900s and the construction of SFR was legislatively authorized in 1926. Comments from DCR indicated the potential for the project to enhance public access to the Charles River Reservation.

The project will create open space by reconstructing SFR further away from the river. The most significant expansion of open space will be provided east of the interchange where the parkland will expand from 14 feet to 155 feet. The realigned SFR will be constructed in a boat section in this area so that the separated bicycle and pedestrian paths on Cambridge Street South can be extended to the other side of the roadway. As noted by DCR, this connection will provide a vital link to the PDW and Charles River Reservation that will enhance the public's use and enjoyment of the Charles River Reservation.

Wetlands and Waterways

Wetland resource areas associated with the Charles River are present in the project area, including Land Under Water (LUW), Inland Bank, and Bordering Land Subject to Flooding (BLSF).[3] The project area contains jurisdictional tidelands along the Charles River and SFR from the BU Bridge to the Cambridge Street/River Street intersection and landlocked tidelands in the

[3] Riverfront Area is also present, but not regulated in accordance with the Wetlands Protection Act because the project requires a Chapter 91 License.

intersection area. According to MassDEP, the ABC Throat Area variation as described in the DEIR may not be permittable due to its impacts to Bank and regulated tidelands.

The project will directly impact 90 linear feet (lf) of Bank and 240 sf of LUW in connection with the installation of one new stormwater discharge pipe, removal of six outfall pipes and replacement of three stormwater discharge pipes in the Charles River. In addition, the ABC variation may require the construction of a retaining wall and placement of fill to shift the PDW toward the river. The placement of 2,300 cy fill would permanently alter 420 sf of LUW, 330 lf of Bank and 2,300 cubic feet (cf) of BLSF and temporarily impact 3,300 sf of LUW and 20 lf of Bank during construction. A wildlife habitat evaluation will be performed to determine if the Bank provides significant wildlife habitat functions. The ABC variation may require a variance from the Wetlands Protection Regulations (310 CMR 10.00) performance standard that limits the alteration of Bank providing important habitat functions to 50 lf. According to MassDEP, this alternative would be unlikely to be permitted because alternatives with fewer impacts are available. The ABC variation also includes the placement of fill in the floodplain that would require mitigation by replacing the lost flood storage volume.

The project will require a c. 91 license for activities within filled tidelands, including the conversion of SFR to parkland, outfall construction and removal and 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. Each of the three Throat Area variations will improve public access to tidelands by converting a section of SFR to parkland. However, pursuant to 310 CMR 9.32(1)(a)(3), structures to accommodate public pedestrian access on flowed tidelands are allowed only when it is not reasonable to locate such structures above the current high water mark or within the footprint of existing pile-supported structures or pile-fields. According to MassDEP, the ABC variation's impacts to flowed tidelands do not meet this standard because alternatives above the high water mark are available. If the ABC variation is adopted as the Preferred Alternative, its design should be revised so as to have no impacts on the flowed tidelands of the Charles River.

Public Benefits Determination

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 reviewed the project's compliance with the Public Benefit Determination regulations (301 CMR 13.00). The purpose of the project is to improve public transportation infrastructure, including West Station, commuter rail layover facilities and the reconstructed interchange and highway. The project will provide new and improved pedestrian and bicycle facilities, increase the amount of parkland along the Charles River, and install a new stormwater management system to improve water quality. As noted by DCR, the construction of an at-grade pedestrian connection over SFR will provide a vital link to the PDW and Charles River Reservation that will enhance the public's use and enjoyment of the Charles River Reservation.

Stormwater Management

Approximately 78.4 acres of the project area consists of impervious surfaces that drain into the Charles River. The DEIR provided a description of the existing drainage systems and outfall locations. The existing drainage systems are owned and managed by MassDOT, DCR, the Boston Water and Sewer Commission (BWSC), the MBTA and Harvard University.[4] Runoff from the existing I-90 interchange area is directed to an 84-inch diameter pipe that splits into three 42-inch pipes that discharge into the Charles River. Runoff from a portion of the interchange north of Cambridge Street is pumped into the 84-inch pipe by Pump Station No. 1. Runoff from the viaduct is conveyed to MassDOT's Pump Station No. 2, which pumps the stormwater into the Charles River through a BWSC box culvert, or through an oil separator and into the BWSC's Salt Creek Culvert. Runoff from SFR is discharged untreated into the Charles River through a series of outfalls. In general, runoff receives little or no treatment prior to discharge into the river.

The project will reduce the area of impervious surface in the project area. According to the DEIR, impervious area would be reduced by 6.3 acres (5 percent) under the AMP variation, by 4.7 acres (4 percent) under the AMP variation, and by 3.6 acres (3 percent) under the HV variation.

The DEIR described the proposed stormwater management systems and Best Management Practices (BMPs) for each system.

- MBTA System (rail yard and WML): Runoff will be managed through an underdrain with BMPs, including drip pans, oil/water separators, subsurface infiltration chambers, porous pavement and deep sump catch basins. Pump Station 1 will be removed.

[4] Harvard's comment letter indicates that it is not responsible for operation or maintenance for any part of the stormwater management system. BWSC's comment letter indicates that ownership of stormwater infrastructure constructed by Harvard will be transferred to BWSC.The FEIR should clarify stormwater management responsibilities.

- MassDOT system (I-90 and interchange): Stormwater will be collected by curbs and gutters and directed to subsurface infiltration chambers, infiltration basins/swales, sediment forebays/isolator rows and deep sump catch basins. The three 42-inch pipes that discharge into the river will need to be removed due to the SFR underpass and will be replaced with a new pipe south of the underpass.

- BWSC system (Cambridge Street and connector roads): All new drainage infrastructure will be installed, including trunk lines sized to accommodate runoff from future development. BMPs will include subsurface infiltration systems, enhanced tree trenches, water quality units and deep sump catch basins. No new BWSC outfalls are proposed.

- DCR system (SFR): New collection and conveyance systems will be installed. Some existing outfalls will be used and the other removed. Due to space limitations, BMPs will be installed where possible and will include infiltration basins/swales, sediment forebays and deep sump catch basins.

The DEIR indicated that prior to interchange construction, Harvard will construct a new stormwater outfall into the Charles River that will direct runoff from a 45-acre area away from MassDOT's drainage system. According to BWSC, Harvard will transfer ownership of this stormwater infrastructure to BWSC.

In the Throat Area, limited space is available to construct BMPs for the ABC and AMP variations. In addition, subsurface drainage systems associated with these alternatives may be located below groundwater, and may require pumping to facilitate drainage of the roadway under some conditions. The ABC and AMP drainage systems will direct drainage to a relocated Pump Station No. 2, which will discharge the runoff with minimal treatment into the Charles River. The HV variation design includes an infiltration swale below the viaduct that will provide treatment before the water is directed to Pump Station No. 2 and discharged into the river. According to the DEIR, the project will meet the MassDEP Stormwater Management Standards (SMS) for redevelopment projects. The BWSC requires that any runoff directed to its system must infiltrate the first one-inch rainfall volume. MassDOT should consult with BWSC prior to filing the FEIR to provide the additional information and analysis requested by BWSC.

Total Maximum Daily Loads (TMDLs) for nutrients and pathogens have been established for the Charles River. The target removal rate for these pollutants is 64 percent for nutrients and 99.5 percent for pathogens. According to the DEIR, the HV variation drainage system will remove 66 percent of nutrient and the ABC and AMP variations will remove 59 percent of nutrients. The DEIR did not address the pathogen TMDL. The primary sources of pathogens in the Charles River are illicit sanitary sewer connections to storm drains.

Air Quality

The DEIR provided a review of applicable air quality regulations and standards, a summary of MassDEP's air quality monitoring data and provided mesoscale air quality analyses for existing and proposed conditions. Emissions factors from motor vehicles and buses were calculated using the EPA's MOVES program; for locomotives, emissions factors were obtained

from the EPA's air quality regulations at 40 CFR Chapter I, Subchapter U, Part 1033 ("Control of Emissions from Locomotives"). The mesoscale and microscale air quality analyses were based on traffic volumes and operations predicted in the traffic study and emissions from rail yard and commuter rail operations. Under existing conditions, levels of air pollutants, including carbon monoxide (CO), nitrogen dioxide (NO_2), ozone, lead, Fine Particulate Matter ($PM_{2.5}$), Coarse Particulate Matter (PM_{10}) and Sulfur Dioxide (SO_2) are 80 percent or less of the values in the National Ambient Air Quality Standards (NAAQS) and Massachusetts Ambient Air Quality Standards (MAAQS).

