THE HYM INVESTMENT GROUP, LLC

SUFFOLK DOWNS REDEVELOPMENT

VOLUME II

Draft Environmental Impact Report/
Draft Project Impact Report

OCTOBER 1, 2018

PREPARED BY

vhb

SUBMITTED TO
Executive Office of Energy and Environmental Affairs
Massachusetts Environmental Policy Act Office
Boston Planning & Development Agency
City of Revere

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Stoss Landscape Urbanism
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7

Greenhouse Gas Assessment

The EEA has developed the current MEPA Greenhouse Gas Emissions Policy and Protocol (the "MEPA GHG Policy"), which requires project proponents to identify and describe feasible measures to minimize related mobile and stationary source GHG emissions. Greenhouse gases ("GHG") include several air pollutants, such as Carbon Dioxide ("CO_2"), methane, hydrofluorocarbons, and perfluorocarbons. This evaluation makes use of the terms CO_2 and GHG interchangeably. Further, the City of Boston has made a commitment to targeting carbon neutrality by 2050, and the City of Revere has similar goals to reduce GHG emissions associated with development.

The GHG emissions assessment presented herein demonstrates that the conceptual design of the Master Plan Project building typologies include measures that reduce overall energy usage and associated stationary source GHG emissions in support of GHG reduction goals set by both the Commonwealth and the City of Boston. This assessment satisfies the MEPA GHG Policy because it estimates Project-related GHG emissions (stationary and mobile source), and incorporates reasonable and feasible mitigation measures to reduce such emissions from the Master Plan Project. Appendix E provides the complete building model results and other materials in support of the GHG assessment.

As requested in the EEA Secretary's Certificate on the EENF and BPDA's Scoping Determination on the EPNF, this chapter provides information on the following topics:

- A GHG analysis of representative building typologies that compares a base code-compliant design, or a Base Case, to a preferred design that incorporates additional energy saving measures that, at minimum, demonstrate compliance with the Stretch Energy Code (as discussed in Section 7.2.2 below);
- A trade-offs evaluation of high-efficiency building envelopes and building systems to demonstrate GHG-reduction measures have been studied/considered and committed to as part of the Master Plan Project;
- An evaluation of residential passive design;
- A feasibility analysis on-site renewable energy, including roof-mounted solar PV and Combined Heat and Power ("CHP") for hotel and residential uses;
- An evaluation of co- and tri-generation options, as well as the feasibility of incorporating a central energy plant;
- A discussion of potential energy efficiency incentives from utilities;
- An outline of proposed Tenant Design Guidelines, including energy and water usage performance goals and reduction incentives; and
- An evaluation of potential mobile source GHG emissions.

7.1 Summary of Key Findings and Benefits

The key findings related to energy usage/efficiency and GHG emissions include:

- The Master Plan Project intends to exceed compliance with Article 37 of the Boston Code by designing buildings to meet LEEDv4 under the applicable green building rating system for the given building typology. The future buildings in Revere will generally meet the same energy efficiency goals and LEED standards as buildings in Boston.
- The Master Plan Project building typologies, as well as the aggregated Master Plan Project will exceed the Stretch Energy Code requirement for 10 percent energy efficiency above code. Preliminary energy modeling indicates a 19.4 percent energy usage savings (excluding parking) and 17.5 percent reduction in stationary source GHG emissions for the Master Plan Project. (With parking included, the percent energy usage savings increases to 20.9 percent and GHG emissions savings to 19.6 percent.)[1]
- At this early stage, the preliminary energy modeling for eight (8) different building typologies result in energy savings and stationary source GHG emissions reductions as follows;
  - Low/Mid-Rise Office: 24 percent energy usage savings and 22 percent reduction of GHG emissions;
  - High-Rise Office: 22 percent energy usage savings and 19 percent reduction of GHG emissions;
  - Low/Mid-Rise Residential: 25 percent energy usage savings and 23 percent reduction of GHG emissions;
  - High-Rise Residential: 20 percent energy usage savings and 19 percent reduction of GHG emissions;
  - Signature High-Rise Residential: 18 percent energy usage savings and 17 percent reduction of GHG emissions;
  - Hotel: 17 percent energy usage savings and 16 percent reduction of GHG emissions;
  - Retail: 8 percent energy usage savings and 6 percent reduction of GHG emissions[2]; and
  - Garage: 31 percent energy usage savings and 31 percent reduction of GHG emissions.

  As demonstrated above, all Master Plan Project building typologies exceed the Stretch Energy Code requirement for energy efficiency and will result in stationary source GHG emissions reductions consistent with the MEPA GHG Policy and in support of local and regional GHG emissions reductions goals.

1 Parking is broken out from Master Plan Project energy savings and stationary source GHG emissions totals because it is low energy use and includes significant lighting improvements that artificially inflates overall project reductions.

2 The Stretch Energy Code requirements are not applicable to the Retail building typology; this typology exceeds the Base Energy Code.

7.2 Regulatory Context

The following sections provide an overview of the state and local regulatory context related to sustainability/green building design, energy efficiency and GHG emissions, and climate change resiliency.

7.2.1 MEPA Greenhouse Gas Emissions Policy & Protocol

The MEPA GHG Policy is an initiative that requires project proponents to identify and describe feasible measures to minimize both mobile and stationary source GHG emissions generated by their proposed project(s). Mobile sources are vehicles traveling to and from a project. Stationary sources are on-site boilers, heaters, and/or internal combustion engines (direct sources), as well as the consumption of energy in the form of fossil fuels (indirect sources) and electricity. GHGs include several air pollutants, including CO_2, methane, hydrofluorocarbons, and perfluorocarbons.

The MEPA GHG Policy states that all projects undergoing MEPA review requiring the submission of an EIR must quantify the project's GHG emissions and identify measures to avoid, minimize, or mitigate such emissions. In addition to quantifying project-related GHG emissions, the MEPA GHG Policy requires proponents to quantify the effectiveness of proposed improvements in terms of energy savings and therefore potential emissions reductions. The goal of the MEPA GHG Policy is to identify and implement measures to minimize or reduce the total GHG emissions anticipated to be generated by that respective project.

7.2.2 Massachusetts Stretch Energy Code

As part of the *Green Communities Act of 2008,* Massachusetts developed the optional Stretch Energy Code that gives municipalities the option to enact a more strenuous energy performance code for buildings than the conventional state building code. The Stretch Energy Code increases the energy efficiency code requirements for new construction (both residential and commercial) and for major residential renovations or additions in municipalities that adopt it.

Effective January 1, 2017 the current Stretch Energy Code, as adopted by both the cities of Boston and Revere, requires projects to achieve, at minimum, a 10 percent energy efficiency improvement when compared to the state's base energy code (the "Base Energy Code"). Projects may demonstrate the energy use savings by either meeting the performance standard of 10 percent better than ASHRAE 90.1-2013, or using a prescriptive methodology based on IECC 2015.

7.2.3 Agency Coordination

With the goal of gaining consensus on the scope of the building energy modeling for the Master Plan Project, the Proponent and project team met with MEPA and the Massachusetts Department of Energy Resources ("DOER") representatives on several

occasions. On March 22, 2018, a meeting was held to discuss the scope of the Master Plan Project stationary source GHG assessment for the DEIR/DPIR. The Proponent and project team prepared a proposed methodology for that discussion. Subsequent discussions were held on the appropriate building energy model interactions per building typology. In summary, the agreed upon stationary source GHG assessment methodology and building model assumptions were finalized on May 2018 and included the following:

- Outlines the building modeling approach for building typologies for an aggregated total of overall stationary source GHG emissions and associated reduction compared to a baseline case;
- Describes the district energy and co-generation feasibility analysis approach;
- Describes the on-site rooftop solar documentation to be reviewed as part of the Resiliency Adaption Study; and
- Identifies the 37 energy modeling iterations (including the base, proposed and alternate cases) and specific design assumptions, including passive house design to comprehensively evaluate the tradeoffs of envelope efficiency improvements compared to building mechanical and other energy efficiency improvements.

7.3 Stationary Source GHG Emissions Assessment

Consistent with the MEPA GHG Policy, the Proponent and its project team has considered and evaluated energy load reduction for each of the key building typologies in order to estimate the stationary source GHG emissions associated with the Master Plan Project. There are key energy efficiency strategies for each type of building use that will ultimately be incorporated into the final Master Plan Project building design, as reasonable and feasible. Most of these buildings would likely incorporate improved building envelope through glazing and roof insulation, lower lighting densities through LED lighting, lighting control systems and efficient HVAC systems used for heating and cooling.

In addition to evaluating energy conservation and GHG emissions reductions alternatives associated with building typology design, the Proponent evaluated the feasibility of incorporating a central plant (or plants) to take advantage of energy efficiency via co-generation or tri-generation by recovering waste heat and generating electricity, and rooftop solar PV. The following section also considers other beneficial measures associated with the future operation of the Master Plan Project which are expected to result in further energy reductions and stationary source GHG emissions, such as building commissioning, energy use tracking, and sub-metering, plug load reduction, tenant guidelines, solid waste reduction measures, etc.

7.3.1 Methodology

To provide for energy efficiency and reduced stationary source GHG emissions, the Proponent has evaluated the following key planning and design criteria:

- Methods to reduce overall energy demand through appropriate design and sizing of systems; and
- Methods to incorporate cost-effective energy-optimizing systems.

The proposed approach to building energy modeling in order to quantify estimated stationary source GHG emissions for the Master Plan Project utilized a prototype energy model for each proposed building typology. The results of each prototype have been scaled-up based on the Master Plan Project development program on a square footage basis. Each prototype has been developed as a baseline (designed to meet the minimum requirements of the 9th Edition of the Building Code that incorporates the building energy provisions of the International Energy Conservation Code (IECC) 2015, which references the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) 90.1-2013 standards), or Base Case, and the proposed building design with Energy Conservation Measures (ECMs) incorporated as GHG-reduction measures consistent with the GHG Policy, or Design Case. The proposed building typologies for the Master Plan Project include:

1. Office
2. Multi-family residential,
3. Hotel,
4. Retail, and
5. Above- and below-ground structured parking.

Each of the above typologies was examined to provide ECM's, as feasible and reasonable based on current building system technology, and include the following more specific assessments:

- **Office:** The following two office prototype designs were modeled:
  - *Low/Mid-Rise Office (7 floors):* 'Class A' office space with an upgraded architectural design for signature corporate tenants. Within this prototype, individual energy models were run for five design alternatives.
  - *High Rise Office (12 floors):* Typical 'Class A' office space. Within this prototype, individual energy models were run for five design alternatives.
- **Residential:** The following three residential prototype designs were modeled:
  - *Low/Mid-Rise Residential (7 floors):* Typical apartment construction. Within this prototype, individual energy models were run for six design alternatives.
  - *High-Rise Residential (14 floors):* Typical apartment construction. Within this prototype, individual energy models were run for six design alternatives.

- *Signature High-Rise Residential (14 floors):* Typical condominium construction. Within this prototype, individual energy models were run for six design alternatives.

› **Hotel, Retail, and Parking:** A single typical prototype design was modeled for each. Within the hotel prototype, five energy models were run to consider multiple design alternatives. Two energy models were run for both the garage and retail prototypes.

In total, 37 energy models were run to represent different design alternatives across the eight prototype buildings. The energy model results have disaggregated energy consumption by both end use and energy input (e.g. fuel and electricity) and demonstrate the energy efficiency beyond accounting for measured trade-offs in tabular form. Each typology was modeled with currently proposed building envelope performance, HVAC system type, occupancy schedule, and ventilation rates for the buildings. Integrated Environment Solution Virtual Environment (IES-VE) software was used to energy model each building typology. Excel spreadsheets were used to aggregate each typology model results and scale up energy use per the Master Plan Project program.

The energy conservation measures can be divided into the buildings' construction materials, architecture, and the heating and cooling processes. The following section presents the specific proposed building improvements by typology (and the correlating energy modeling parameters, where applicable). The specific proposed improvements will likely be subject to design modifications as necessary to achieve the energy and stationary source GHG emissions reduction based on the final building program and tenants and design.

Energy Model and Analysis Conditions

The energy analysis is used to estimate the amount of annual energy consumption by simulating a year of building operations based on typical yearly weather and user inputs. The model estimates buildings' electricity and gas usage based on building design and system assumptions using Appendix G of ASHRAE 90.1-2013[3]. The amount of consumed energy is then converted into the amount of CO_2 emitted using the standardized conversion factors.[4] CO_2 emissions were quantified for (1) the Base Case corresponding to the minimum requirements of ASHRAE 90.1-2013 and (2) the Design Case, which includes all energy saving measures that were deemed to be reasonable and feasible. The stationary source assessment calculated CO_2 emissions for the following build conditions:

› **Build Condition with MA Building Code (the "Base Case")** - The Master Plan Project assuming typical construction materials and building equipment/systems

3 American National Standards Institute/American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., *ASHRAE 90.1-2013-Energy Standard for Buildings Except* Low-*Rise Residential Buildings*, Appendix G, 2013.

4 Electric emission factor from "2016 ISO New England Electric Generator Air Emissions Report" January 2018. Natural gas emission factor from "Carbon Dioxide Emissions Coefficients by Fuel" US Energy Information Administration. February 2, 2016.

that meet the minimum requirements of the base code. This baseline is established by the energy code as being defined by ASHRAE 90.1–2013.

› **Build Condition with Energy Conservation Measures (the "Design Case")** - The Master Plan Project assuming a combination of building envelope and system improvements, in accordance with the MEPA GHG Policy and that meet or exceed the Stretch Energy Code, as required.

Descriptions of the noteworthy building improvements and resulting building energy savings and stationary source GHG emissions reductions for each typology are presented below. Specific improvements may be subject to design modification, as needed, to achieve the desired energy and GHG emissions reductions for the final building program and design. Other beneficial improvements or measures that are expected to result in further reductions of stationary source GHG emissions, but were not accounted for by the energy model, are also discussed.

It is important to note that each building typology has been modeled without a district energy system and, therefore, has stand-alone HVAC systems.

7.3.2 Energy Model Results by Building Typology

Low/Mid-Rise Office Typology

The following provides a summary of the building energy modeling for the Low/Mid-Rise Office Typology, which is planned to represent approximately 4.1 million square feet of office space across four buildings in the Master Plan Project. The energy model of this typology considered a building with approximately 548,678 square feet of conditioned area.

Descriptions of the noteworthy building improvements and resulting building energy savings and stationary source GHG emissions reductions for the Master Plan Project are presented below. Specific improvements may be subject to design modification, as needed, to achieve the desired GHG emissions reductions for the final building program and design. The proposed design was based on several key energy efficiency strategies which include:

› Efficient building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)) and insulation value of the roof, R-40 and exposed slab, R-35.

› High efficiency condensing natural gas fired boilers to meet heating demands.

› Dedicated outside air system with energy recovery.

› Floor-by-floor VAV reheat units serving active chilled beams.

› High efficiency air-cooled chiller plant with variable frequency drives.

› Low lighting power densities to be achieved from LED lighting and lighting control systems.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-1.

Table 7-1 Low/Mid-Rise Office Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.025 (R-40)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18) (20% of Wall Area)
Wall Assembly – Spandrel/Shadow Box	N/A	U-0.200 (R-5) (20% of Wall Area)
Slab Insulation	U- 0.038 (R-26)	U- 0.028 (R-35)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (R-2.4)	U- 0.35 (R-3)
Vertical Glazing SHGC	0.4	0.25
Overall % Window to Wall Ratio	40%	60%
HVAC		
HVAC System	System Type 7- VAV with Reheat	Energy recovery unit with high percentage of outside air serving active chilled beams and fan powered boxes with sensible only cooling coils.
Primary Cooling	On-site water-cooled chiller plant	On-site air-cooled chiller plant with free cooling (high efficiency compressors)
CHW Loop Supply Temp / Delta-T	44°F/12°F	57°F/6°F
CHW Loop Temp Reset Parameters	44°F-54°F for OAT 80°F-60°F	57°F-63°F for OAT 80°F-60°F
Primary Heating	On-site gas-fired boiler plant	On-site condensing boiler plant
HW Loop Supply Temp/Delta-T	180°F/50°F	140°F/30°F
Service Hot Water Type	Electric resistance storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.82 W/sf	0.6 W/sf (all- LED lighting design)
Daylight Dimming Controls	In side-lighted areas as required by ASHRAE 90.1-2013 Section 9.4.1.1	All perimeter spaces

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Low/Mid-Rise Office is presented in Table 7-2 below.

Table 7-2 Low/Mid-Rise Office Stationary Source CO_2 Emissions

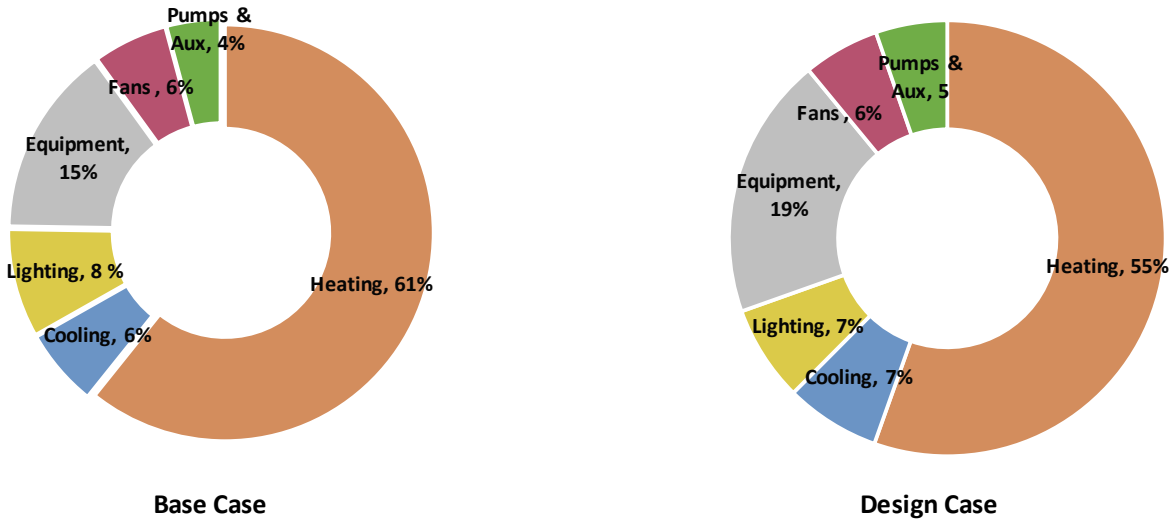
	Total Energy Consumption			CO_2 Emissions		
Scenario	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Base Case	3,694	19,504	32,111	1,311.3	1,142.0	2,453.3
Design Case	3,180	13,492	24,344	1,128.8	790.0	1,918.7
End-Use Savings	514	6,012	7,767	182.5	352.0	534.6
Percent Savings			**24.2%**			**21.8%**

1 tons/yr = short tons per year

Under the Base Case, the stationary source CO_2 emissions associated with the Low/Mid-Rise Office Typology are estimated to be 2,453.3 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 24.2 percent compared to the Base Case, which equates to an approximately 21.8 percent reduction (534.6 tpy) in stationary source CO_2 emissions.

Graph 7.1 below presents a breakdown of the Low/Mid-Rise Office energy use by end use for both the Base Case and the Design Case.

Graph 7.1 Energy Usage by End Use for the Low/Mid-Rise Office



Base Case **Design Case**

Design Scenarios for the Low/Mid-Rise Office Typology

Three design scenarios were explored for the Low/Mid-Rise Office typology. These design scenarios explored variations in the building envelope thermal performance, window to wall ratio and using base case compliant systems. Two design scenarios did not perform as well as the design case and one design scenario exceeded the energy reduction in the design case. Refer to Appendix E for full details on assumptions and results of each design scenario for the Low/Mid-Rise Office typology.

High-Rise Office Typology

The following provides a summary of the building energy modeling for the High-Rise Office Typology, which is planned to represent approximately 4.1 million square feet of office space across seven buildings in the Master Plan Project. The energy model of this typology considered a 12-story building with approximately 460,800 square feet of conditioned area. The proposed design was based on several key energy efficiency strategies which include:

- Efficient building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)) and insulation value of the roof, R-40 and exposed slab, R-35.
- High efficiency condensing boilers to meet heating demands
- Efficient Variable Air Volume (VAV) system with energy recovery
- High efficiency water-cooled chiller plant with variable frequency drives
- Low lighting power densities to be achieved from LED lighting and lighting control systems.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-3.

Table 7-3 High-Rise Office Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.025 (R-40)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18) (30% of Wall Area)
Wall Assembly – Spandrel/Shadow Box	N/A	U- 0.20 (R-5) (20% of Wall Area)
Slab Insulation	U- 0.038 (R-26)	U- 0.028 (R-35)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (R-2.4)	U- 0.35 (R-3)
Vertical Glazing SHGC	0.4	0.25
Overall % Window to Wall Ratio	40%	50%
HVAC		
HVAC System	System Type 7- VAV with Reheat	Efficient VAV with reheat
Primary Cooling	On-site water-cooled chiller plant. COP 5.0	On-site water-cooled chiller plant. COP 6.0
CHW Loop Supply Temp / Delta-T	44°F/12°F	44°F/12°F
CHW Loop Temp Reset Parameters	44°F-54°F for OAT 80°F-60°F	44°F-54°F for OAT 80°F-60°F
Primary Heating	On-site gas-fired boiler plant	On-site condensing boiler plant
HW Loop Supply Temp/Delta-T	180°F/50°F	140°F/30°F
Service Hot Water Type	Electric resistance storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.82 W/sf	0.6 W/sf (all-LED lighting design)
Daylight Dimming Controls	In side-lighted areas as required by ASHRAE 90.1-2013 Section 9.4.1.1	All perimeter spaces

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the High-Rise Office is presented in Table 7-4 below.

Table 7-4 High-Rise Office Stationary Source CO_2 Emissions

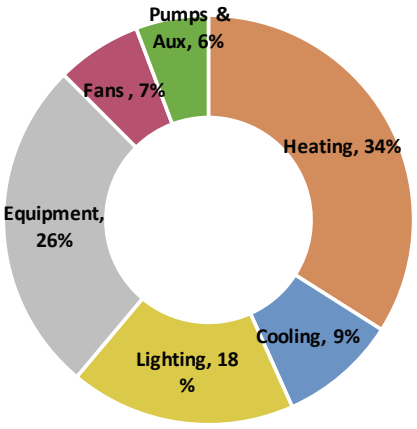
	Total Energy Consumption			CO_2 Emissions		
Scenario	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Base Case	4,834	8,500	24,997	1,715.9	497.7	2,213.6
Design Case	4,099	5,419	19,408	1,455.1	317.3	1,772.3
End-Use Savings	735	3,081	5,589	260.8	180.4	441.3
Percent Savings			**22.4%**			**19.9%**

1 tons/yr = short tons per year

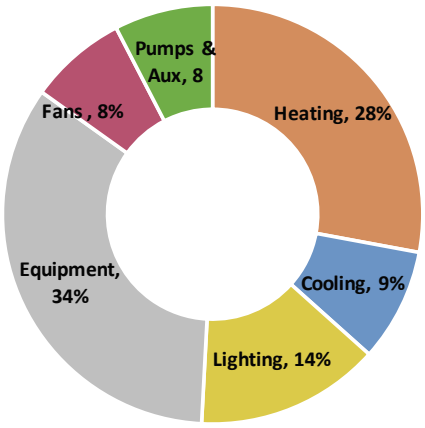
Under the Base Case, the stationary source CO_2 emissions associated with the High-Rise Office are estimated to be 2,213.6 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 22.4 percent compared to the Base Case, which equates to an approximately 19.9 percent reduction (441.3 tpy) in stationary source CO_2 emissions.

Graph 7.2 below presents a breakdown of the High-Rise Office energy use by end use for both the Base Case and the Design Case.

Graph 7.2 Energy Usage by End Use for the Typical High-Rise Office



Base Case



Design Case

Design Scenarios for the High-Rise Office Typology

Three design scenarios were explored for the High-Rise Office typology. These design scenarios explored variations in the building envelope thermal performance, window to wall ratio and using base case compliant systems. Two design scenarios did not perform as well as the design case and one design scenario exceeded the energy reduction in the design case. Refer to Appendix E for full details on assumptions and results of each design scenario.

Low/Mid-Rise Residential Typology

The following provides a summary of the building energy modeling for the Low/Mid-Rise Residential Typology, which is planned to represent approximately 1 million square feet of residential space across 12 buildings in the Master Plan Project. The energy model of this typology considered a 7-story building with approximately 277,593 square feet of conditioned area. The proposed design was based on several key energy efficiency strategies, including:

- Efficient building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)) and insulation value exposed slab, R-35.
- High efficiency condensing boilers to meet heating demands.
- Dedicated outside air unit with energy recovery serving water source heat pumps.
- Low lighting power densities to be achieved from LED lighting in common areas.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-5.

Table 7-5 Low/Mid-Rise Residential Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.032 (R-30)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18)
Slab Insulation	U- 0.038 (R-26)	U- 0.028 (R-36)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (fixed) U- 0.50 (operable)	U- 0.35 (fixed) U- 0.40 (operable)
Vertical Glazing SHGC	0.4	0.3
Overall % Window to Wall Ratio	40%	45%
HVAC		
HVAC System	System Type 1 – Packaged Terminal Air Conditioner (PTAC)	Dedicated outside air unit with energy recovery serving heat pumps
Exhaust Air Energy Recovery	Not required	Total energy recovery wheel
Primary Cooling	Direct Expansion	Water source heat pumps
Primary Heating	Gas-fired hot water boilers	Water source heat pumps connected to condensing boilers
Service Hot Water Type	Gas storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.51 W/sf (ASHRAE 90.1-2013 Building Area Method for Multifamily, excludes dwelling units)	0.46 W/sf (all -LED lighting design)

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Low/Mid-Rise Residential typology is presented in Table 7-6 below.