As requested in the ENF Certificate, the DEIR included a criteria pollutant and GHG emissions inventory for motor vehicles and intercity buses. As shown in the table below, emissions of air pollutants are expected to decline significantly with stricter regulations and pollution control technology; the 2040 No Build emissions were modeled to be 63 percent lower than in 2015. Additional traffic volumes reflected in the 2040 Build condition will increase emissions by 17 percent compared to 2040 No Build, but will be significantly lower than existing 2015 emissions. All three Throat Area variations were modeled with the same emissions.

Table 3: Project-related Emissions Inventory (tpy)

	VOC	NOx	PM_{10}	$PM_{2.5}$	CO	SO_2	CO_2
2015 Existing	12.78	61.79	1.26	1.17	460.41	1.38	72,447.03
2040 No Build	3.52	12.65	0.71	0.65	155.91	0.41	56,948.81
2040 Build	4.18	14.84	0.86	0.77	171.14	0.47	63,845.82

A CO hot spot analysis under Build 2040 conditions was conducted at five intersections: Harvard Avenue at Franklin Street and Cambridge Street, Cambridge Street at Lincoln Street, Cattle Drive Connector at Cambridge Street, Memorial Drive at Western Avenue and North Harvard Street at JFK Street and Memorial Drive. Modeled concentrations of CO were below the NAAQS one-hour and eight-hour NAAQS/MAAQS values at all of the intersections.

The DEIR evaluated predicted emissions for each of the Throat Area alternatives including a $PM_{2.5}$ hot spot analysis and NO_2 dispersion modeling. The analysis found that the highest annual maximum concentrations of both pollutants would occur at the corner of Harry Agganis Way and Buick Street for the HV and AMP variations; for the ABC variation, the highest concentrations would occur near BU's Nickerson Field. The three alternatives will have the same concentrations of 24-hour and annual $PM_{2.5}$ and will be below the NAAQS. The HV variation will produce the lowest one-hour and annual concentrations of NO_2, but emissions from all three variations will be well below the NAAQS.

Climate Change/GHG

Executive Order 569: Establishing an Integrated Climate Change Strategy for the Commonwealth (EO 569) was issued on September 16, 2016. EO 569 recognizes the serious

threat presented by climate change and directs agencies within the administration to develop and implement an integrated strategy that leverages state resources to combat climate change and prepare for its impacts. The Order seeks to ensure that Massachusetts will meet greenhouse gas emissions reduction limits established under the Global Warming Solution Act of 2008 (GWSA) and will work to prepare state government and cities and towns for the impacts of climate change. An integrated statewide climate change adaptation and hazard mitigation plan will be prepared and agencies will conduct vulnerability assessments. Using the best available information and data on observed and projected climate trends and impacts, the state plan will provide clear guidance and strategies to proactively address these impacts through adaptation and resiliency measures and will highlight approaches for ensuring that adaptation and resiliency efforts complement efforts to reduce greenhouse gas emissions and conserve and sustainably employ the natural resources of the Commonwealth.

The GHG Policy and requirements to analyze the effects of climate change through EIR review is an important part of a statewide strategy. These analyses advance proponents' understanding of the projects contribution and vulnerability to climate change.

Greenhouse Gas Emissions

The DEIR included an analysis of stationary-source GHG emissions and mitigation measures for West Station. It compared the emissions associated with the station's use of electricity under a Base Case to emissions under a station design that incorporates energy efficiency measures to reduce the station's energy use and GHG emissions. West Station will be designed with energy-efficient LED lighting and high-efficiency elevators with Variable Voltage Variable Frequency regenerative drives. According to the DEIR, these mitigation measures would reduce the station's energy use from 331 Megawatt-hours per year (MWh/yr) to 210.3 MWh/yr, a reduction of 36.5 percent. The mitigation measures would reduce GHG emissions from 123.6 tpy to 78.5 tpy. The DEIR also analyzed the potential energy generation of a 301-kilowatt (kW) solar photovoltaic (PV) system mounted on the bus canopy. The analysis demonstrated that the system could generate 310.8 MWh/yr, meeting all of the station's energy needs and eliminating stationary-source GHG emissions from the station. The DEIR included a commitment to constructing a solar-ready bus canopy.

The DEIR included an analysis of mobile-source GHG emissions associated with West Station. As discussed in the Scope below, the FEIR should include a revised mobile-source GHG analysis that quantifies project wide emissions and mitigation measures.

Adaptation and Resiliency

The DEIR provided a review of the project's design measures for increasing its resiliency to changes in temperature and flooding caused by increased precipitation and sea level rise caused by climate change. The DEIR included an analysis of potential flooding in the project area under existing conditions and climate change scenarios for 2030 and 2070. Potential flooding impacts were derived from the MassDOT/FHWA "Climate Change and Extreme Vulnerability Assessments and Adaptation Options for the Central Artery" study completed in 2015. The study developed the Boston Harbor Flood Risk Model (BH-FRM) to predict

hydrodynamic conditions under climate-induced increases in precipitation and flooding from the Charles River. It does not model precipitation-based flooding from upstream sources, including backups in stormwater conveyance systems or poor site-specific drainage conditions.

The model did not predict flooding in the project area under existing or 2030 conditions. In the 2070 modeled conditions, the project areas adjacent to the river would experience minor flooding in the 1 percent probability level storm and more significant flooding of roadways in the 0.1 percent probability level storm conditions. The degree of flooding impacts on SFR would be similar for all Throat Area variations. The at-grade alternatives would be inundated under 2070 scenarios.The DEIR also indicated that since the project will reduce impervious area compared to existing conditions, it should reduce heat island effects exacerbated by higher temperatures in the future.

Noise and Vibration

The DEIR described existing and predicted noise and vibration levels in the project area. Measurements of existing noise levels were collected from 16 monitoring sites representing residential, parkland, dormitory land uses. Monitoring sites included receptors affected by noise from traffic and/or trains. The sites were located along the north side of I-90 and Cambridge Street, the neighborhood south of the rail yard, Boston University buildings adjacent to the viaduct, the PDW in the Throat Area, Magazine Beach and residential areas in Cambridgeport and Riverside. Traffic counts were collected during noise measurements and incorporated into the noise model. Vibration measurements were collected from three locations between 30 feet and 180 away from the commuter rail tracks to assess impacts from passing trains. The sites were located on Wadsworth Street and Pratt Street south of the rail yard and the intersection of Franklin Street and Lincoln Street north of I-90. The measurements were used to prepare a noise model to characterize existing noise levels in these neighborhoods and to predict future noise levels.

The Federal Highway Administration's (FHWA) Traffic Noise Model was used to predict future noise levels at selected receptors in the project area. The model incorporates traffic volumes, speeds, vehicle classification and roadway design. Noise and vibration caused by trains were modeled using the Federal Transit Administration's (FTA) Detailed Noise and Vibration Assessment methodologies. The results were evaluated in accordance with MassDOT's Noise Abatement Criteria (NAC) and the FTA's noise and vibration impact criteria. The NAC establish noise level limits for each land use as measured by the Loudest-Hour Noise Level (Leq) in A-weighted decibels (dBA). MassDOT evaluates the need for noise abatement at receptors where the measured loudest-hour noise level is within 1 decibel of the NAC or greater. The NAC are absolute noise levels and can trigger the need for a noise abatement evaluation even in cases where background levels meet or exceed the NAC and project-generated noise is not predicted to increase noise levels.

The FTA noise and vibration impact criteria apply to impacts caused by trains. Under the FTA method, noise is measured as Leq for residential receptors and as the day-night average sound level (Ldn) in decibels for institutional receptors. Vibration impacts may be measured as ground-borne vibration measured in decibels (Vdb) or ground-borne noise (dBA). The FTA

criteria are based on three land use categories that reflect the nature of the use and the degree to which noise and/or vibration would negatively impact the use. Noise and vibration impacts are determined by comparing the existing noise and vibration levels to potential increases in these impacts due to the project.

The DEIR presented predicted noise levels at receptors in the project area and compared the results to the NAC and FTA criteria. The receptors in the vicinity of the Throat Area were evaluated for all three variations. The results are as follows:

- Pratt Street/Wadsworth Street area: Five of six receptors exceeded NAC; none predicted to have severe FTA impact;
- Allston Village: Six of 12 receptors exceeded NAC; none predicted to have severe FTA impact;
- Boston University campus: Depending on the Throat Area alternative, 3 to 4 of ten receptors exceeded NAC and 3 to 5 had severe FTA impact;
- PDW: Depending on the Throat Area alternative, 5 to 7 of seven receptors exceeded NAC; none had an FTA impact;
- Magazine Beach: 1 to 2 of six receptors exceeded NAC; none had FTA impact;
- Cambridgeport: None of the six receptors exceeded NAC or had FTA impact under any Throat Area alternative;
- Riverside: For all Throat Area alternatives, 1 of four receptors exceeded NA; none had FTA impact; and,
- Cambridge Street: 2 of twelve receptors exceeded NAC; none had an FTA impact.