Table 7-6 Low/Mid-Rise Residential Stationary Source CO_2 Emissions

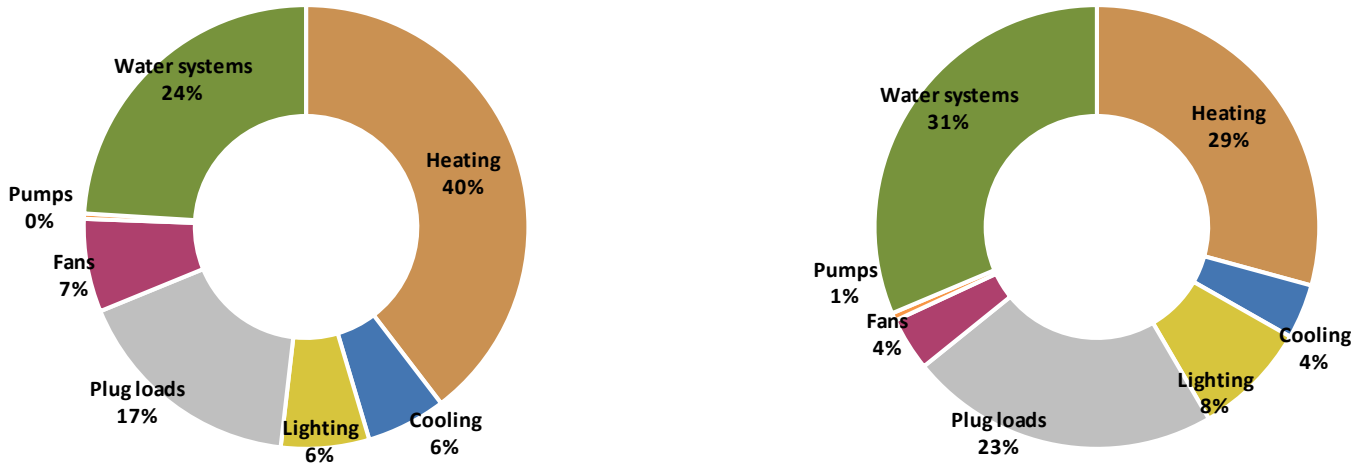
	Total Energy Consumption			CO_2 Emissions		
Scenario	**Electricity (MWh/yr)**	**Natural Gas (MMBtu/yr)**	**Total (MMBtu/yr)**	**Electricity (tons/ yr)[1]**	**Natural Gas (tons/ yr)**	**Total (tons/ yr)**
Base Case	1,786	10,672	16,769	634.2	624.8	1,259.0
Design Case	1,455	7,642	12,608	516.5	447.4	964.0
End-Use Savings	331	3,030	4,161	117.7	177.4	295.0
Percent Savings			**24.8%**			**23.4%**

1 tons/yr = short tons per year

Under the Base Case, the stationary source CO_2 emissions associated with the Low/Mid-Rise Residential typology are estimated to be 1,259.0 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 24.8 percent compared to the Base Case, which equates to an approximately 23.4 percent reduction (295.0 tpy) in stationary source CO_2 emissions.

Graph 7.3 below presents a breakdown of the Low/Mid-Rise Residential typology energy use by end use for both the Base Case and the Design Case.

Graph 7.3 Energy Usage by End Use for the Low/Mid-Rise Residential



Design Scenarios of the Low/Mid-Rise Residential Typology

Four design scenarios were explored for the Low/Mid-Rise Residential typology. These design scenarios explored variations in the building envelope thermal performance for roof and wall insulation, window to wall ratio and using base case compliant systems. One design scenario did not perform as well as the design case and two design scenarios exceeded the energy reduction in the design case.

An additional design scenario was explored that would achieve Passive House Performance, which is a performance standard for very low energy design with a focus on building envelope performance for insulation and air tightness. A further discussion of Passive House is provided in Section 7.3.4. Additionally, the energy modeling was conducted by a Certified Passive House Consultant (CPHC).

Refer to Appendix E for full details on assumptions and results of each design scenario.

High-Rise Residential Typology

The following provides a summary of the building energy modeling for the High-Rise Residential Typology, which is planned to represent approximately 3.4 million square feet of residential space across 11 buildings in the Master Plan Project. The energy model of this typology considered a 14-story building with approximately 572,433 square feet of conditioned area. The proposed design was based on several key energy efficiency strategies, including:

- Efficient building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)) and insulation value exposed slab, R-35.
- High efficiency condensing boilers to meet heating demands.
- Dedicated outside air unit with energy recovery serving water source heat pumps.
- Low lighting power densities to be achieved from LED lighting in common areas.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-7

Table 7-7 Typical High-Rise Residential Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.032 (R-30)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18)
Slab Insulation	U- 0.038 (R-26)	U- 0.028 (R-36)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (fixed) U- 0.50 (operable)	U- 0.35 (fixed) U- 0.40 (operable)
Vertical Glazing SHGC	0.4	0.3
Overall % Window to Wall Ratio	40%	45%
HVAC		
HVAC System	System Type 1 – Packaged Terminal Air Conditioner (PTAC)	Dedicated outside air unit with energy recovery serving heat pumps
Exhaust Air Energy Recovery	Not required	Total energy recovery wheel
Primary Cooling	Direct Expansion	Water source heat pumps
Primary Heating	Gas-fired hot water boilers	Water source heat pumps connected to condensing boilers
Service Hot Water Type	Gas storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.51 W/sf (ASHRAE 90.1-2013 Building Area Method for Multifamily, excludes dwelling units)	0.46 W/sf (all-LED lighting design)

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the High-Rise Residential is presented in Table 7-8 below.

Table 7-8 High-Rise Residential Stationary Source CO_2 Emissions

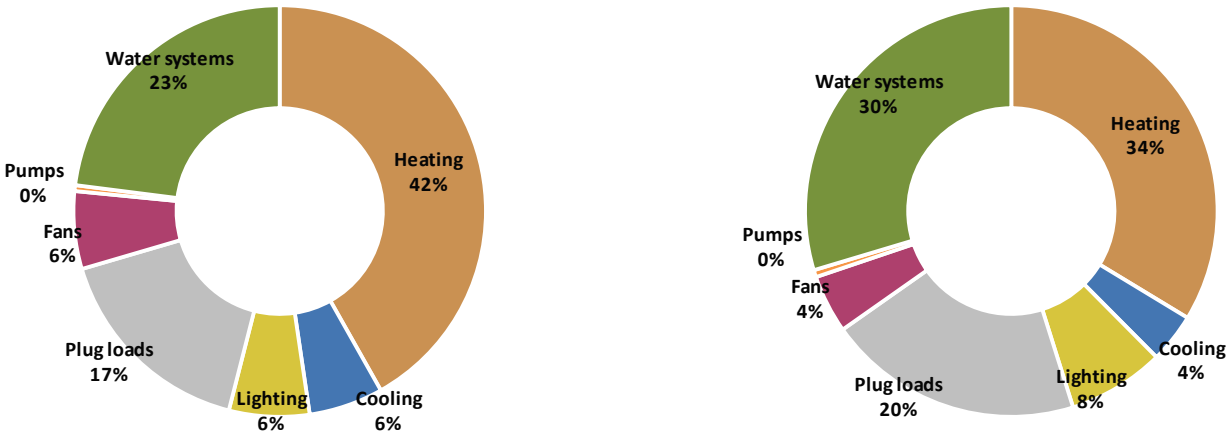
	Total Energy Consumption			CO_2 Emissions		
Scenario	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Base Case	3,602	22,659	34,954	1,278.9	1,326.7	2,605.5
Design Case	3,084	17,558	28,084	1,094.9	1,028.0	2,122.9
End-Use Savings	518	5,101	6,870	184.0	298.7	482.6
Percent Savings			**19.7%**			**18.5%**

1 tons/yr = short tons per year

Under the Base Case, the stationary source CO_2 emissions associated with the High-Rise Residential typology are estimated to be 2,605.5 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 19.7 percent compared to the Base Case, which equates to an approximately 18.5 percent reduction (482.6 tpy) in stationary source CO_2 emissions.

Graph 7.4 below presents a breakdown of the High-Rise Residential typology energy use by end use for both the Base Case and the Design Case.

Graph 7.4 Energy Usage by End Use for the High-Rise Residential



Base Case **Design Case**

Design Scenarios of the High-Rise Residential Typology

Four design scenarios were explored for the High Rise Residential typology. These design scenarios explored variations in the building envelope thermal performance for roof and wall insulation, window to wall ratio and using base case compliant systems. One design scenario did not perform as well as the design case and two design scenarios exceeded the energy reduction in the design case.

An additional design scenario was explored that would achieve Passive House Performance, which is a performance standard for very low energy design with a focus on building envelope performance for insulation and air tightness. A further discussion of Passive House is provided in Section 7.3.4.

Refer to Appendix E for full details on assumptions and results of each design scenario.

Signature High-Rise Residential Typology

The following provides a summary of the building energy modeling for the Signature High-Rise Residential Typology, which is planned to represent approximately 2.7 million square feet of residential space across eight buildings in the Master Plan Project. The energy model of this typology considered a building with approximately 572,433 square feet of conditioned area. The proposed design was based on several key energy efficiency strategies, including:

- Building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)).
- High efficiency condensing boilers to meet heating demands.
- Dedicated outside air unit with energy recovery serving water source heat pumps.
- Low lighting power densities to be achieved from LED lighting in common areas.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-9.

Table 7-9 Signature High-Rise Residential Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.032 (R-30)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18) [30% of façade]
Wall Assembly – Spandrel/Shadow Box	N/A	U- 0.200 (R-5) [20% of façade]
Slab Insulation	U- 0.038 (R-26)	U- 0.038 (R-26)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (fixed) U- 0.50 (operable)	U- 0.35 (fixed) U- 0.40 (operable)
Vertical Glazing SHGC	0.4	0.3
Overall % Window to Wall Ratio	40%	50%
HVAC		
HVAC System	System Type 1 – Packaged Terminal Air Conditioner (PTAC)	Dedicated outside air unit with energy recovery serving heat pumps
Exhaust Air Energy Recovery	Not required	Total energy recovery wheel
Primary Cooling	Direct Expansion	Water source heat pumps
Primary Heating	Gas-fired hot water boilers	Water source heat pumps connected to condensing boilers
Service Hot Water Type	Gas storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.51 W/sf (ASHRAE 90.1-2013 Building Area Method for Multifamily, excludes dwelling units)	0.46 W/sf (all-LED lighting design)

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Signature High-Rise Residential is presented in Table 7-10 below.

Table 7-10 Signature High-Rise Residential Stationary Source CO_2 Emissions

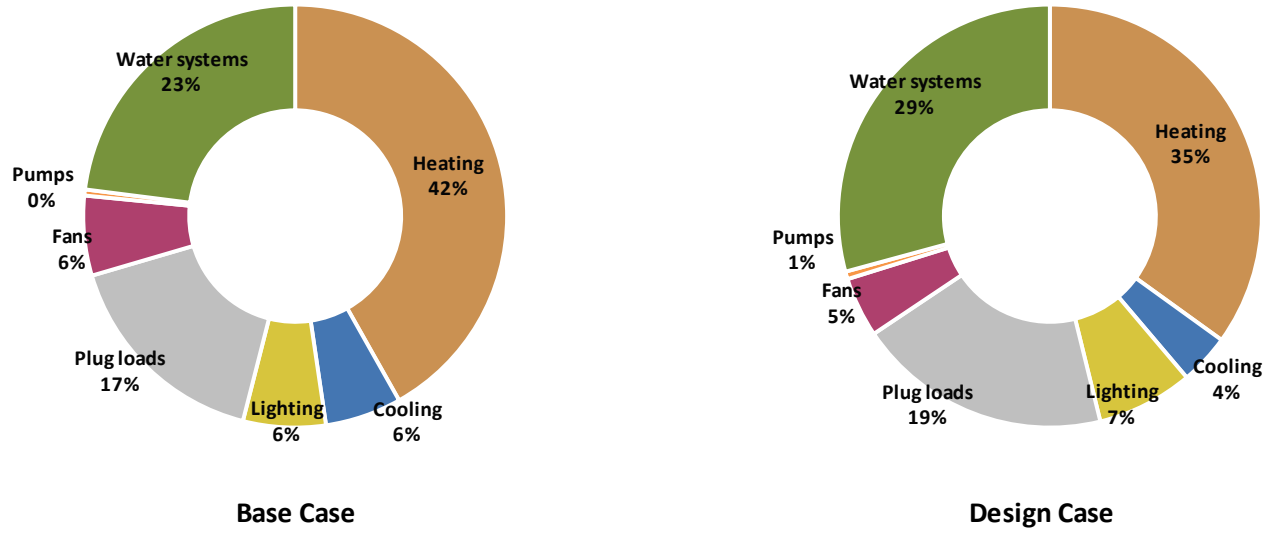
	Total Energy Consumption			CO_2 Emissions		
Scenario	**Electricity (MWh/yr)**	**Natural Gas (MMBtu/yr)**	**Total (MMBtu/yr)**	**Electricity (tons/ yr)[1]**	**Natural Gas (tons/ yr)**	**Total (tons/ yr)**
Base Case	3,602	22,659	34,954	1,278.9	1,326.7	2,605.5
Design Case	3,110	18,196	28,812	1,104.2	1,065.4	2,169.6
End-Use Savings	492	4,463	6,142	174.6	261.3	435.9
Percent Savings			**17.6%**			**16.7%**

1 tons/yr = short tons per year

Under the Base Case, the stationary source CO_2 emissions associated with the Signature High-Rise Residential are estimated to be 2,605.5 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 17.6 percent compared to the Base Case, which equates to an approximately 16.7 percent reduction (435.9 tpy) in stationary source CO_2 emissions.