Noise abatement measures were evaluated in all areas where NAC was exceeded. Noise mitigation measures include traffic management, vehicle-type restrictions, nighttime-use restrictions, road realignment noise barriers. MassDOT has developed criteria that it uses to determine whether construction of a noise wall is warranted. The criteria include the feasibility of constructing a wall based on existing site conditions and constraints in a manner that will maintain safe roadway conditions; the acoustical effectiveness of the barrier to provide a reduction of at least 5 dBA to the majority of first-row receptors; and the cost-effectiveness as determined by a Cost Effectiveness Index (CEI) calculated on the basis of cost of the barrier, average noise reduction, and the number of benefited receptors.

The DEIR included an evaluation of the feasibility providing noise abatement where NAC levels are predicted to be exceeded. The following noise mitigation measures are proposed:

- Allston Village and Pratt Street/Wadsworth Street: An 18-foot high, 1,400-foot long noise wall will be constructed adjacent to the WML tracks between Malvern Street and a warehouse at 22 Pratt Street; and
- Boston University campus: A 650-foot long, 12-foot high noise wall on top of an existing retaining wall adjacent to Nickerson Field and, for the HV variation, an additional 650-foot long, 8-foot high noise wall constructed as an extension of the highway viaduct parapet wall.

The project will also provide a two noise walls along the southern side of Lincoln Street, between Cambridge Street and Everett Street and between Everett Street and Market Street. This area is west of the project site and was not evaluated with respect to impacts associated with predicted noise levels. According to the DEIR, MassDOT has sought to provide noise abatement in this area since 1992 to mitigate existing noise levels and the construction of the walls will be included as part of the project.

The DEIR evaluated noise levels at the PDW, Magazine Beach, Cambridgeport and Riverside for the three Throat Area variations. All three alternatives would slightly reduce noise levels in these areas compared to existing conditions without noise abatement. In general, predicted noise levels for the three Throat Area variations differed by less than two decibels at all receptors in these areas. Predicted noise levels for the HV variation were slightly lower than the other alternatives at the PDW and Magazine Beach; the AMP variation noise levels were lowest in Cambridgeport and Riverside.

Because receptors at the PDW, Magazine Beach, Cambridgeport and Riverside exceeded NAC, the DEIR evaluated noise abatement measures for each Throat Area variation. Noise walls on the I-90 viaduct (HV variation) or along the north side of SFR (ABC and AMP variations) would reduce noise at PDW by 6.9 to 9.7 dBA and at Magazine Beach by 1 to 5.5 dBA. However, none of the noise walls are proposed to be constructed because they were not determined to be feasible. The DEIR noted that the predominant source of noise in Riverside is Memorial Drive. A noise wall was determined to be not feasible for this area.

Noise levels along Cambridge Street are expected to decrease compared to existing conditions but will still exceed the NAC. Noise barriers are not feasible due to access conflicts or because they will not effectively reduce noise levels. Predicted noise levels in the future development parcels within the street grid will range from 62 to 72 dBA, which are typical for an urban environment. These parcels are not eligible for noise abatement because they have not yet been developed.

The vibration impact assessment determined that trains operations under the HV and AMP variations would cause vibration impacts at Boston University's College of Fine Arts concert hall. Vibration levels at this site would increase by 10 VdB to 69 VdB, which would exceed the FTA criterion of 65 VdB. To mitigate this impact, the project will relocate track turnouts away from the site or use track turnouts that minimize noise and vibration.

Utilities

The project area includes a dense network of local and regional water, sewer, drainage, gas, electricity, communication utilities. In addition, MassDOT, the MBTA and DCR maintain lighting and other facilities accessory to the highway, parkland and rail operations.

The DEIR reviewed Throat Area design considerations related to MWRA water and sewer lines in that area. A 58-inch by 63-inch brick sewer is located below or adjacent to the existing I-90 viaduct. Viaduct foundations for the HV variation will be designed to span the sewer in some sections. In addition, viaduct foundations west of the Throat Area will be located

to avoid an existing 32-inch by 48-inch brick sewer and the BWSC's 7-foot by 7-foot Salt Creek culvert. A 64-inch diameter ductile iron water main owned by the MWRA crosses the Throat Area. It is buried approximately 8 feet below grade. Construction of the WML tracks below existing grade as proposed in the AMP variation would require the relocation of the water main.

The DEIR estimated that rail yard operations would consume 10,821 gpd in 2025 and 5,679 gpd in 2040; these estimates are lower than those provided in the ENF because the rail yard is no longer anticipated to include car washing and other maintenance operations that consume water. Water use will be higher in 2025 because the rail yard will have storage space for 16 train sets and only eight train sets in 2040. The DEIR is unclear as to whether wastewater from train lavatories will pumped to trucks and transported off-site or discharged into new sewer lines with connection points along the layover tracks. MassDOT should clarify this in the FEIR.

Hazardous/Solid Waste

The DEIR identified 77 sites that have been assigned Massachusetts Contingency Plan (MCP) Release Tracking Numbers (RTNs) within the project boundary. Each RTN represents a release of oil and/or hazardous materials (OHM) considered reportable to MassDEP under the MCP. The releases generally consist of petroleum products and metals such as lead, chromium, and arsenic associated with previous industrial uses in the project area. All but nine of the 77 RTNs have reached a Permanent Solution regulatory status. MassDOT will coordinate its activities with the parties conducting response actions at the other nine RTN sites. Two of the sites within the railyard and Throat Area that achieved a Permanent Solution include Activity and Use Limitations (AUL). The AULs prohibit the use of the affected land for residential purposes, schools, recreation and fruit and vegetable cultivation.

The DEIR estimated preliminary cut volumes of 500,000 cubic yards (cy) and fill volumes of 300,000 cy for the project. This material may contain residual OHM, including metals, polyaromatic hydrocarbons (PAH) creosote- or arsenic-laced railroad ties, herbicides, pesticides, and other wastes associated with rail operations. Known areas of OHM will be incorporated into the project planning and Soil Management Plans to ensure proper testing, handling and disposal, including on-site reuse of the material. Other areas may require pre-construction characterization to inform re-use options and health and safety plans. The presence of OHM will also be analyzed in connection with locating stormwater infiltration systems.

The project will generate construction and demolition waste associated with removing the existing highway and rail infrastructure. MassDOT will conduct pre-demolition materials surveys to determine whether asbestos, lead based paint and other materials requiring special handling and disposal are present.

Historical Resources

The DEIR included a map of the Area of Potential Effect (APE) encompassing the project area. The APE includes portions of the Charles River Basin Historic District (CRBHD) and the Harvard Avenue Historic District, both of which are listed in the State and National Registers of Historic Places. The DEIR identified 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 CRBHD includes, but is not limited to, SFR, the BU Bridge, the GJR Bridge, and the River Street Bridge. According to DCR, the GJR Bridge does not appear to be a contributing structure to the historic district. The realignment of SFR, including the proposed underpass, will create parkland and improve pedestrian and bicycle access. The underpass will reduce noise levels on the PDW by 8 to 12 decibels. Stormwater infiltration structures proposed in this area will be sensitively-designed to fit the character of the historic district. The DEIR concluded that these project activities will have no adverse effect on the CRBHD.

The DEIR evaluated the direct and indirect impacts to the CRBHD of the three Throat Area alternatives.

- ABC variation: Would eliminate the viaduct and associated shadow impacts and reduce noise levels compared to existing conditions. It would add parkland, but less than the other alternatives. It would add 47,000 sf of highway to the CRBHD, use more land within the historic district than the other alternatives, alter the elevation of SFR, and minimize the buffer area adjacent to the PDW.
- AMP variation: Would construct a smaller viaduct and eliminate shadow impacts, reduce noise levels compared to existing conditions, add pedestrian and bicycle access, add parkland, and increase the buffer area adjacent to the PDW. It would add 24,000 sf of highway into the historic district and alter the elevation of SFR.
- HV variation: Would create new parkland along SFR, increase the buffer area adjacent to the PDW, reduce noise levels compared to existing conditions, minimize alteration of SFR and use less land within the historic district than the other options. It would construct a wider viaduct and create new shadow impacts in the winter.

According to the DEIR, additional evaluation of the alternatives is required to determine which would minimize impacts on the CRBHD.

The southern end of the proposed bridge that will replace the Franklin Street Pedestrian bridge will be located near the Allston Station (currently Pizzeria Regina), which is within the Harvard Avenue Historic District. According to the DEIR, the proposed bridge will be located outside the historic district and will be designed to avoid impacts on the historic district. The APE includes other individual sites within the Harvard Avenue Historic District and in the vicinity of BU and Commonwealth Avenue. The DEIR did not identify any impacts to these sites.