Graph 7.5 below presents a breakdown of the Signature High-Rise Residential energy use by end use for both the Base Case and the Design Case.

Graph 7.5 Energy Usage by End Use for the Signature High-Rise Residential



Base Case **Design Case**

Design Scenarios of the High-Rise Signature Residential

Four design scenarios were explored for the High-Rise Signature Residential typology. These design scenarios explored variations in the building envelope thermal performance for roof, slab and wall insulation, glazing performance, window to wall ratio and using base case compliant systems. Two design scenarios did not perform as well as the design case and two design scenarios exceeded the energy reduction in the design case.

Refer to Appendix E for full details on assumptions and results of each design scenario.

Hotel Typology

The following provides a summary of the building energy modeling for the Hotel Typology, which is planned to represent approximately 561,316 square feet of hotel space across three buildings in the Master Plan Project. The energy model of this typology considered a building with approximately 196,244 square feet of

conditioned area. The proposed design was based on several key energy efficiency strategies which include:

- Building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)).
- High efficiency condensing boilers to meet heating demands
- High efficiency water-cooled chiller plant with variable frequency drives
- Dedicated outside air unit with Fan Coil Units (FCUs) in Rooms and VAV in Non-Room Areas
- Low lighting power densities to be achieved from LED lighting in common areas.

A summary of the various energy modeling inputs, including the energy conservation measures listed above, are presented in Table 7-11.

Table 7-11 Hotel Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.032 (R-30)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18) [40% of façade]
Wall Assembly – Spandrel/Shadow Box	N/A	U- 0.200 (R-5) [20% of façade]
Slab Insulation	U- 0.038 (R-26)	U- 0.038 (R-26)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (fixed) U- 0.50 (operable)	U- 0.35 (fixed) No Operable Windows
Vertical Glazing SHGC	0.4	0.3
Overall % Window to Wall Ratio	34%	40%
HVAC		
HVAC System	System Type 1 – Packaged Terminal Air Conditioner (PTAC) - Rooms System Type 7A - VAV w/reheat - Non-Room Areas	Dedicated outside air unit with Fan Coil Units (FCUs) in Rooms and VAV in Non-Room Areas
Exhaust Air Energy Recovery	Not required	Total energy recovery wheel
Primary Cooling	Direct Expansion	Water source heat pumps
Primary Heating	Gas-fired hot water boilers	Water source heat pumps connected to condensing boilers
Service Hot Water Type	Gas storage water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	0.87 W/sf	0.7 W/sf

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Hotel is presented in Table 7-12 below.

Table 7-12 Hotel Stationary Source CO_2 Emissions

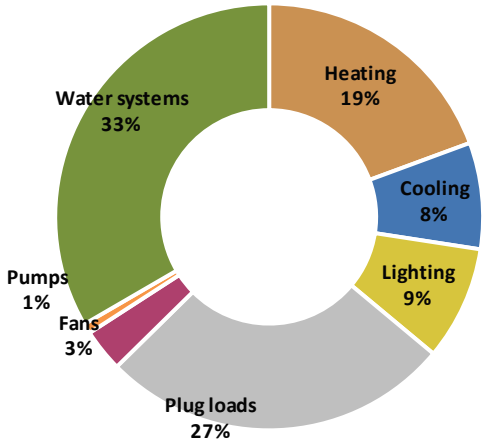
	Total Energy Consumption			CO_2 Emissions		
Scenario	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Base Case	3,699	14,097	26,721	1,313.1	825.4	2,138.5
Design Case	3,208	11,250	22,198	1,138.7	658.7	1,797.4
End-Use Savings	491	2,847	4,524	174.4	166.7	341.1
Percent Savings			**16.9%**			**15.9%**

1 tons/yr = short tons per year

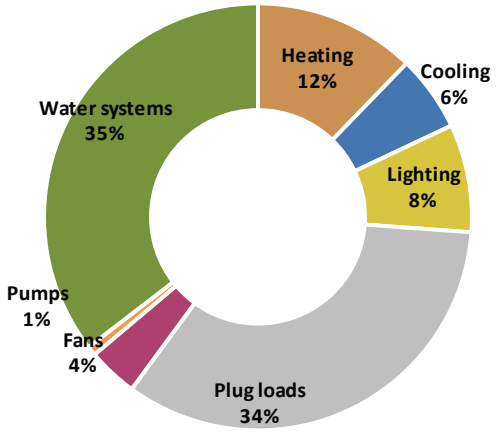
Under the Base Case, the stationary source CO_2 emissions associated with the Hotel typology are estimated to be 2,138.5 tons per year. With the proposed building design and system improvements, the estimated energy use reduction for the office buildings is approximately 16.9 percent compared to the Base Case, which equates to an approximately 15.9 percent reduction (341.1 tpy) in stationary source CO_2 emissions.

Graph 7.6 below presents a breakdown of the Hotel typology energy use by end use for both the Base Case and the Design Case.

Graph 7.6 Energy Usage by End Use for the Hotel



Base Case



Design Case

Design Scenarios for the Hotel Typology

Three design scenarios were explored for the Hotel typology. These design scenarios explored variations in the building envelope thermal performance, window to wall ratio and using base case compliant systems. Two design scenarios did not perform as well as the design case and one design scenario exceeded the energy reduction in the design case. Refer to Appendix E for full details on assumptions and results of each design scenario.

Retail Typology

The following provides a summary of the building energy modeling for the Retail Typology, which includes approximately 526,670 square feet of retail space across three buildings in the Master Plan Project. The energy model of this typology considered a building with approximately 25,692 square feet of conditioned area. The proposed design was based on several key energy efficiency strategies, including:

- Building envelope that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient (SHGC)).
- High efficiency condensing boilers to meet heating demands.
- Gas-fired RTU with DX Cooling with energy recovery.
- Low lighting power densities to be achieved from LED lighting in common areas.

The above strategies, further detailed in Table 7-13 below, are part of the Design Case for the building energy modeling.

Table 7-13 Retail Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Roof Insulation	U- 0.032 (R-30)	U- 0.032 (R-30)
Wall Assembly – Opaque	U- 0.055 (R-18)	U- 0.055 (R-18)
Wall Assembly – Spandrel/Shadow Box	U- 0.055 (R-18)	U- 0.200 (R-5)
Fenestration and Shading		
Vertical Glazing U-Factor	U- 0.42 (fixed)	U- 0.35 (fixed)
Vertical Glazing SHGC	0.40	0.40
Overall % Window to Wall Ratio	11%	15%
HVAC		
HVAC System	System Type 3- Packaged Rooftop air conditioner	Gas-fired RTU with DX Cooling
Primary Cooling	DX Cooling	DX Cooling
Primary Heating	Fossil Fuel Furnace	Gas-fired RTU
Service Hot Water Type	Condensing hot water heater	Condensing hot water heater
Lighting		
Lighting Power Density (LPD)	Retail: 1.26 W/sf Restaurant: 1.01 W/sf (ASHRAE 90.1- 2013 Building Area Method)	Retail: 1.2 W/sf Restaurant: 0.9 W/sf

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Retail typology is presented in Table 7-14 below. These improvements assumed in the preliminary building energy model demonstrate the Retail typology would result in an estimated energy savings of 7.7 percent equating to a 6.3 percent reduction in Project-related stationary source GHG emissions. This overall energy savings indicates the Retail Typology will exceed the Massachusetts Energy Code. The retail components are small enough in size that they are not subject to the Stretch Energy Code.

Table 7-14 Retail Stationary Source CO_2 Emissions

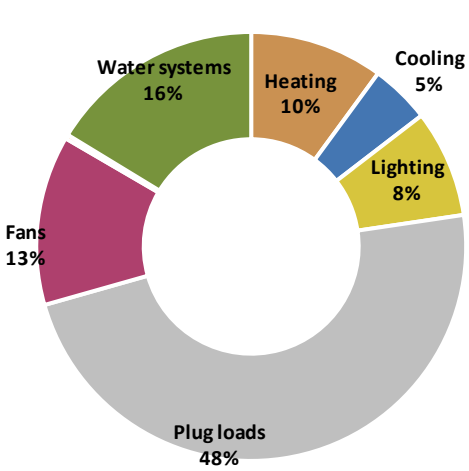
	Total Energy Consumption			CO_2 Emissions		
Scenario	Electricity (MWh/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Base Case	1,112	1,357	5,153	394.8	79.5	474.3
Design Case	1,069	1,108	4,757	379.6	64.9	444.4
End-Use Savings	43	249	396	15.3	14.6	29.9
Percent Savings			**7.7%**			**6.3%**

1 tons/yr = short tons per year

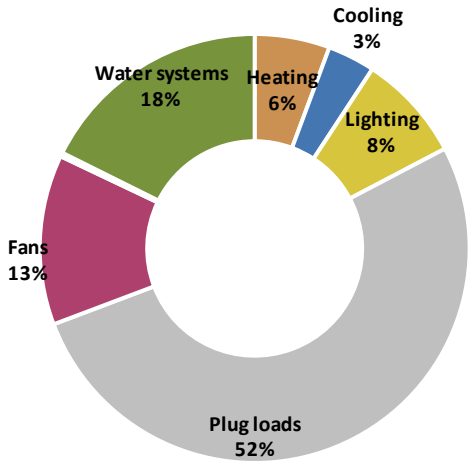
Under the Base Case, the stationary source CO_2 emissions associated with the Retail building typology are estimated to be 474.3 tons per year. With the building design and system improvements, the estimated energy use reduction for the Retail building typology is approximately 7.7 percent compared to the Base Case, which equates to an approximately 6.3 percent reduction (29.9 tpy) in stationary source CO_2 emissions.

Graph 7.7 below presents a breakdown of the overall Retail Typology energy use by end use for both the Base Case and the Design Case.

Graph 7.7 Energy Usage by End Use for the Retail



Base Case



Design Case

Parking Garage Typology

Parking garages will be provided throughout the Project Site for project users. The proposed design for the parking garage typology has only included savings associated with low lighting power densities to be achieved from LED lighting. The model input parameters are presented in Table 7-15.

Table 7-15 Parking Garage Key Energy Model Assumptions

Modeling Parameter	Base Case[1]	Design Case
Building Envelope		
Floor Slab (conditioned to unconditioned space)	U- 0.038 (R-26)	U- 0.028 (R-35)
HVAC		
Fans (Ventilation) cfm/ft2	0.75	0.75
Lighting		
Lighting Power Density (LPD)	0.82 W/sf	0.6 W/sf
		All LED Lighting design
Daylight Dimming Controls	In side-lighted areas	All perimeter spaces

1 The Base Case represents current ASHRAE 90.1-2013 standards.

The total estimated annual electricity use, natural gas consumption, and associated emissions for the Parking Garage Typology (5,794,751 square feet) is presented in Table 7-16 below. Parking garages typically consume small amounts of energy compared to other uses and project buildings.

Table 7-16 Parking Garage Stationary Source CO_2 Emissions

	Total Energy Consumption			CO_2 Emissions		
Scenario	**Electricity (MWh/yr)**	**Natural Gas (MMBtu/yr)**	**Total (MMBtu/yr)**	**Electricity (tons/ yr)[1]**	**Natural Gas (tons/ yr)**	**Total (tons/ yr)**
Base Case	443	0	1,512	157.3	0.0	157.3
Design Case	305	0	1,042	108.4	0.0	108.4
End-Use Savings	138	0	470	48.9	0.0	48.9
Percent Savings			**31.1%**			**31.1%**

1 tons/yr = short tons per year

Under the Base Case, the stationary source CO_2 emissions associated with the Parking typology are estimated to be 157.3 tons per year. With the building design and system improvements, the estimated energy use reduction for the Parking Garage typology is approximately 31.1 percent compared to the Base Case, which equates to an approximately 31.1 percent reduction (48.9 tpy) in stationary source CO_2 emissions.

7.3.3 Overall Master Plan Project Stationary Source GHG Emissions

Given the results provided above by individual building typology, the overall Master Plan Project energy reduction and stationary source GHG emissions have been calculated using the proposed square footage program. Table 7-17 below provides the program break-out by building typology excluding parking.

Table 7-17 Master Plan Project Program by Building Typology

Building Typology	Program Area (SF)	Percentage of Program Area	No. of Buildings
Low/Mid-Rise Office	4,114,112	25.2%	4
High Rise Office	4,060,060	24.8%	7
Low/Mid-Rise Residential	1,004,542	6.1%	12
High-Rise Residential	3,434,058	21.0%	11
Signature High-rise Residential	2,652,653	16.2%	8
Hotel	561,316	3.4%	3
Retail	526,670	3.2%	3
Total	**16,353,411**	**100%**	**48**

Table 7-18 below provides the as-modeled energy and stationary source GHG emissions results that have been aggregated for each building typology based on the Master Plan Project program under the Base and Design Cases. The energy reduction for the Master Plan Project demonstrates the Proponent's commitment to constructing a sustainable energy-efficient project by exceeding the Stretch Energy Code requirement of 10 percent energy reduction with an aggregate energy reduction of approximately 19 percent (without structured parking areas included) resulting in an approximately 17.5 percent overall reduction in stationary source CO_2 emissions. With structured parking included, the percent energy usage savings increases to 20.9 percent and GHG emissions savings to 19.6 percent. (Parking is broken out from Master Plan Project energy savings and stationary source GHG emissions totals because it is low energy use and includes significant lighting improvements that artificially inflates overall project reductions.)

Table 7-18 Master Plan Project Stationary Source CO_2 Emissions

	Total Energy Consumption			CO_2 Emissions		
	Electricity (MMBtu/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Master Plan Project without Parking						
Base Case	505,616	566,468	1,072,084	52,592	33,167	85,758
Design Case	442,920	421,462	864,382	46,070	24,677	70,747
End-Use Savings	62,696	145,006	207,702	6,521	8,490	15,011
Percent Savings			**19.4%**			**17.5%**
Master Plan Project Parking only						
Base Case	11,940	0	11,940	1,242	0	1,242
Design Case	8,229	0	8,229	856	0	856
End-Use Savings	3,711	0	3,711	386	0	386
Percent Savings			**31.1%**			**31.1%**
Master Plan Project with Parking						
Base Case	548,606	566,468	1,115,073	57,063	33,167	90,230
Design Case	460,298	421,462	869,474	47,878	24,677	72,554
End-Use Savings	70,200	145,006	233,314	9,185	8,490	17,675
Percent Savings			**20.9%**			**19.6%**

Energy Use Intensity

Energy Use Intensity ("EUI") is a tool used to provide a common basis of comparison of energy use for various building uses. It is the total amount of energy used at a project over a one-year period, divided by the square footage of that building and represents the energy consumed by a building relative to its size. Based on a recent U.S. Department of Energy ("DOE") research report:

- The median EUIs for a prototype Large and Medium Office Buildings in the Commonwealth are 75.2 and 37.1 kBtu/sf, respectively, under ASHRAE 90.1-2013.[5]
- The median EUIs for a prototype High-Rise and Mid-Rise Apartment are 54.1 kBtu/sf and 49.8 kBtu/sf, respectively, under ASHRAE 90.1-2013.[6]

5 "Cost-Effectiveness of the ASHRAE Standard 90.1-2013 for the State of Massachusetts". *US Department of Energy*. December 2015. The prototypical Large Office is 498,600 sf and 12 floors, while the prototypical Medium Office is 53,600 sf and 3 floors.

6 The prototypical High-Rise Residential is 84,360 sf and 10 floors, while the prototypical Mid-Rise Apartment is 33,700 sf and 4 floors.

› The median EUIs for a prototype Large and Small Hotels are 91.4 and 63.3 kBtu/sf, respectively, under ASHRAE 90.1-2013.[7]

› The retail typology modeling was composed of both retail and restaurant components. The median EUI for a retail store is 46.3 kBtu/sf and 418.8 kBtu/sf for a restaurant.[8]

Table 7-19 below compares the as-modeled EUI results for the Master Plan Project Base and Design Cases to the benchmark EUIs for each building typology.

Table 7-19 Energy Use Intensity Master Plan Project Building Typologies

Building Typology	Energy Use Intensity (kBtu/sf-yr)		Benchmark Energy Use Intensity (kBtu/sf-yr)	Percent Improvement
	Base Case[1]	Design Case		
Low/Mid-Rise Office	59	44	37.1 - 75.2	25%
High Rise Office	54.2	42.1	37.1 - 75.2	22.4%
Low/Mid-Rise Residential	60.4	45.4	49.8 - 54.1	24.8%
High-Rise Residential	61.1	49.1	49.8 - 54.1	19.7%
Signature High-Rise Residential	61.1	50.3	49.8 - 54.1	17.6%
Hotel	136.2[2]	113.1[2]	63.3 – 91.4	16.9%
Retail	206	190	46.3 – 418.8	7.7%
Parking Garage	7.0	4.85	-	31%

1 The Base Case represents current Base Energy Code ASHRAE 90.1-2013 standards.

2 The hotel EUI is higher than the benchmark, as the energy model representing the Base Energy Code starts out well above the benchmark EUI for a larger hotel (91.4). The proposed design brings the EUI closer to the benchmark with energy efficiency measure reducing the energy consumption by 16.9%

The EUIs for each individual building typology demonstrates the Proponent's commitment to constructing a green project by exceeding the Stretch Energy Code requirement of 10% energy reduction. It is important to note that the stand alone retail buildings are not subject to the Stretch Energy Code; therefore, only are required to meet the Base Energy Code. As such, all building typologies exceed the applicable minimum energy code performance requirements.

Table 7-20 below provides the as-modeled EUI results that have been aggregated for each building typology based on the Master Plan Project program under the Base and Design Cases. The EUI for the Master Plan Project also demonstrates the Proponent's commitment to constructing a sustainable energy-efficient development by exceeding

7 The prototypical Large Hotel is 122,132 sf and 6 floors, while the prototypical Small Hotel is 43,200 sf and 4 floors.

8 The prototypical Retail Store is 24,695 sf and 1 floor, while the prototypical Restaurant is 5,502 sf and 1 floor.

the Stretch Energy Code requirement of 10% energy reduction.

Table 7-20 Energy Use Intensity Master Plan Project

	Energy Use Index (kBtu/sf-yr)		Percent Improvement
	Base Case[1]	Design Case	
Master Plan Project (without Parking)	65.6	52.9	19.4%
Master Plan Project (with Parking)	50.3	39.8	20.9%

1 The Base Case represents current Base Energy Code ASHRAE 90.1-2013 standards.

7.3.4 Passive House

There are five principles of a Passive house design; (1) air tight building envelope, (2 & 3) high thermal performance of walls, roof and windows, (4) thermal bridge free design and (4) ventilation with heat recovery. The Passive House Institute US (PHIUS) offers certification of buildings. The intent of a Passive House design is to achieve a very low energy building with a focus on the building envelope such that it could achieve net zero energy with the addition of renewable energy. The certification performance requirements do not include renewable energy.

The Proponent and its project team have undertaken considerable due diligence in understanding the implications to achieving Passive House certification for a Multi-Family Residential building as part of the Master Plan Project. This has included outreach and discussions with Hank Keating, a local expert on Passive House, and ICON Architecture (architect) and Peterson Engineering (MEP engineers) of the Distillery project in South Boston, a small residential project that was the first Passive House certified project in Boston. The Proponent also met with the general contractor of that project.

The FXFOWLE study, *Feasibility Study to Implement Passivhaus Standard on Tall Residential Buildings (February 2017,)* was also reviewed by the Proponent and its project team. It concluded that the Passive House standard can be implemented on high rise residential buildings for a moderate cost increment (the study found 2.4% incremental cost) however, the design changes yielded a 24-year payback period which is not cost effective. In addition, there are no current precedents of completed large scale passive house projects in the Boston region or in nearby regions which has made detailed evaluation of Passive House standards difficult. However, the Proponent is committed to continuing to explore and assess the feasibility and cost-benefit of building to the Passive House standard for the Multi-Family Residential typology, particularly given the long-term build-out anticipated.

Refer to Appendix E for more details on the passive house energy modeling done for the residential typologies.

7.3.5 Other Beneficial Stationary Source GHG Emissions Measures

The following sections describe the additional building design and operational measures that were not assumed or quantified as part of the preliminary building energy model, but will be considered as measures to provide additional stationary source GHG benefits. These measures, if implemented, could yield further energy savings and stationary source GHG emissions reductions over the life of the Master Plan Project. As discussed in Chapter 4, *Sustainability/Green Building*, the Proponent has committed to having 50 percent of the buildings developed as part of the Master Plan Project satisfy requirements for a minimum LEED Gold rating and 50 percent of the buildings satisfy requirements for a minimum LEED Silver rating. Building design that meets LEEDv4 criteria to such levels better ensures energy usage reduction and, therefore, stationary source GHG emissions reductions compared to a conventional, non-LEED building.

In addition, clean and renewable energy sources can be integrated and deployed under any energy infrastructure configuration to impact the site's sustainability, reliability and costs effectiveness. Notable options reviewed to serve the Project's electrical and thermal loads include district energy (district energy without electrical generation and district energy microgrid enabled through CHP), rooftop solar PV and wind.

A self-sustained electrical and thermal infrastructure can incorporate multiple generation technologies to further reduce energy costs, greenhouse gas emissions and increase reliability and sustainability. Nearby critical infrastructure and an enabling load profile presents a unique opportunity to integrate energy systems of the future. This allows designers to embed sustainability, resilience, cost effectiveness, livability and flexibility at the core of site design. Finally, as a relatively blank canvas the site enables modularity and flexibility in regard to the scale and timing of energy system deployment, depending on the phasing of the development and tenant-specific needs.

The following presents additional measures that have been considered for the Master Plan Project. While not quantified in all cases, these measures are expected to result in additional stationary source GHG reductions beyond those associated with building design presented previously in Section 7.3.3.

Building Commissioning, Energy Use Tracking, and Sub-Metering

Consistent with LEEDv4 criteria, the Master Plan Project will implement enhanced commissioning, as well as building envelope commissioning to go beyond commissioning of the MEP systems.

Sub-metering will be installed to monitor energy by major end use and/or tenant in commercial office and retail building typologies. Residential buildings will have unit-level metering for electricity and water consumption for which residents will pay for themselves as a way to encourage reduced usage.

Net Zero

The Master Plan Project is committed to constructing buildings that exceed minimum Stretch Energy Code and will not preclude the advancement toward net zero, as technology becomes available over the life span of the Master Plan Project. Sub-metering and energy management systems will be installed to enable proactive monitoring and tracking of energy consumption to optimize performance.

The Master Plan Project will evaluate opportunities for renewable energy systems as well as evaluate the cost benefit to a central plant approach which would utilize energy most efficiently by producing heat, cooling and electricity. The long-term sustainability plan described in Chapter 4, *Sustainability/Green Building* outlines a plan to support the City of Boston's goal for carbon neutrality by 2050.

Green Tenant Guidelines

The Proponent will provide Tenant Design and Construction Guidelines to potential office and retail tenants during the leasing process. The intent of these guidelines is to educate future tenants about implementing sustainable design and construction features in their tenant improvement build-outs as well as adopting green building practices that support the overall sustainability goals of the Project. The guidelines will also communicate the sustainable and resource-efficient features incorporated into the base building and provide suggested sustainable strategies enabling tenants to coordinate their leased space design and construction with the rest of the Project systems.

These guidelines may include the following information:

- Descriptions of sustainable design, construction, and operational features of the Project, including resource conservation goals and features (i.e., low-flow plumbing fixtures, sub-metered systems, lighting controls) as well as building certification checklists, such as LEED.
- Descriptions of current regulatory requirements that pertain to leasable spaces (i.e., Stretch Energy Code, City of Boston energy reporting requirements).
- A list of approved categories of fit-out materials with performance standards, which may include health product declarations or similar transparency declarations, environmental product declarations, recycled content, regional availability, VOC content limits for adhesives, sealants, paints and coatings, NAUF composite wood materials, and CRI and/or FloorScore compliant flooring materials.
- Recommendations and guidance on providing good indoor air quality during construction and once occupied.
- Recommendations and guidance on ways to lower energy use for tenant space including HVAC systems, controls, set points, and plug load reduction.
- Waste reduction goals and recycling and/or composting facilities/programs.
- Information on Green Cleaning guidelines/policies.

- Information regarding Project-wide features that aim to encourage alternative transportation and TDM measures.
- Information on how to train/inform maintenance staff and employees on sustainable design/operation features.

In addition, the Proponent is exploring the creation of green tenant guidelines for future residential tenants which would provide information on utilizing the sustainable design features of the building and the individual unit to their fullest potential. These could include information on how to use the heating and cooling systems, ways to conserve energy and water, plug load controls, waste reduction and recycling and/or composting, green cleaning guidelines and products, non-automotive transportation and cycling options and identification of amenities within walking distance. As previously mentioned, residential units will be individually metered for energy and water use to provide incentive for residents to reduce consumption.

Plug Load Reduction

The Proponent commits to encouraging the use of ENERGY STAR™ appliances and equipment where available and reasonably practicable. The building energy model does not take credit for reduced plug loads as the eQUEST model conducted for the Design Case did not account for energy conservation measures related to plug-in equipment. The use of ENERGY STAR™ appliances and equipment has proven to result in a reduction in overall energy use and, therefore, a reduction in stationary source CO_2 emissions for the Project.[9] A 10-percent reduction was applied to the total annual electrical output of the Plug Load[10] category derived from the energy model. By applying the 10-percent reduction to account for ENERGY STAR™ appliances and equipment, the total annual Miscellaneous electricity would be reduced from 64,360 MWh to 57,924 MWh, which is equivalent to a further reduction of 2,285 tons of CO_2 emissions.