<u>Construction</u>

The DEIR described construction staging and duration, provided conceptual cost estimates and described impacts to the PDW and highway and rail operations of each alternative:

3K-ABC

- Cost: $982.9 million
- Construction duration: 6.5 years
- WML: Low speed operations for 12 months, intermittent impacts for 24 months;
- GJR: Minimum 3-year closure
- PDW: Temporary, intermittent closures
- Highway: Intermediate impact

3K-AMP

- Cost: $1.25 billion
- Construction duration: 8 years
- WML: Low speed operations for 12 months, intermittent impacts for 24 months;
- GJR: Minimum 4-year closure
- PDW: Minimum 5-year closure or detour
- Highway: High impact

3K-HV

- Cost: $1.05 billion
- Construction duration: 6.5 years
- WML: Low speed operations and intermittent impacts for 24 months
- GJR: Short-term closures
- PDW: No closures
- Highway: Low impact

Comments from ABC suggested that the DEIR did not describe the optimal construction staging of that alternative and did not correctly identify impacts to commuter rail associated with the 3K-HV alternative. MassDOT will be required to provide additional construction details in the FEIR.

The DEIR identified construction-period impacts and generic measures to minimize and mitigate impacts to air quality, wetlands, water quality, utilities rail users and noise. It included a committed by MassDOT to maintain safe conditions for pedestrians, bicyclists and motor vehicles of paths and roadways.

Conclusion

The DEIR was generally responsive to the Scope issued in the Certificate on the ENF. The MEPA regulations indicate that a DEIR can be determined adequate, even if certain aspects of the Project or issues require additional description or analysis in an FEIR, provided that it is generally responsive to 301 CMR 11.07 and the Scope. It described changes to the project

design and included analyses of alternatives that the Scope identified for further evaluation, including changes to the street grid, the development of at-grade Throat Area alternatives, West Station designs and pedestrian and bicycle facilities. The project, its impacts, and measures to minimize and mitigate the impacts have been described for all three Throat Area variations. MassDOT will review public comments on the project, conduct additional analysis of Throat alternatives and advance project design prior to filing the FEIR. MassDOT will continue consultation with the Project Task Force and municipalities. The FEIR will be informed by this analysis and consultation. MassDOT should identify a Preferred Alternative in the FEIR and include the data and analyses to support its selection.

SCOPE

General

The FEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. The FEIR should clearly demonstrate that the Proponent has sought to avoid, minimize and mitigate Damage to the Environment to the maximum extent feasible.

The FEIR should identify a Preferred Alternative for the entire project, including the Throat Area, and provide a detailed description of environmental impacts and mitigation measures. I anticipate that design refinements to project components and the selection of the Preferred Alternative will be informed by the analyses required in this Scope, MassDOT's review and consideration of public comments received on the DEIR and through continued engagement with affected municipalities, the Project Task Force and the general public. Commenters submitted many substantive and detailed recommendations on all aspects of the project, including the factors to be considered in selecting the Preferred Alternative. All of these comments have been carefully reviewed and I have considered these comments in developing the Scope. To the extent possible, MassDOT should incorporate its responses to comments into the relevant analyses in the FEIR, in addition to providing a separate response to comments chapter.

MassDOT has committed to continue consulting the Project Task Force as the project design is refined and a Preferred Alternative selected. The FEIR should address how MassDOT will continue to engage the Task Force and the public during the subsequent design process and the construction period. MassDOT should continue to use alternative media outlets, such as community or ethnic newspapers, to seek the participation of Environmental Justice communities in the project design process and to facilitate its construction-period community outreach program.

Project Description and Permitting

The FEIR should provide a detailed description of each element of the Preferred Alternative, identify its impacts and detail measures to minimize and mitigate environmental impacts. It should provide updated project plans and analyses of the project and its impacts based on a more advanced level of project design. The FEIR should describe how design refinements and mitigation measures will minimize environmental impacts. I encourage MassDOT to

incorporate desirable elements of all alternatives into the design of the Preferred Alternative. I anticipate that advancement of the project design level and incorporation of additional measures to promote project goals will require updates to most of the sections in the DEIR.

The FEIR should include project plans that provide regional and local context and detailed plans at a legible scale for specific project areas or amenities. Existing and proposed conditions site plans should clearly identify environmental resources including: wetland resource areas; Article 97 parkland; 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, rail activity support buildings or structures, and adjacent land uses. The FEIR should provide, if necessary, updated plans and description of land ownership and easements in the project area. It should identify any easements or land acquisitions necessary for the Preferred Alternative. The FEIR should also clarify the allowed uses on-site, as granted to MassDOT by Harvard University, which in part form the basis of the No-Build Alternative. The No-Build Alternative would include the construction and operation of a layover facility at BPY. Harvard University, and other commenters, object to the inclusion of this facility in the No-Build scenario and Harvard University has not agreed to any land transfer that would be necessary for the layover facility.

The FEIR should identify and describe State, federal and local permitting and review requirements associated with the project and provide an update on the status of each of these pending actions. It should review the project's consistency with local and regional planning documents. The FEIR should include a description and analysis of applicable statutory and regulatory standards and requirements, and a discussion of the project's consistency with those standards. As noted previously, the DEIR has demonstrated that feasible alternatives are available that will avoid and minimize impacts to Article 97 land and wetland resource areas. As such, it is highly unlikely that proposals that would fill and/or place structures in the Charles River would be permittable. The FEIR should provide an alternative that maximizes parkland, restores the riverbank and improves bicycle and pedestrian access along the Charles River while balancing traffic and safety standards and goals. MassDOT should consult with the Massachusetts Historical Commission (MHC) regarding its evaluation of the project's impacts to cultural resources and provide an update in the FEIR.

Alternatives Analysis/Selection of Preferred Alternative for Throat Area

The FEIR should include a detailed description of the Preferred Alternative and provide an analysis in support of its selection over the other alternatives described in the DEIR. It should demonstrate that the Preferred Alternative is feasible and will better achieve project goals while minimizing environmental impacts in comparison to the alternatives described in the DEIR. The comparison should evaluate the alternatives with respect to the environmental, transportation, land use, and parkland resources reviewed in the DEIR. Impacts to abutters and the need to acquire easements or private property should be detailed for each alternative.

Commenters noted that detailed construction staging plans are necessary to evaluate the impacts, construction duration and costs of the Preferred Alternative. I expect that the selection of the Preferred Alternative will be based in part on this evaluation. The FEIR should provide life-cycle cost analyses, updated estimates of construction phasing, scheduling, duration, and cost and review construction staging, including impacts to the commuter rail and GJR operations.

Transportation

West Station

As noted above, the majority of commenters, including elected officials representing Boston, Brookline and Cambridge, urge MassDOT to construct West Station in Phase 1 of the project based on its ability to support the project's multi-modal transportation goals and local and regional transportation needs. The City of Boston indicates that West Station plays a critical role in its planning goals for the Allston neighborhood and for providing multi-modal transportation options. There is significant support, in particular, for creation of north-south transit connections which West Station can facilitate. Based on consultation with the City of Boston, MassDOT has acknowledged the need to evaluate transit options in this area which will be addressed in the transit study. In combination with the analyses below, the FEIR should evaluate an interim West Station alternative and include revisions to the design of a permanent station.

Many commenters questioned the low ridership projected in the DEIR and pointed out that ridership at the Boston Landing Station has exceeded expectations. The FEIR should include a revised analysis of projected commuter rail and bus ridership demand at either an interim or permanent West Station. The analysis should be conducted for 2025 Opening Year and 2040 Build conditions, with and without the transit-only Malvern Street connection to Commonwealth Avenue described in the DEIR. The analysis should be used to determine the feasibility and benefits of bus and commuter rail service at West Station and inform MassDOT's decision on providing an interim station in Phase 1.

If the analysis indicates a lack of demand for a full-service stop, the FEIR should consider whether there are any scenarios for an initial period of limited service to the station that could be provided until sufficient demand exists for a full service commuter rail station. These interim service conditions could include alternating scheduled stops at West Station and the nearby Yawkey and Boston Landing stations during peak periods or limiting service to off-peak hours or weekends. The evaluation of West Station should describe and quantify potential impacts to service or travel times on the Framingham/Worcester line associated with the addition of service to West Station.

The DEIR identified a much higher demand for bus service at West Station in the 2040 Build condition. The revised ridership analysis should evaluate a bus service-only scenario for West Station, modeled with and without a transit-only Malvern Street connection, prior to implementing rail service. To the extent possible, the revised ridership analysis should describe overall ridership on the bus lines for each scenario, rather than West Station boardings only. The

short-term transit planning study should consider these additional bus routes and the feasibility and benefits of dedicated Bus Rapid Transit (BRT) lanes.