Solid/C&D Waste Reduction and Potential GHG Reductions

Recycling and reuse programs will be developed and implemented by all construction contractors to reduce the amount of waste that is sent to landfills throughout construction. Prior to the start of construction, the construction management team will prepare and submit a Construction Waste Management Plan ("CWMP") which will be implemented on Project Site. The Master Plan Project will target a minimum diversion rate of 75 percent of construction and demolition waste.

Storage of collected recyclables will be accommodated in designated recycling areas of the Master Plan Project. A contracted waste management company will collect the

9 Compared to standard office equipment and home appliances (non-ENERGY STAR rated), ENERGY START-qualified products use 30 to 75 percent less electricity according to the ENERGY STAR website: <https://www.energystar.gov/index.cfm?c=ofc_equip.pr_office_equipment>

10 The Miscellaneous category is one of the categories eQUEST breaks electrical use into and the most applicable to plug-in loads.

recyclables on a regular basis. As a sustainable operations goal, the Master Plan Project will aim to recycle all paper, corrugated cardboard, glass, plastic and metal waste, where feasible. Information on recyclable materials and the recycling program will be distributed to residential tenants and will include strategies to reduce waste through recycling and reuse programs.

Water Efficiency/Wastewater Reduction

The Master Plan Project is projected to consume 2,229,777 gallons per day of water and generate 2,027,070 gallons per day of wastewater, as such the GHG impacts associated with the water and wastewater treatment has been assessed.

Water efficiency is not only important for conserving potable water and reducing wastewater generation, but also for reducing energy. Nationally, about four percent of electricity use can be attributed to the treatment of potable water and wastewater, excluding the energy use associated with water heating. Therefore, the Proponents' commitment to reducing water use and wastewater generation through the installation of low-flow fixtures not only supports the overall sustainability goals, but further mitigates the potential impacts from energy use on the climate. Together, low-flow and low-flush plumbing fixtures are anticipated to reduce indoor water use by at least 30 percent across the Project. Additionally, rainwater will be recycled on site to reduce potable water use for landscape demand. The project has targeted at least a 50% reduction in potable water use for landscape demand. This results in a GHG emissions savings of approximately 20 tons per year.

7.3.6 Clean/Renewable Energy Evaluation

District Energy/Microgrid System

The Master Plan Project's energy strategy is currently based on the assumption that thermal energy will be generated offsite and distributed for use on an individual building basis. Nevertheless, the Proponent has evaluated the technical, financial and legal/regulatory feasibility of a district energy/microgrid approach.[11]

In the "business as usual" traditional energy delivery approach, each building has a dedicated heating, cooling and utility electric supply system. That building by building supply system is connected to an electric distribution company ("EDC") and a natural gas local distribution company ("LDC") through which the energy requirements for each building are supplied.

Through a district energy or a district energy microgrid system (the "a district energy/microgrid system"), the production of steam, hot water, chilled water, and partial (or total) electric services are centralized in on-site facilities, and made available for use by individual buildings. Both the systems require material upfront investment with significant at-risk capital. If implemented, energy derived from

[11] The District Energy Microgrid study outlined herein was based on an earlier version of the energy model.

either system would be sold to individual building owners, with the associated incremental investment to be recouped by such sales. Under a district energy approach, an entity or entities acting as a District Energy Operator would undertake the investment necessary to develop on-site energy generation and distribution facilities, and for legal and regulatory compliance in connection with those activities, and individual building owners would contract with that entity or entities respecting the heating and cooling capital expenditures and operating costs by a district energy system or district energy microgrid system owner/operator, and contract with that owner/operator to provide heating and cooling and, depending on the system, electricity.

The Proponent's district energy/microgrid system feasibility study focused on two potential approaches:

- *District Energy without electrical generation:* This concept is based around the idea of strategically sited district energy plants, or central plants, that would deliver heating and cooling services via an underground distribution network. Electricity would be procured from traditional energy providers on a building by building basis over wires owned and operated by the EDC
- *District Energy Microgrid enabled through CHP:* This approach would provide for strategically sited District Energy CHP plants that generate and deliver electricity, heating and cooling services via an underground distribution network. Installed electrical generating capacity would operate in parallel with the EDC and provide partial electric supply to the loads within a private distribution system.

For each of these potential district energy/district energy microgrid system concepts, the feasibility study outlined preliminary technical, legal/regulatory and financial considerations. These considerations include the development horizon, expected load typologies and density, emissions, building height, noise, retail and open space circulation, accessibility and flexibility, and legal and regulatory constraints. Taking these considerations into account, a concept design and approach was developed, involving two central plants with associated electrical and thermal distribution infrastructure. Figure 7.1 provides a schematic design site plan of the district energy/microgrid system concept.

Additionally, for each of the two concepts, the commercial structure, underlying energy service agreements, regulatory considerations and pro-forma analysis were compiled.

Risks

Critical risks applicable to the two-district energy/microgrid system concepts include the following:

<u>Schedule</u>

- There is inadequate time for integration of the Phase 1-B and Phase 1-R of the Project into to a district energy/microgrid system. With a highly compressed schedule, commercial operation of a district energy/microgrid system is likely

only possible later than Q1 of 2022. The system would likely need to be on-line up to one year in advance in order to provide temporary heat and for building startup.

- The development of the Master Plan Project is anticipated to span across approximately 15 to 20 years, through a number of phases that require flexibility and adaptability to various factors, including market conditions. As a result, financing and construction of infrastructure improvements will need to be phased incrementally, several years in advance of load materializing. Therefore, schedule uncertainty likely translates to high up-front capital requirements that likely cannot be recovered before a district energy/microgrid system reaches full utilization, an approach that creates significant challenges from the standpoint of financing capital investment where return on investment is an important consideration.
- Efficient utilization of a district energy/microgrid system is critical to its financial feasibility. Sensitivity analyses reveal that unexpected adverse market conditions can result in schedule delays that can translate to extended periods of low utilization. The technical and financial feasibility of a district energy/microgrid system is highly dependent on the interconnected load (thermal and electric) of the development. The load over the 20-year development horizon is not sufficiently certain at this time and is subject to schedule, technological advancements and other external risks and uncertainties.

Financial

- The District Energy concept (without electrical generation) is expected to require approximately $140 million in capital and the District Energy Microgrid System enabled through CHP requires approximately $250 million in capital.
- The capital requirements, although subject to some ability to be phased in, must be spent upfront which creates material capital recoupment challenges. For example, a lender would want a high rate to compensate for the risk of development over an extended period and in many cases separated by several years from when the capital expenditures are incurred.
- Capital requirement for District Energy would be significantly higher than traditional building energy systems due to the increased costs for infrastructure, feasibility analyses, and permitting.
- The scale and spread-out nature of the site requires extensive infrastructure to be installed in the on-site roadway network and is a material cost burden on the overall Project compared to other denser downtown urban mixed-use projects.
- The District Energy concept (without electrical generation) offers a 20 or more-year payback, from installation which is not a viable payback timeframe. Also, this assumes the 20-year payback is based on a purchase of the District Energy system in year 20, which comes with a high risk given there is not a well-established market for purchasing such stand-alone systems. (Today, these types of District Energy systems are historical systems owned by universities or

hospitals, allowed by the General Laws, or created through special legislation all with captive customers.)

- The District Energy Microgrid System concept (with electrical generation) can improve financial performance of the system but also can result in a long payback timeframe of 14 plus years, which is not a viable payback timeframe in light of the approach's significant capital requirements. Also, this does not incorporate any reasonable return on investment which would be typically be required of any private venture.
- Financing from traditional lenders and private institutions likely will not be available until positive cash flow is achieved; even then this is an unproven lending and equity investment market.
- Current federal tax incentives for energy development sunset before the Project will commence and there is no certainty as to what incentives, if any, there will be by the time construction of a district energy/microgrid system could commence.
- The time necessary to achieve positive cash flow is prolonged for either district energy/microgrid system concept studied and subject to multiple risks. This requires additional material upfront capital to be raised, with lower returns, higher risks, particularly when compared to the implementation of standard individual building systems.
- Deployment and success of CHP is also at great risk from the cost difference (spark spread) between the price of electricity or natural gas supplied by the EDC or LDC as the case may be.

Technology

- Technological breakthroughs are expected over the 20-year development horizon. Traditional energy system design features inherent system flexibility to accommodate new technologies in the future.
- As the Commonwealth moves towards a carbon free energy future, electrification of the energy systems in the development can prove technically challenging under a district energy/microgrid system because the concept involves steam and hot water production through boilers and electricity generation through reciprocating engines. Powered by natural gas, the backbone of the system will be inherently designed to produce direct GHG emissions.
- Trends in traditional building level energy systems such as Variable Refrigerant Flow ("VRF"), geothermal and advanced heat pumps make a district energy/microgrid system less cost competitive.

Natural Gas Based System

- The energy requirements of the development are expected to grow in a nonlinear fashion. The availability of a year-round thermal load to enable a district energy/microgrid system is critical for successful implementation of CHP. Over demand of natural gas in the winter and community resistance to new natural gas

pipelines create material risks for a large development seeking to build a natural gas-based District Energy or District Energy Microgrid System.

- The City of Boston is targeting a Carbon Zero plan by 2050, which is inherently in conflict with the support of a District Energy System that is fueled by natural gas and with equipment that would have life spans beyond 2050. This Carbon Zero plan would likely reduce value and interest by future buyers given the built natural gas-based district energy plant would be in conflict with the proposed Carbon Zero Plan and/or regulations in the future.

Regulatory

A preliminary regulatory review has highlighted several material regulatory barriers that potentially act as fatal flaws for the development of a district energy/microgrid system at this time.

- Franchise rights as defined in the deregulation act of 1997 (as defined in G.L. C. 164, §1B) do not provide a clear regulatory framework for the distribution of electricity produced by DER/Microgrids for developments with multiple ownership structures. A Private Electric Distribution System would likely be needed for implementation of a district energy/microgrid system.
- One of the significant hurdles is developing a distribution system the wires of which are placed in or across public ways. Although the current plan is to have fee title to the roads be private ("private way"), it is unclear, at this point, if easements in favor of the public will be required or if such an easement is statutorily permitted. In any event, addressing the placement of wires in or across a public way or private way for the implementation of a district energy/microgrid system may preclude the possibility of having roadways transferred to public ownership in the event that Boston or Revere determined that such a transfer was desirable.
- Electricity and natural gas cannot readily be sub-metered (subject to further legal review). Implementation of a district energy/microgrid system will require commercial and residential sub-metering.
- Financial viability of the system will require agreements providing that the District Energy System or District Energy Microgrid System be the sole energy supplier of buildings. Such agreements would effectively restrict choice of energy supply to buildings, potentially affecting the Project's marketability by precluding the ability of tenants from purchasing cleaner energy options on the open market.
- There is no precedent within Massachusetts for the deployment of a district energy/microgrid system in a mixed-use development along the lines of the Master Plan Project, where ownership will ultimately be varied among several residential and commercial entities. As a result, the framework for coordination among the Project EDC's and LDC's and other authorities having jurisdiction is not certain.
- Given the prolonged horizon for the development, regulations are subject to change. This provides a significant risk to the development of a district

energy/microgrid system and could potentially materially delay commencement of the Project.

Conclusion

The Proponent found that a district energy/microgrid system without electrical generation may be feasible from a technical standpoint, but it is not currently financially feasible or feasible from a practical or legal/regulatory standpoint. A district energy/microgrid system with base loaded electrical generation (via CHP) was found not to be technically and financially feasible at this time; mainly, due to technological, regulatory, and schedule risks and uncertainties.

Specifically, a district energy/microgrid system without electrical generation requires significant capital ($140 million) coupled with high financial risk and long payback (20 or more years) as well as significant schedule and marketability risks. At the same time, due to the efficiency of "business as usual" energy systems, the effective cost of energy products was found to be non-competitive.

Although a district energy/microgrid system may offer noteworthy potential benefits over traditional systems, at this time, significant risks and concerns, inclusive of legal and regulatory barriers, inhibit this approach, at this time. Given that under a district energy/microgrid system, the thermal and electrical distribution system is to be privately owned, with a point of common coupling to the local electrical distribution company at each central plant(s), regulatory barriers, such as utility franchise rights and electricity sub-metering rules, among other concerns, would need to be resolved before implementation may be pursued. Significant high capital requirements ($250 million), high financial risk as well as technology risks and load uncertainty present challenges for the development of a district energy/microgrid system.

Given this, the Proponent will be exploring technology improvements such as PV and energy on a building by building basis as interim alternative solutions to improving resiliency and reducing carbon emissions.

The Proponent will continue to review and evaluate the district energy/microgrid system, particularly smaller plants for future phases as the technology improves and the regulatory risks are eliminated. Additionally, the Proponent will continue to consider the application of rooftop solar PV as the design of each development phase and/or building is advanced to improve resiliency (i.e., provide supplemental power during periods of power loss) and further reduce stationary source GHG emissions.