The DEIR identified but did not analyze the West Station "flip" alternative. This alternative would flip the locations of West Station and the layover tracks in MassDOT's preferred design, moving the station away to the north and shifting the layover tracks closer to the WML tracks at the southern boundary of the rail yard. The FEIR should provide an analysis of this alternative. Harvard University and other commenters suggested that the flip alternative would have benefits for pedestrian and bicycle access and rail and traffic operations and could include a buffer park between the rail yard and the residential neighborhood to the south. The FEIR should compare the benefits and impacts of MassDOT's preferred design and the flip alternative with respect to noise, rail operations, traffic, constructability, pedestrian and bicycle access and cost. It should compare the impacts of each to the adjacent neighborhood as the proposed design was informed, in part, to maximize the buffer between the neighborhood and the layover facility. It should review whether the flip design is compatible with the pedestrian and bicycle ramps and bus-only connection to Malvern Street and Commonwealth Avenue described in the DEIR. The FEIR should identify the right-of-way implications, including the need for land acquisition, associated with each alternative.

Traffic

The FEIR should provide an updated analysis of traffic operations for the 2025 Opening Year and 2040 Build scenarios. The analysis should reflect the results of the revised transit ridership projections and include updated trip generation estimates based on revised mode shares. The mode shares used in the CTPS analysis assumed that at least 50 percent of peak hour trips in the 2040 Build conditions would be taken by automobile. According to the City of Boston, its *Go Boston 2030* transportation plan has set a goal of a 25 percent automobile mode share. MassDOT should consider modifying mode share assumptions to reflect GWSA goals and consultation with the City of Boston regarding *Go Boston 2030*.

The traffic study should review traffic operations in the study area under 2025 Opening Year and 2040 Build conditions. According to the City of Cambridge, traffic modeling in the DEIR showed high volumes of traffic on Cambridge streets and long queues at Western Avenue that will extend onto Memorial Drive. The FEIR should respond to the City's comments and identify potential measures, such as signal timing changes, to optimize intersection performance along Memorial Drive and SFR.

The DEIR reported that relatively few automobiles use the westbound SFR off-ramp at River Street to get to Cambridge under existing conditions, and that closure of the ramp would benefit pedestrian and bicyclists using the PDW and improve traffic operations at the intersection. The City of Cambridge and many of its residents have questioned how the elimination of the off-ramp will affect vehicular access to Cambridge. The FEIR should provide an analysis under 2025 Opening Year and 2040 Build conditions of travel times between River Street and SFR and between the new I-90 ramps and Cambridge in both directions. The analysis should evaluate travel times for two likely alternate routes using Memorial Drive from Land Boulevard and Massachusetts Avenue. Based on the results of the travel time analysis, I

encourage MassDOT to work with Cambridge and DCR to achieve acceptable vehicular access to Cambridge through the new street grid.

Rail Yard

As described in the DEIR, the need for layover space for MBTA commuter rail trains has been previously documented. The BPY was identified one of the sites where layover space should be provided. The FEIR should clarify the purpose of providing additional layover space in Phase 2 of the project as described in the DEIR. As discussed above, MassDOT will analyze the demand for bus and commuter rail service and determine whether an interim West Station should be provided. The FEIR should describe potential impacts of an interim West Station on the temporary expansion of layover space proposed in the DEIR and describe the impacts to the MBTA's commuter rail operations. If an interim West Station would conflict with commuter rail layover needs, the FEIR should analyze the impacts to rail service caused by the absence of temporary layover space compared to the benefits of adding transit service at an interim West Station.

Parkland/Article 97

I received many comments that support construction of the ABC alternative to provide space for park users which would alter the Charles River and its banks by filling the river and/or constructing pile-supported structures. As noted above, DCR and MassDEP have questioned whether an alteration of this type is appropriate or permittable. As described in the DEIR, all Throat Area variations require the conversion of Article 97-protected parkland to highway use. In developing the Preferred Alternative, MassDOT should explore all feasible measures to avoid or minimize impacts to Article 97 land and wetland resource areas and incorporate such measures into the project design. MassDOT should continue to evaluate potential reductions in travel lanes, shoulder widths, and other roadway features, as well as changes to a combination of these features, in order to minimize Article 97 and wetland impacts while achieving I-90 safety goals. As requested by DCR, MassDOT should maximize the parkland benefits of the Preferred Alternative by including measures to improve the PDW in the vicinity of the GJR and BU Bridges and by providing pedestrian and bicycle links across SFR. The Preferred Alternative should include a restoration plan that will be implemented in conjunction with the reconstruction of SFR and PDW. Also, it should be designed to be sensitive to parkland uses and the CRBHD.

The FEIR should include a revised analysis of the project's consistency with the EEA Article 97 policy based on the Preferred Alternative. It should characterize proposed conditions on the PDW, parkland buffers between the PDW and SFR, and the banks of the Charles River based on updated project designs.

Climate Change/GHG

The FEIR should provide a detailed analysis of the effects of climate change in the project area. It should consider the potential impacts of precipitation-driven and propagated flooding. MassDOT should reevaluate the project's risk tolerance and identify appropriate mitigation measures consistent with the goal of maintaining the functionality of the important

public infrastructure to be constructed by this project. The FEIR should consider whether projected increases in temperature could affect road surfaces or structural components of the project. The FEIR should identify specific adaptation design measures, including flood walls or elevating road surfaces, that will be incorporated into the design of the Preferred Alternative and describe the effectiveness of the measures in increasing the resiliency of the project for its design life.

The FEIR should review MassDOT's goals for reducing GHG emissions in accordance with the GWSA and EO. It should provide a project-wide mobile-source GHG analysis. Based on data from the traffic study and procedures for evaluating emissions from locomotives, it should calculate GHG emissions from vehicles and locomotives based on available land use assumptions for the 2040 Build condition. The FEIR should identify components of the project, such as transit use, new pedestrian and bicycle facilities and improved traffic operations, which may mitigate GHG impacts and quantify the reduction in GHG emissions.

Noise

MassDOT should consider incorporating noise abatement measures into the design of the Preferred Alternative to improve parkland conditions, including increasing the buffer between SFR and the PDW and structural solutions associated with I-90 and SFR. The FEIR should respond to comments from the City of Cambridge and others regarding noise impacts to Magazine Beach and adjacent areas. MassDOT should meet with the City of Cambridge to review its modelling of predicted noise levels, potential impacts to receptors in Cambridge and alternatives for mitigation roadway noise.

The DEIR identified noise and vibration impacts at the Boston University campus and identified abatement measures for Nickerson Field and the College of Fine Arts concert hall. In its comment letter, Boston University requested additional information about the analysis methods and design and effectiveness of the mitigation measures. As noted in the DEIR, MassDOT seeks input from property owners when noise barriers are proposed. I recommend that MassDOT consult with Boston University prior to submitting the FEIR. If necessary, the FEIR should include an updated analysis of noise and vibration impacts and provide additional details of proposed noise abatement measures.

Construction

The FEIR should describe the construction-period impacts of the Preferred Alternative based on a more advanced design level than was available in the DEIR. The information and analysis of construction staging, costs and impacts requested earlier in this Scope should be based on updated designs. The FEIR should provide additional detail regarding construction-period impacts and mitigation measures reviewed in the DEIR, including soils management, handling and disposal of construction and demolition waste, stormwater management, and maintenance of safe pedestrian and bicycle access, roadway operations and commuter rail service.

Public Benefits Determination

The FEIR should provide a revised Public Benefits Determination for the Preferred Alternative.

Mitigation and Draft Section 61 Findings

The FEIR 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 FEIR 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 FEIR due to the jurisdictionally-integrated roadway network in the study area. The FEIR should note the implementation schedule of mitigation measures based upon project staging and phasing.

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 FEIR.

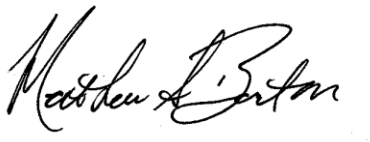
Responses to Comments

The FEIR 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 FEIR 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 FEIR beyond what has been expressly identified in this Certificate.

Circulation

MassDOT should circulate the FEIR to those parties who commented on the DEIR, 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 FEIR 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 FEIR 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 FEIR indicating that hard copies are available upon request or at local library branches, noting relevant comment deadlines, and appropriate addresses for submission of comments.



February16, 2018
Date

Matthew A. Beaton

Comments received:

12/04/2017 Austin Grimes
12/04/2017 Andy Breeding
12/05/2017 Lisa Smith
12/05/2017 Victoria Stock
12/05/2017 Kevin M. Carragee
12/05/2017 Rebekah Emanuel
12/06/2017 Ben Armstrong
12/06/2017 William Paquette
12/06/2017 Rick Holahan
12/06/2017 Louise Johnson
12/07/2017 Christopher Cassa
12/07/2017 Hugh Mattison
12/07/2017 Claire Stampfer
12/08/2017 Carol Hillman
12/08/2017 Crispin B. Weinberg
12/08/2017 Jacob Meunier
12/10/2017 Karen Smith
12/11/2017 Jon Puz
12/11/2017 David Kroop
12/12/2017 Gina Crandell
12/12/2017 Werner Lohe
12/13/2017 Paul Kafasis
12/15/2017 E. Catherine Loula
12/18/2017 Hugh Mattison
12/18/2017 Alan Christ
12/19/2017 The Lawrence & Lillian Solomon Foundation
12/20/2017 Richard Ferrante
12/20/2017 David Roochnik
12/20/2017 Louise Johnson
12/20/2017 Elizabeth Egan
12/20/2017 Frank Epstein
12/21/2017 Virginia Foote

12/21/2017	Senator Will Brownsberger
12/21/2017	Robert Allison
12/23/2017	Amy Shulman Weinberg
12/23/2017	Ted Pyne
12/24/2017	John Prince
12/26/2017	Michele DiSerio
12/26/2017	David Ofsevit
12/28/2017	Jean Costello
12/31/2017	Pawel Latawiec
12/31/2017	Erica Mattison
01/01/2018	Clara Couric Batchelor
01/02/2018	Carol Kickham Perkins
01/02/2018	David Strati
01/02/2018	Alex Reisman
01/03/2018	Sue Butler
01/03/2018	Martha Stewart
01/03/2018	Henry Lieberman
01/06/2018	Mike Small
01/07/2018	Brenda Hochberg
01/10/2018	Linda Olson Pehlke
01/11/2018	Ken Pierce
01/11/2018	Hubert Murray
01/12/2018	Chantal Eide
01/13/2018	Katherine R. Isham
01/13/2018	Maximillian D. Kreisky
01/13/2018	Matti Klock
01/13/2018	Heidi Gitelman
01/14/2018	David Willoughby
01/17/2018	Arthur Strang
01/18/2018	Senator Sal N. DiDomenico, Middlesex and Suffolk District Senator William N. Brownsberger, Second Suffolk and Middlesex District Representative Kevin G. Honan, 17th Suffolk District Representative Michael J. Moran, 18th Suffolk District City Councilor Mark Ciommo, Boston District 9
01/19/2018	Stephen H. Kaiser
01/19/2018	Todd Consentino
01/20/2018	Mark Romanowsky
01/21/2018	John Eskew
01/21/2018	Brent Whelan
01/22/2018	John Powell
01/22/2018	Troy Brogan
01/22/2018	Mark Lowenstein
01/22/2018	Debra Iles
01/22/2018	Michael F. Epstein
01/23/2018	John Donellan
01/23/2018	Christopher J. Breene

01/23/2018 Liam Sullivan
01/23/2018 Nancy Schon
01/23/2018 Robyn L. Reed
01/23/2018 Jennifer Engel
01/23/2018 Chantal Eide
01/23/2018 Robert A. Weinberg
01/24/2018 Senator Sal DiDomenico, Middlesex and Suffolk District
Senator Joe Boncore, First Suffolk and Middlesex District
Representative Jay Livingstone, 8th Suffolk District
Representative Michael Connolly, 26th Middlesex District
01/24/2018 Mark Kraczkiewicz
01/24/2018 Liza Burkin
01/24/2018 Ian Schneider
01/24/2018 David C. Read
01/24/2018 Rebecca Ward
01/24/2018 Sam Burgess
01/24/2018 Congressman Michael E. Capuano
01/24/2018 Benjamin Bayes
01/24/2018 Deborah Chassler
01/24/2018 Billie Louise Bentzen
01/24/2018 Barry L. Solar
01/24/2018 Alex Bernhard
01/24/2018 Ellen Sweeney
01/24/2018 Lisa Tran
01/25/2018 Steven E. Miller
01/25/2018 Peter Smith
01/25/2018 Mark LeBel
01/25/2018 Carol Harley
01/25/2018 Leonard M. Singer
01/25/2018 Philip Durbin
01/25/2018 Gabriela Romanow
01/25/2018 Teresa Broering
01/25/2018 Sky Rose
01/26/2018 Gina Crandell
01/26/2018 Nita Sembrowich
01/26/2018 Lisa Kunze and Jeffrey Schafer
01/26/2018 Sybil Schlesinger
01/26/2018 Derek Lessing
01/26/2018 John Powell
01/26/2018 Emanuela Barberis and Darien Wood
01/26/2018 Frank Epstein
01/27/2018 David Hemenway
01/27/2018 Pamela Roberts
01/27/2018 Robert W. Persons
01/27/2018 Amy Schulman Weinberg
01/27/2018 Robin Pelzman

01/27/2018 Charles Pearlman
01/27/2018 Robert M. Miller
01/27/2018 Dan and Fran Givelber
01/27/2018 Catherine Donaher and Robert M. Hollister
01/27/2018 Paul Sax
01/27/2018 Carolyn Sax
01/27/2018 Katha Seidman
01/27/2018 Tom Levenson
01/27/2018 Mariana C. Castells
01/27/2018 Braha Oren
01/27/2018 Catherine A. Corman and Markus L. Penzel
01/27/2018 John L. Bowman
01/28/2018 Lucy Mack
01/28/2018 Janis Bellow
01/28/2018 Caitlin M. Studdard
01/28/2018 Steven Gilbert and Maura Toomey
01/28/2018 John and Barbara Sherman
01/28/2018 Monica Hexner
01/28/2018 Dianne and Michael Blau
01/28/2018 Kenneth Schlosser and Asgedet Stefanos
01/28/2018 Peter Flynn
01/28/2018 D.A. Levey
01/29/2018 David Roochnik
01/29/2018 Bess Kates
01/29/2018 Mary M. Mahlmann
01/29/2018 Lea Mannion
01/29/2018 Lisa Liss
01/29/2018 Arlene Mattison
01/29/2018 Dave Jack
01/29/2018 Yair Egozy
01/29/2018 Alex Silver
01/29/2018 Zack and Maddie DeClerck
01/29/2018 Colin McCarthy
01/29/2018 Leonard Rosen
01/29/2018 Matthew Cassis
01/29/2018 Anita Breslaw
01/29/2018 Barbara Scotto
01/29/2018 Jill A. Winitzer
01/30/2018 Peter Stokes
01/30/2018 Henrietta Davis
01/30/2018 Brookline Preservation Commission
01/30/2018 Barry M. Steinberg
01/31/2018 Matt Lawlor
01/31/2018 Kyle Robidoux
01/31/2018 Mark Zurlo
01/31/2018 Peter Furth

01/31/2018 Patrick Mayne
01/31/2018 Jeffrey Gang
01/31/2018 John S. Allen
01/31/2018 Alexander Frieden
01/31/2018 Krystyna Chmielinski
01/31/2018 Debbie Levey
01/31/2018 Brendan Connor
01/31/2018 David B. Jones
01/31/2018 Milos Miljkovic
01/31/2018 Christopher Cassa
01/31/2018 Christine Klaus
01/31/2018 Mike Mennonno
01/31/2018 Nicholas Graham
01/31/2018 Xander Miller
01/31/2018 Ivy Stoner
01/31/2018 Nina Garfinkle
02/01/2018 Andrew Farnitano
02/01/2018 Laurence Lebowitz
02/01/2018 Stephen H. Kaiser
02/01/2018 Rebecca Simonson
02/01/2018 Melissa Matttison
02/01/2018 Dagmar von Schwerin
02/01/2018 Cayla Saret
02/01/2018 Fred Fantini
02/01/2018 Monica Hexner
02/01/2018 Cynthia Biron
02/01/2018 Matthew Pearlson
02/01/2018 Rosemary Kean
02/01/2018 Pauline Lim
02/01/2018 Christian Cole
02/01/2018 Kara Anderson
02/01/2018 Alan Wright
02/01/2018 Patrick O'Reilly
02/01/2018 Robert Allison
02/01/2018 Karen Cord Taylor
02/01/2018 Judy Mason
02/01/2018 Peg and Steve Senturia
02/01/2018 Patricia R. Pratt
02/01/2018 Mike Dornbrook
02/01/2018 Newton City Council
02/01/2018 Sean Richmond
02/01/2018 Kate Enroth
02/01/2018 Erin McNeill
02/01/2018 Town Meeting Members of Brookline's Green Caucus
02/01/2018 Carl Zimba
02/01/2018 Harry Mattison