Residential & Hotel Combined Heat and Power (Cogeneration)

As requested by the DOER, the Proponent has evaluated the technical and financial feasibility of deploying CHP for residential and hotel typologies within the Master Plan Project.

CHP Systems

The cogeneration power delivery model relies on a CHP plant to deliver heat in the form of steam or hot water to a variety of end use loads; comfort, domestic water and process to name a few. On large installations, chilled water for cooling can also be produced using captured heat via thermal reaction in an absorption refrigeration cycle. CHP solutions are typically more efficient in using and distributing power because a CHP plant uses a fuel source for first generating electric power, then the "waste heat" from combustion powers heat recovery equipment designed to generate steam, hot water, or chilled water for distribution.

Depending on the design and application, where feasible, CHP systems can have total cycle efficiencies of 65% to 90%. This is much higher than the traditional utility grid generation with simple cycle generators (25% to 45%) and combined cycle power plants (50% to 60%) due to the more complete utilization of the exhaust and/or waste heat from the prime mover.

The higher efficiency of CHP, where feasible, can result in energy cost savings. In addition, the higher fuel efficiency may result in lower emissions per unit of power produced compared to traditional electrical and steam generating units.

Methodology

To assess the feasibility of CHP, the Proponent completed a conceptual analysis involving the evaluation of a projected hourly 8,760 electrical and thermal load, prime mover sizing and technology selection, rate and tariff review, including relevant review of incentives and development of a concept basis of design. Then, an iterative hourly simulation was performed to optimize the technical and financial performance of CHP for each building typology. Finally, the technical and financial performance of CHP for each typology was quantified.

Load Addressable by CHP

The efficiency and cost savings of CHP systems depends on the effective use of the exhaust thermal energy from the prime mover(s). As a result, the economics of CHP are very sensitive to the thermal energy production and consumption. If the prime mover exhaust thermal energy cannot be completely used, the system efficiency is reduced, which will impact the project lifecycle cost and payback.

To determine the electric and thermal load that can be served by CHP, hourly 8,760 data was utilized from energy models developed for each typology. Then, the portion of electric and thermal load that can be served by CHP was determined. Finally, load data was analyzed as to determine the electrical and thermal base load as well heat to power ratio[12]. Note that given CHP plant size restriction and the cost premium of absorption cooling that when coupled with small CHP systems has

[12] Relevant load metrics for each typology are summarized in Appendix E.

proven to be financially infeasible, the cooling load was deemed not to be addressable.

Based on projected load data and professional experience, as well as legal/regulatory concerns, the residential typology presents unique challenges for implementation of CHP. First, in the Commonwealth of Massachusetts only common electric loads can be served through CHP due to regulatory restrictions behind residential sub-metering. As a result, the capacity of the prime mover is severely restricted. Second, the heating load during the summer is limited to only sporadic domestic hot water consumption. As a result, hot water recovered from the prime mover has to be dumped or a costly storage vessel needs to be installed. To assess the feasibility of CHP on residential typologies, the Hi-Rise Residential typology was utilized. This typology features a similar load profile to the Hi-Rise Signature Residential typology and a higher electrical and thermal load than the Mid-Rise Residential typology. The Hotel typology is expected to have more sufficient and constant DHW and laundry load to support CHP when compared to residential typologies.

Prime Mover Sizing

There are two methods that can be used to size a CHP plant: the base load; and the full load method.

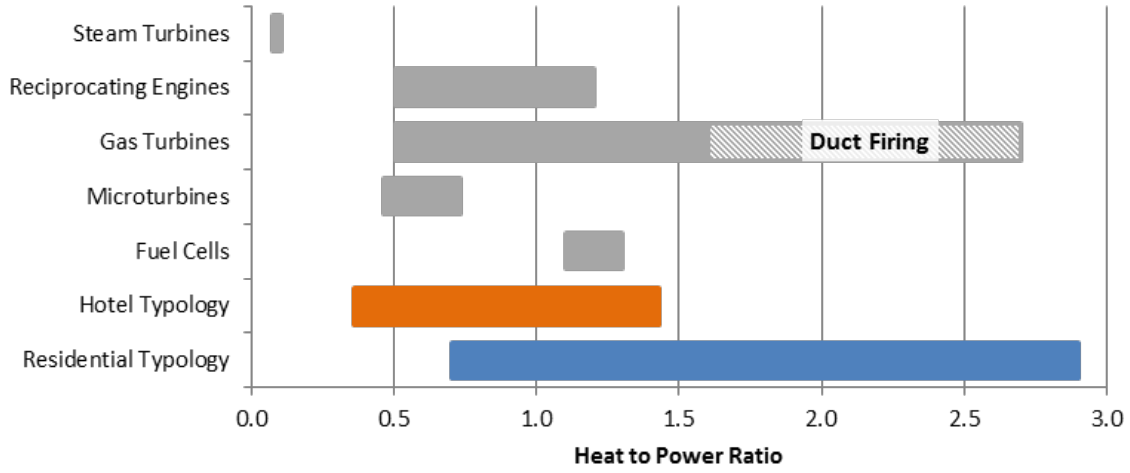
- *Base Load Method:* The most common method of sizing a CHP plant is to size the prime mover to the electrical and thermal base loads. Base load can be defined as the hourly energy demand for at least 90% of the year. This allows the CHP plant to be run at full capacity for the vast majority of the time. Energy needs not met by the CHP plant would be imported from the electrical grid and provided by a condensing boiler plant.
- *Full Load Method:* Some applications call for sizing a CHP plant to meet the peak energy demands using the full load method. This is an attractive option when viewed from a reliability and redundancy perspective. A building would gain true independence from the utility grid and would be able to serve all loads at all times. However, this independence comes with higher capital costs, longer paybacks, and poorer return on investment. Because the prime movers are sized to the peak load, the unit(s) must be larger and are dispatched at full capacity infrequently. This means that there is consistently unused capacity that is not providing value or generating savings.

The capital cost of a CHP plant would increase significantly if the plant were designed to handle the full load of each typology, especially if the prime mover were sized for the thermal load. This increased cost is not justified by the marginal reliability and redundancy benefit that may be seen with a larger CHP project with substantial thermal dumping and high parasitic requirements. As such, for the conceptual analysis, the Proponent sized CHP for the electrical and thermal base load of each typology.

Prime Mover Selection

A variety of commercially proven prime mover technologies are available such as steam turbines, reciprocating engines and microturbines to name just a few. As to selecting the most appropriate prime mover, the Heat to Power ratio of a selection of prime movers was compared to that of each typology. Based on the projected Heat to Power ratio, the most applicable prime mover technology was identified as packaged reciprocating engines.

Graph 7.8 Heat to Power Ratio Comparison



A reciprocating engine uses hot gases caused from combustion to move pistons back and forth. These pistons rotate a shaft, which generates electrical energy. The heat from the combustion phase is then captured and used to produce steam and or hot water. Generally, the electrical efficiency of a reciprocating engine ranges from 25% to 40% with a combined efficiency of 70% to 80%. While the installed cost is lower than a fuel cell and a microturbine, the associated maintenance costs are higher. Due to the amount of moving mechanical parts, routine maintenance is required and an engine overhaul is necessary prior to when a microturbine or fuel cell would need one. However, a reciprocating engine, overall, is a balanced choice between electrical and thermal efficiencies without being too costly. Emissions are generally slightly less than a microturbine, and can be reduced further through additional environmental constraints on the system. Once the system has been installed it is expected to be operational for at least 15 to 20 years with its major overhaul occurring after 7 to 10 years.

A variety of reciprocating engines were evaluated including a 35kW unit by Yanmar, 100 kW In Verde unit from Tecogen and 150 kW Aura 406 unit from 2G.

Rates & Tariff Review

The conceptual analysis included a review of applicable rates & tariffs as well as incentives.

- *Electric rate:* The baseline and post-CHP electric rates were modeled based on the Eversource G-7 Rate for Greater Boston effective as of July 1, 2018. The electric supply rate was modeled using historical data for 2017.
- *Natural Gas rate:* An assumed $10.5 per MMBTU HHV was utilized for the baseline and post CHP natural gas rate. A sensitivity analysis was performed to simulate the effect of variation in the spark spread.
- *Mass Save Combined Heat and Power Incentive:* CHP projects may qualify for the Mass Save CHP Incentive. Depending on the proposed overall cycle efficiency of the new plant and other energy conservation measures to be implemented, the incentive will vary.
- *Alternative Energy Certificates (AECs):* Upon successful installation of a CHP plant, the system will qualify for Alternative Energy Credits (AECs) in the Massachusetts Alternative Energy Portfolio Standard (APS) program. The APS is a mandatory market-based program that requires a fraction of the electricity sold by the state's retail electricity suppliers be generated using alternative energy technologies. APS-qualified generators obtain AECs for the electricity they produce. These certificates are then sold to the retail electricity suppliers who use them to demonstrate annual compliance to the DOER.

Concept Basis of Design

The concept basis of design involves condensing domestic hot water heaters and water source heat pumps supplemented by a condensing boiler for space heating. A packaged reciprocating engine will offset the electrical base load, normally imported from the electric utility company and a portion of the condensing boilers/ DHW heater load.

An hourly simulation was performed to determine the net electrical generation, usable heat recovery and fuel consumption for a variety of CHP systems under each typology.

CHP Evaluation Findings

Pertinent technical and financial assumptions, as well as results of the hourly simulation can be found in Appendix E.

Residential Typology

A limited electrical load, coupled with a sporadic DHW load, was found to restrict CHP capacity in residential typology. Specifically, the addressable electrical load under the residential typology is limited to common areas only and includes stairway, hallway and exterior lighting, elevators and lobby loads. At the same time, the addressable thermal load in the summer months is sporadic and a thermal storage tank may be required. In summary, because the electrical and thermal base

loads are limited, the biggest viable size was a packaged 35 kW reciprocating unit that carries a high capital cost. Overall, the simple payback for the residential building typology was calculated to be around 12 years.

Hotel Typology

The hotel typology is expected to have more sufficient and constant DHW and laundry loads. In summary, the optimal sizing was determined to be 150 kW. Overall, the simple payback for the hotel building typology was calculated to be around 8 years.

In summary, the hotel typology was found to be a better candidate for CHP when compared to the residential typology. However, the limited electrical and thermal load of individual buildings does support a larger installation with multiple prime movers that can take advantage of economies of scale. Although the payback period is reasonable, at least for the hotel typology, sensitivity analyses reveal that it is highly sensitive to installation and annual maintenance costs, as well as project schedule, design configuration, spark spread and commercial structure.

Rooftop Solar Photovoltaic (PV)

Solar PV system feasibility analysis has been undertaken for roof mounted systems across the Master Plan Project buildings. The first step in the analysis was identifying available roof area for PV systems. When podium and other low roof areas are accounted for in addition to mechanical area and exterior amenity space provisions, the available roof area for PV systems results in a small percentage of the overall roof area. However, given the total square footage of roof area, there is still a considerable area available for PV systems. Refer to the Table 7-21 below for roof area analysis.

Table 7-21 Available Roof Area for Solar Analysis

Roof Area Analysis for Solar PV	Area (square feet)	Percentage
Total Roof Area	2,738,657	-
Podium Area	873,558	32%
Low Roof Area	278,523	10%
Mechanical Area	701,546	26%
Amenity Area	100,108	4%
Roof Area Remaining	**784,922**	**29%**

The solar PV analysis was then applicable to the remaining 784,922 square feet or 30% of the roof area. The analysis then applied an additional reduction in area to take account for setbacks for safety and maintenance, roof drains and other anticipated design inefficiencies. The percentage reductions were differentiated by residential and hotel and commercial office as their massing and geometries yield different results when the above factors are taken into account.

Accordingly, factors of 65% for residential and hotel and 75% for commercial office were used to calculate the actual area available for solar PV. This further reduced the potential PV area to 20% of the total Master Plan Project roof area.

The orientation of the buildings was also taken into account as three (3) orientation angles were identified and system efficiency adjusted accordingly. The online software PV Watts Calculator was used for the analysis. The online software was developed by the National Renewable Energy Laboratory (NREL).

Table 7-22 Estimated Energy and Greenhouse Gas Savings for Solar Analysis

	Building Energy Consumption (MWh/yr)	Solar Energy Production (MWh/yr)	CO_2 Reduction (tons/yr)	Energy Savings (%)	CO_2 Savings (%)
Residential	121,408	3,803	1,350	3%	3%
Office	118,246	5,706	2,026	5%	5%
Hotel	15,697	313	111	2%	2%
Retail	3,002	268	95	9%	9%
Total	**258,353**	**10,090**	**3,582**	**4%**	**4%**

The solar system would be projected to produce approximately 10,000 MWh per year of energy which is equivalent to approximately 3,600 tons per year of greenhouse gas savings. A simple payback analysis indicates paybacks of approximately 11.5 years depending on the building typology and size of PV system. The analysis accounts for a continuation of the federal incentive of 30 percent of the total installed cost, as well as the current tariff rates (Block 1) for the Solar Massachusetts Renewable Target "SMART" program in Massachusetts. The compensation rate adder of $0.02/kWh for building mounted solar has also been included. Refer to Appendix E for full details.