02/01/2018 Don Weitzman
02/01/2018 Jane Gilman
02/01/2018 Darrah Bowden
02/01/2018 Donna Lopez, Cambridge City Council
02/01/2018 Steve Kropper
02/02/2018 David Karger
02/02/2018 Linda Helfet and Bill Hilliker
02/02/2018 Louise Kittredge
02/02/2018 Jean Costello
02/02/2018 Kate Poverman
02/02/2018 Andy Zucker
02/02/2018 Sybil Schlesinger
02/03/2018 Cody Pajic
02/03/2018 Virginia Foote
02/03/2018 Michele Sprengnether
02/03/2018 Jan Devereux
02/03/2018 Richard Bock
02/03/2018 Virginia W. LaPlante
02/03/2018 Lois A. Levin
02/03/2018 Barbara Goldstein
02/03/2018 Stephen Ringlee
02/03/2018 Steven Atlas
02/03/2018 Bill Reyelt
02/03/2018 Yolanda M. Rodriguez
02/03/2018 Stephen Paul Linder
02/03/2018 David Leung
02/04/2018 Linda Rosen
02/04/2018 Lisa Evans and Tim Smith
02/04/2018 Steven Engler
02/04/2018 Marcia Ciro
02/04/2018 Sam Balto
02/04/2018 Alan Gordon
02/04/2018 Anne Trecker
02/04/2018 Rhoda Goodwin
02/04/2018 Cosmin Ioan
02/04/2018 Carolyn Goodwin
02/04/2018 Seth Rubin
02/04/2018 Ryan Christman
02/04/2018 Macky Buck
02/04/2018 Tamara Hurioglu
02/04/2018 Susan Turner
02/04/2018 Judith Antonelli
02/05/2018 James C.S. Liu
02/05/2018 Matthew Jennings
02/05/2018 Ken Pierce
02/05/2018 Carro Halpin

02/05/2018 Town of Brookline Transportation Board
02/05/2018 City Councilor Michelle Wu, Boston
02/05/2018 Sam Ghilardi
02/05/2018 Jacob Seib
02/05/2018 Carol Greenwood
02/05/2018 Franziska Amacher
02/05/2018 Pamela McLemore
02/05/2018 New England Venture Capital Association
02/05/2018 Massachusetts Biotechnology Council
02/05/2018 Ian Schneider
02/05/2018 Ken Kaplan
02/05/2018 Melissa Meek
02/05/2018 Cathy Kaplan
02/05/2018 Arthur Strang
02/05/2018 Alisa Plazonja
02/05/2018 Cambridge Pedestrian Committee
02/06/2018 John Shreffler
02/06/2018 Bart Lloyd
02/06/2018 James C. Simpson
02/06/2018 Jason Margolis
02/06/2018 Elizabeth Johnson
02/06/2018 Conor Welch
02/06/2018 Christopher Cassa
02/06/2018 Cambridge Plant and Garden Club
02/06/2018 Kathleen Duffy
02/06/2018 Joel A. Feingold
02/06/2018 Kendall Square Association
02/06/2018 Farah Wong
02/06/2018 Ed Olhava
02/06/2018 Benjamin Berkowitz
02/06/2018 Friends of the White Geese
02/07/2018 Senator Cynthia Stone Creem, First Middlesex and Norfolk District
02/07/2018 Representative Jay Livingstone, 8th Suffolk District
Senator Joseph Boncore, First Suffolk and Middlesex District
02/07/2018 Drew Ardini
02/07/2018 Jesse Boudart
02/07/2018 David Meshoulam
02/07/2018 Bill Nigreen
02/07/2018 Jacob Mirsky
02/07/2018 Stephen H. Kaiser
02/07/2018 Christian Cole
02/07/2018 Google Inc.
02/07/2018 Ruthann Rudel
02/07/2018 Colin M.J. Novick
02/07/2018 Sarah Fields
02/07/2018 Louis Gudema

02/07/2018 David Salomon and Allison Crump
02/07/2018 Sanford Goldfless
02/07/2018 Charles Dietrick
02/07/2018 Nina V. Cohen
02/07/2018 Jay Schuur
02/07/2018 Steven Pell
02/07/2018 Ehren Foss
02/07/2018 J.G. McLaren (2 letters)
02/07/2018 Lisa Ravicz
02/07/2018 Brookline Greenspace Alliance
02/07/2018 Ann Williams
02/07/2018 Lee Biernbaum
02/07/2018 John Bockian
02/07/2018 Irene Hartford
02/07/2018 Hannah Spicher (2 lettters)
02/07/2018 Thomas Rego
02/07/2018 Wendy Frontiero
02/07/2018 Ann Asnes
02/07/2018 Jon Puz
02/07/2018 Chris Porter
02/07/2018 John Hawes
02/07/2018 Facebook Boston
02/07/2018 Liberty S. Collom
02/07/2018 Cynthia L. Baron
02/07/2018 Lydia Bunker
02/07/2018 Ellen Gilmore
02/07/2018 Blakely Sullivan (2 letters)
02/07/2018 Walter Willett
02/07/2018 Massachusetts Institute of Technology
02/07/2018 Jeffrey Orlin
02/07/2018 DRAPER
02/07/2018 Joyce DiBona
02/07/2018 Lauren Mattison
02/07/2018 Colleen McGuire
02/07/2018 Cathy Brennan
02/07/2018 Ellen Gallant
02/07/2018 Andrew Wardly
02/07/2018 Charles Bent
02/07/2018 Lawrence S. DiCara
02/07/2018 Brandon Cardwell
02/07/2018 David A. Senatillaka
02/07/2018 Jay Livingstone and Joseph Boncore
02/07/2018 Sophie Schmidt
02/08/2018 Ellery Schempp
02/08/2018 Jim Batchelor
02/08/2018 Charlie Denison

02/08/2018 Lisa Smith
02/08/2018 Carol Lee Rwan
02/08/2018 Molly O'Brien
02/08/2018 Martha Stewart
02/08/2018 East Coast Greenway Alliance
02/08/2018 Michael Dziedzic
02/08/2018 Mark Stewart
02/08/2018 John Miner
02/08/2018 John Hayes
02/08/2018 Mark Lu
02/08/2018 Miguel Espada
02/08/2018 Norma Jean Barrett
02/08/2018 Ann Hershfang
02/08/2018 Janie Katz-Christy
02/08/2018 Ajay Sequeira
02/08/2018 Kristine Jelstrup
02/08/2018 Brian Conway
02/08/2018 Melinda Lee
02/08/2018 Sara Miller
02/08/2018 Marilyn Miller
02/08/2018 Virginia R. Hathaway
02/08/2018 Senator Karen E. Spilka, 2nd Middlesex & Norfolk
Senator James B. Eldredge, Middlesex & Worcester
02/08/2018 Matt Carty
02/08/2018 Abigail Cox
02/08/2018 Fruzsina Veress
02/08/2018 Nina Pforr
02/08/2018 Elizabeth A. Tapper and Peter H. Simkin
02/08/2018 Richard Snyder
02/08/2018 Worcester Regional Chamber of Commerce
02/08/2018 Jackie Cygleman
02/08/2018 Jennifer Gilbert
02/08/2018 Diana Spiegel
02/08/2018 Petition signed by 106 people (plus 7 signatures submitted 02/09/2018)
02/08/2018 Matt Turnbull
02/08/2018 Representative Kay Khan, 11th Middlesex District
Representative Chris Walsh, 6th Middlesex District
Representative David Linsky, 5th Middlesex District
Representative Alice Peisch, 14th Norfolk District
Representative Carmine Gentile, 13th Middlesex District
Representative Mary Keefe, 15th Worcester District
Representative Frank Smizek, 13th Norfolk District
Representative Ruth Balser, 12th Middlesex District
Representative Jeffrey Roy, 10th Norfolk District
Representative Johnathan Hecht, 29th Middlesex District
Representative Brian Murray, 10th Worcester District

Representative Jennifer Benson, 37th Middlesex District
Representative Jim O'Day, 14th Worcester District
Senator James Eldridge, Middlesex and Worcester District
Senator Michael Moore, Second Worcester District
Senator Karen Spilka, Second Middlesex and Norfolk District
Senator Cynthia Creem, First Middlesex and Norfolk District

02/08/2018 John McQueen
02/08/2018 Scott Abrams
02/08/2018 Cambridgeport Neighborhood Association, Inc.
02/08/2018 Carl Larson
02/08/2018 Nancy B. Kohn
02/08/2018 Bob Pessek and Nancy Grilk
02/08/2018 Linda Sharpe
02/08/2018 Jeff Byrnes
02/08/2018 Microsoft Corporation
02/08/2018 Eran Egozy
02/08/2018 Kimberly Gluck
02/08/2018 Alex Epstein
02/08/2018 Louise Johnson
02/08/2018 Susan Redlich
02/08/2018 Andrew Robertson
02/08/2018 Richard Voos
02/08/2018 Megan Foley
02/08/2018 Robert K. Coughlin
02/08/2018 Nina Olff
02/08/2018 Norah Dooley
02/08/2018 Peter Lubetsky
02/08/2018 Boston Water and Sewer Commission (BWSC)
02/08/2018 Tim Cabot
02/08/2018 Kristin and Ilan Levy
02/08/2018 Shannon Finley
02/08/2018 Mike and Nancy O'Hara
02/08/2018 Andy Gluck
02/08/2018 Brookline Select Board
02/08/2018 Ann B. Hollos
02/08/2018 Linda Mar
02/08/2018 Joel N. Weber II
02/08/2018 Kevin M. Carragee and Ellen M. McCrave
02/08/2018 Carol O'Hare and Walter McDonald
02/08/2018 Michael Gobler
02/08/2018 Hazel Ryerson
02/08/2018 Scott Johnston
02/08/2018 Olivia Turner
02/08/2018 Scott Kane
02/08/2018 David Lund
02/08/2018 Max Rome

02/08/2018 Liz Minnis
02/08/2018 Kevin Wilson
02/08/2018 Tim Mackey
02/08/2018 John Zinky
02/08/2018 Elizabeth McNerney
02/08/2018 Deborah Reisman
02/08/2018 Jordan Krechmer
02/08/2018 Marc G. Hoffman
02/08/2018 Massachusetts Sierra Club
02/09/2018 Marcy M. Pell
02/09/2018 Yousef Alsharif
02/09/2018 Transportation Committee of the Allston Brighton Health Collaborative
02/09/2018 Benjamin E. Patience
02/09/2018 Suraffel Assefa
02/09/2018 Robb Johnson
02/09/2018 Mike Orr
02/09/2018 Bill Boehm
02/09/2018 Susan Martin
02/09/2018 Kenneth Carson
02/09/2018 Eric A. Stratton
02/09/2018 Massachusetts Water Resources Authority (MWRA)
02/09/2018 Andrew Yakoobian
02/09/2018 Annette LaMond
02/09/2018 Stacey Beuttell
02/09/2018 Audrey Berry
02/09/2018 Lauren Watters
02/09/2018 Randall H. Albright
02/09/2018 Ari Ofsevit
02/09/2018 M. Carolyn Shipley
02/09/2018 Kyra Montagu
02/09/2018 Kendall Square Mobility Task Force
02/09/2018 Transportation for Massachusetts
02/09/2018 Victoria Stock and Scarlett Rogers
02/09/2018 Brendan Kearney
02/09/2018 Kim Motylewski and Frank Gillett
02/09/2018 Avery Faller
02/09/2018 Gesa Kirsch
02/09/2018 Cambridge City Manager
02/09/2018 Erica Quigley
02/09/2018 Brian Dacey, Cambridge Innovation Center
02/09/2018 Todd Lee
02/09/2018 John McDougall
02/09/2018 Petition signed by 195 people
02/09/2018 Andrea Williams
02/09/2018 Sam Wertheimer
02/09/2018 Ben Reed

02/09/2018	Boston University
02/09/2018	Carl Seglem
02/09/2018	Matt Casale, Jason Desrosier, Anthony P. D'Isidoro, Marc Ebuna, Richard Fries, Bruce Houghton, Harry Mattison, Steve Miller, Galen Mook, Wendy Landman, Andre LeRoux, Ari Ofsevit, Richard Parr, Carol Ridge-Martinez, Jessica Robertson, Stacy Robertson, Renata von Tscharner, Emma Walters, Becca Wolfson and Paola M. Ferrer
02/09/2018	Ron Axelrod
02/09/2018	Stephen H. Kaiser
02/09/2018	Francis G. Caro
02/09/2018	Jessica Robertson
02/09/2018	Department of Conservation and Recreation (DCR)
02/09/2018	Joe Moore
02/09/2018	Karen Smith
02/09/2018	H. Parker James
02/09/2018	Esplanade Association
02/09/2018	Laurie Rothstein
02/09/2018	Georgene Herschbach
02/09/2018	Sayem Khan
02/09/2018	Greater Boston Chamber of Commerce
02/09/2018	Katherine R. Isham
02/09/2018	LivableStreets Alliance
02/09/2018	Anthony Pangaro
02/09/2018	Dena Feldstein
02/09/2018	John Sanzone, Lynn Weisman and Alan Moore
02/09/2018	Cambridge Redevelopment Authority
02/09/2018	Frederick Salvucci (2)
02/09/2018	Paul F. Walker
02/09/2018	Charlotte Wagner
02/09/2018	Richard Skip Burck
02/09/2018	Andy Hinterman
02/09/2018	Gene Dolgin
02/09/2018	A Better City
02/09/2018	Astrid Dodds
02/09/2018	Sarah Freeman
02/09/2018	Jules Milner-Brage
02/09/2018	Jared Alves
02/09/2018	Julia Halprin and Ron Adams
02/09/2018	Massachusetts Department of Environmental Protection (MassDEP)/Northeast Regional Office (NERO)
02/09/2018	Herb Wagner
02/09/2018	Peter Leis
02/09/2018	Gloria Tatarian
02/09/2018	Anthony P. D'Isidoro
02/09/2018	Adam Castiglioni
02/09/2018	Caitlin Goos

02/09/2018 Andrew Breck
02/09/2018 WalkBoston
02/09/2018 Barr Foundation
02/09/2018 Joel Carela
02/09/2018 Richard Rogers
02/09/2018 Stanley L. Spiegel
02/09/2018 Charlotte Mao
02/09/2018 John Pelletier
02/09/2018 Metropolitan Area Planning Council (MAPC)
02/09/2018 Adam Towvim
02/09/2018 Sarah Smith
02/09/2018 Magazine Beach Partners, Inc.
02/09/2018 Brad Bellows
02/09/2018 24 Students at Harvard University's Graduate School of Design
02/09/2018 Medical Academic and Scientific Community Organization, Inc.
02/09/2018 Tony Schreiner
02/09/2018 Marie Elena Saccoccio
02/09/2018 Ken Krause
02/09/2018 Paola M. Ferrer
02/09/2018 Central Square Business Association
02/09/2018 Galen Mook
02/09/2018 Marilyn Wellons
02/09/2018 Harry Mattison (2)
02/09/2018 Harry Mattison, Galen Mook and Emma Walters conveying 109 signed cards
02/09/2018 Loryn Sheffner
02/09/2018 Alan Moore
02/09/2018 Allston Village Main Streets
02/09/2018 Peter Munkenbeck
02/09/2018 Wayne Welke
02/09/2018 DCR Stewardship Council
02/09/2018 Charles River Conservancy
02/09/2018 Charles River Watershed Association
02/09/2018 Massachusetts Department of Environmental Protection (MassDEP)/ Waterways Regulation Program (WRP)
02/09/2018 Dana Busch
02/09/2018 Shai Inbar
02/09/2018 Katha Seidman
02/09/2018 Andrew McNerney
02/09/2018 Boston Cyclists Union
02/09/2018 John Prince
02/09/2018 Norah Piehl
02/09/2018 Karen Molloy
02/09/2018 Lily Canan Reynolds
02/09/2018 Joshua Lupkin
02/09/2018 Priscilla Anderson
02/09/2018 Brian Aull

02/09/2018 Damien Croteau-Chonka
02/09/2018 Victoria Moskowitz
02/09/2018 Elena Saporta
02/09/2018 John Harris
02/09/2018 Greg, Paulina and Evelyn Kelly
02/09/2018 Scott Englander
02/09/2018 Harvard University
02/09/2018 Pioneer Institute
02/09/2018 Melissa Smith
02/09/2018 Peter Klinefelter and John Wofford
02/09/2018 Sandra Fairbank
02/09/2018 Allston Landing Design Team
02/10/2018 Robin Pope
02/10/2018 Nikhil Nadkarni
02/10/2018 Somerville Bicycle Advisory Committee
02/10/2018 Kelly McGrath
02/10/2018 Jan Emlen
02/11/2018 Michael Gidding
02/12/2018 Massachusetts Department of Energy Resources (DOER)
02/12/2018 Decia Goodwin and Brian Conway
02/12/2018 Laura S. Kershner
02/13/2018 Harry Mattison
02/13/2018 City of Boston
02/13/2018 Alexandria Real Estate Equities, Inc.

MAB/AJS/ajs