Given the changing incentive marketplace for solar PV and the length of time for the Master Plan Project to be completed, solar PV systems will continue to be assessed for their feasibility as the design for individual buildings move forward. In addition, given the Project Site's location is within a flight path for Logan Airport, close coordination and approval by Massport is required if rooftop solar PV systems are considered.

Should future analyses show that solar PV is not feasible for a particular building at the time of initial construction, the building will be constructed to be solar-ready meaning (1) the roof structure will be capable of supporting such a system, (2) a pathway for conduit routing is identified and (3) space in the main switchgear will be provided for a future PV breaker.

Wind

Large Turbines

Turbines greater than 100 kW are often sited in low-density areas where a consistent wind resource, unaffected by the built environment, maximizes the payback rate for the installed equipment. Siting such facilities in low-density areas minimizes wind turbulence, a major contributor to reduced performance and longevity of large-scale wind turbines. A large turbine is not currently being considered for the Master Plan Project Sites due to the proximity to Boston-Logan International Airport, which would create additional FAA permitting issues.

Small Turbines

Turbines of less than 100 kW include small pole-mounted units and modest tower-mounted units up to about 250 feet tall. Similar to a large turbine, small turbines are not being considered due to the proximity to Logan Airport which would create additional FAA permitting issues.

Building-integrated Turbines

Building-integrated turbines include small turbines, generally less than one kW to about five kW, that are mounted on building roofs or parapets, or otherwise attached to a building. Examples of such installations include Boston City Hall, Massport Logan Office Center, and the Museum of Science wind turbine lab. The Proponent intends to consider rooftop solar PV technology for the Master Plan Project with the potential to be "PV ready" allowing for the possible future installation of PV panels above the rooftop. Installing PV panels would leave little, if any, room to include building-integrated turbines. As a full rooftop-mounted PV array system for the Master Plan Project could generate approximately 10,000 MWh, significantly more than what could be generated from building-integrated turbines, this technology will likely not be pursued as part of this Master Plan Project.

7.3.7 Energy Efficiency Assistance

The Proponent is committed to promote energy efficient and sustainable construction. To facilitate investment in the latest technology, high efficiency systems and sustainable energy system design, the Proponent intends to explore and utilize applicable federal, state and utility incentives available through energy efficiency and renewable energy programs.

It is noted that the entirety of the development is scheduled to span across approximately 20 years. The Proponent is cognizant that available incentives may change over the horizon of the development since most incentive programs require periodic renewal, have an expiration date and are also subject to changing laws and regulations. A discussion of current energy efficiency and renewable energy programs that the Proponent intends to leverage follows.

Most notably, the Proponent intends to utilize the Mass Save New Construction Program for the future build-out of the Master Plan Project. This program is designed to incentivize energy efficient design for new commercial, industrial and governmental facilities. Eversource and National Grid act as Mass Save Program Administrators (PA), both of whom currently provide electricity and natural gas to the Project Site. The utilities offer technical assistance and provide the incentives for implementing the eligible energy measures identified during the design phase of the Master Plan Project. The utilities must be involved during the design phase to help determine the cost-benefit of incorporating each measure into the Master Plan Project energy plan and identify any additional measures that may be available.

The Mass Save Program offers a custom performance track (vs. the prescriptive track), wherein the whole-building energy modeling software is used to compare energy usage of the as-designed building to that of a baseline code-compliant reference building. The utilities pay incentives on the basis of the calculated savings variance. The custom track is the best option to ensure the Master Plan Projects will achieve the desired energy, financial, and GHG emissions reductions goals.

At the State level, the Massachusetts' Renewable Portfolio Standard (RPS) and Alternative Energy Portfolio Standard (APS) incentivize generation with renewable and alternative electricity generation technologies. Specifically, RPS[13] and APS requires energy suppliers to source a percentage of the electricity they sell from renewables by purchasing Renewable Energy Credits (RECs) from renewable generators as well as Alternative Energy Credits (AECs). The Proponent intends to evaluate the feasibility of renewable and alternative energy technologies and leverage incentives provided through the RPS and APS programs.

Under current regulations, there is a mandated review of the APS no later than 2021, however, guidelines include indefinite continuation at an annual growth rate of 0.25%. At the same time, a recent extension of the framework of the RPS Class 1 through 2050 was made through the Clean Energy Standard (310 CMR 7.75) and to a lesser extent the Global Warming Solutions Act (2008).

To optimize utilization of on-site renewables, the Proponent also intends to explore the utilization of net metering. Net metering is offered by investor owner utilities such as Eversource and National Grid and allows for surplus power produced by behind the meter generation to be transferred onto the grid, allowing customers to offset the cost of power drawn from the utility. The installed capacity of installed generation eligible for net metering currently includes up to 2 MW of solar and wind energy.

Finally, on the Federal level, the Internal Revenue Service (IRS) offers two potentially applicable incentives, the Business Energy Investment Tax Credit (ITC) as well as the Modified Accelerated Cost-Recovery System (MACRS)[14]. ITC applies for certain

13 As of April 2018, the Department of Energy Resources recently redesigned its solar subsidy program. Instead of offering solar owners an additional revenue stream in the form of Solar Renewable Energy Certificates (SRECs), under the Solar Massachusetts Renewable Target (SMART) program, solar installations receive a guaranteed price per kWh from their utility.

14 MACRS is a form of corporate bonus depreciation applicable to a variety of renewable generation such as solar, small wind, geothermal, fuel cells and microturbines as well as CHP.

eligible renewable energy systems. Examples include a 30% ITC for solar, fuel cells and wind and 10% for geothermal, microturbines and CHP. Specific energy-efficiency and performance criteria apply for eligibility. The Proponent intends to take advantage of the ITC credit as well as MACRS for eligible renewable energy deployments.

7.4 Mobile Source GHG Emissions

Mobile source GHG emissions are based upon the traffic volumes, the distance vehicles travel and GHG emission rates. The mobile source emissions are calculated by performing a mesoscale analysis to evaluate the changes in CO_2 emissions for the existing and future conditions within the traffic study area. The GHG mobile source analysis estimates the area-wide CO_2 emissions from vehicle traffic for a period of one year. Mobile source emissions were calculated by performing an annual GHG emissions mesoscale analysis to evaluate the estimated change in CO_2 emissions for the existing and future conditions within the study area.

7.4.1 Analysis Conditions

Consistent with the traffic analysis, the following conditions were analyzed: the 2018 Existing Condition; and 2038 future No-Build, Build Conditions without mitigation and Build Conditions with mitigation. The analysis compares the future No-Build and Build Conditions in order to identify the anticipated changes in traffic conditions and mobile source GHG emissions as a result of the Project. Where applicable, the Existing Condition is considered for comparison purposes only.

7.4.2 Mobile Source Emission Rates and Inventories

EPA's Office of Transportation and Air Quality (OTAQ) has developed the Motor Vehicle Emission Simulator (MOVES)[15]. MOVES2014a is EPA's latest motor vehicle emissions model for state and local agencies to estimate GHG and other emissions from cars, trucks, buses, and motorcycles.

All the vehicle emissions used in mobile source GHG analysis were obtained using EPA's MOVES2014a emissions model. MOVES2014a calculates emission factors from motor vehicles in a mass per distance format (often grams per mile) for existing and future conditions and applies these factors to Vehicle Miles Travelled (VMT) data to obtain emissions inventories. The emissions calculated for this air quality assessment include Tier 3 emission standards, which is an EPA program that sets new vehicle emissions

12 MOVES2014a (Motor Vehicles Emission Simulator), December 2015, US EPA, Office of Mobile Sources, Ann Arbor, MI.

standards, including lowering the sulfur content of gasoline, heavy-duty engine and vehicle greenhouse gas regulations (2014-2018), and the second phase of light-duty vehicle GHG regulations (2017-2025). It also includes Massachusetts-specific conditions, such as the state vehicle registration age distribution and the statewide Inspection and Maintenance (I/M) Program.[16] These stringent emissions regulation programs often result in smaller emissions inventories with the passage of time when comparing similar scenarios. Input data for the model was obtained from MassDEP and used Project-specific developed inputs where appropriate.

The MOVES2014a model was run at a project-level to obtain emission factors for each link of the mesoscale analysis. The model was set to calculate the emissions burden by choosing to model emissions processes that are specifically related to vehicles in the study area. Links were created that used the appropriate speeds and grades for each roadway segment.

7.4.3 Traffic Data

The air quality study used traffic data (volumes, delays, and speeds) developed for each analysis condition. The mesoscale analysis for CO_2 emissions considered a yearly traffic volume developed from weekday peak periods. The vehicle miles traveled data used in the air quality analysis were developed based on the traffic data analyzed in Chapter 6, *Transportation*.

7.4.4 Existing Mobile Source CO_2 Emissions

Table 7-23 presents CO_2 emissions from mobile sources under all conditions. The calculation of Existing Conditions mobile source emissions provides a base for which future years are evaluated. The mobile source analysis calculated the existing CO_2 emissions from the major roadways in the study area. These CO_2 emissions, estimated to be 175,804 tons per year, establish a baseline to which future emissions can be compared. Results are presented in short tons (2,000 lbs.) per year.

7.4.5 Future Mobile Source CO_2 Emissions

Future Project-related mobile source CO_2 emissions calculations are based upon changes in traffic and emission's factor data. The traffic data includes traffic volumes, vehicle miles traveled, roadway operations, and physical roadway improvements. The emission factor data includes emission reduction programs and years of analysis.

The mobile source analysis estimated the future study area CO_2 emissions due to the changes in traffic and emission data. Under the No-Build Condition, CO2 emissions were estimated to be 145,018 tons per year. The scale of the Master Plan Project is unique at approximately 161 acres, which results in CO_2 emissions estimated to be 273,033 tons per year under the under the Build Condition. Due to the

13 The Stage II Vapor Recovery System is the process of collecting gasoline vapors form vehicles as they are refueled. This requires the use of a special gasoline nozzle at the fuel pump.

implementation of emission control programs, such as the Federal Motor Vehicle Emission Control Program (Tier 3), the Stage II Vapor Recovery System, and the Massachusetts Vehicle Inspection and Maintenance program, smaller emissions inventories result with the passage of time. The mesoscale analysis results in the 2038 No-Build emissions being below the existing conditions emissions.

The total Project-related mobile source GHG emissions are 128,015 tons per year, as presented in Table 7-23. The 128,015 tons per year increase in CO_2 emission represents an 88 percent increase in CO_2 emissions for the mesoscale study area for future 2038 conditions because of the unique scale of this project. Section 7.4.6 presents a summary of the extensive traffic mitigation measures that are proposed to mitigate traffic impacts and thereby mitigating future greenhouse gas emissions.

Table 7-23 Mobile Source CO_2 Emissions Analysis Results

Pollutant	2018 Existing Conditions	2038 No-Build Conditions	2038 Build Conditions	Project-related CO_2 Emissions[1]
Mobile Source Greenhouse Gas Emissions (CO_2)[1]	175,804	145,018	273,033	128,015

1 Represents tons per year.
2 Represents the difference in CO_2 emissions between the Build and No-Build Conditions; does not account for transportation mitigation.

7.4.6 Proposed Mitigation Measures

A comprehensive transportation mitigation program has been developed to mitigate impacts of Project-related vehicle traffic. Specifically, as discussed in Section 6.13 of Chapter 6, *Transportation*, the traffic mitigation measures include roadway improvements and TDM measures.

The physical roadway improvements result in delay savings and consequentially 36,128 tons per year reduction of mobile source GHG emissions. Previous estimates of similar TDM programs in an urban area have ranged on the order of a two to five percent reduction in vehicles miles traveled ("VMT"), which is assumed to result in comparable air emission reductions. Assuming a two percent reduction, the TDM plan is expected to provide 2,560 tons per year reduction of mobile source GHG emissions resulting in a total of approximately 89,327 tons per year of mobile source GHG emissions associated with the Master Plan Project. Table 7-24 below presents the Project-related mobile source CO2 emissions and estimated reductions associated with the proposed TDM measures.

Table 7-24 Mobile Source CO_2 Emissions Mitigation Analysis Results

Pollutant	Project-Related CO_2 Emissions[2]	Estimated Reductions Due to TDM Measures[3]	Estimated Reductions Due to Roadway Improvements	Project-Related CO_2 Emissions with Mitigation
Mobile Source Greenhouse Gas Emissions (CO_2)[1]	128,015	2,560	36,128	89,327

1 Represents tons per year.
2 Represents the difference in CO_2 emissions between the Build and No-Build Conditions without mitigation.
3 Mitigation from TDM Measures estimated as two percent of unmitigated Project-related emissions.

Hybrid Vehicles and Electric Charging Station

The Proponent will provide preferred parking spaces for alternative-fuel vehicles. In addition, a portion of parking spaces on-site will be equipped to support EV charging stations and will be provided. Fully electric vehicles do not have any tailpipe emissions (such as NOx or particulates-both of which contribute to respiratory illness) and emit next to no engine heat reducing the high temperatures in congested corridors.

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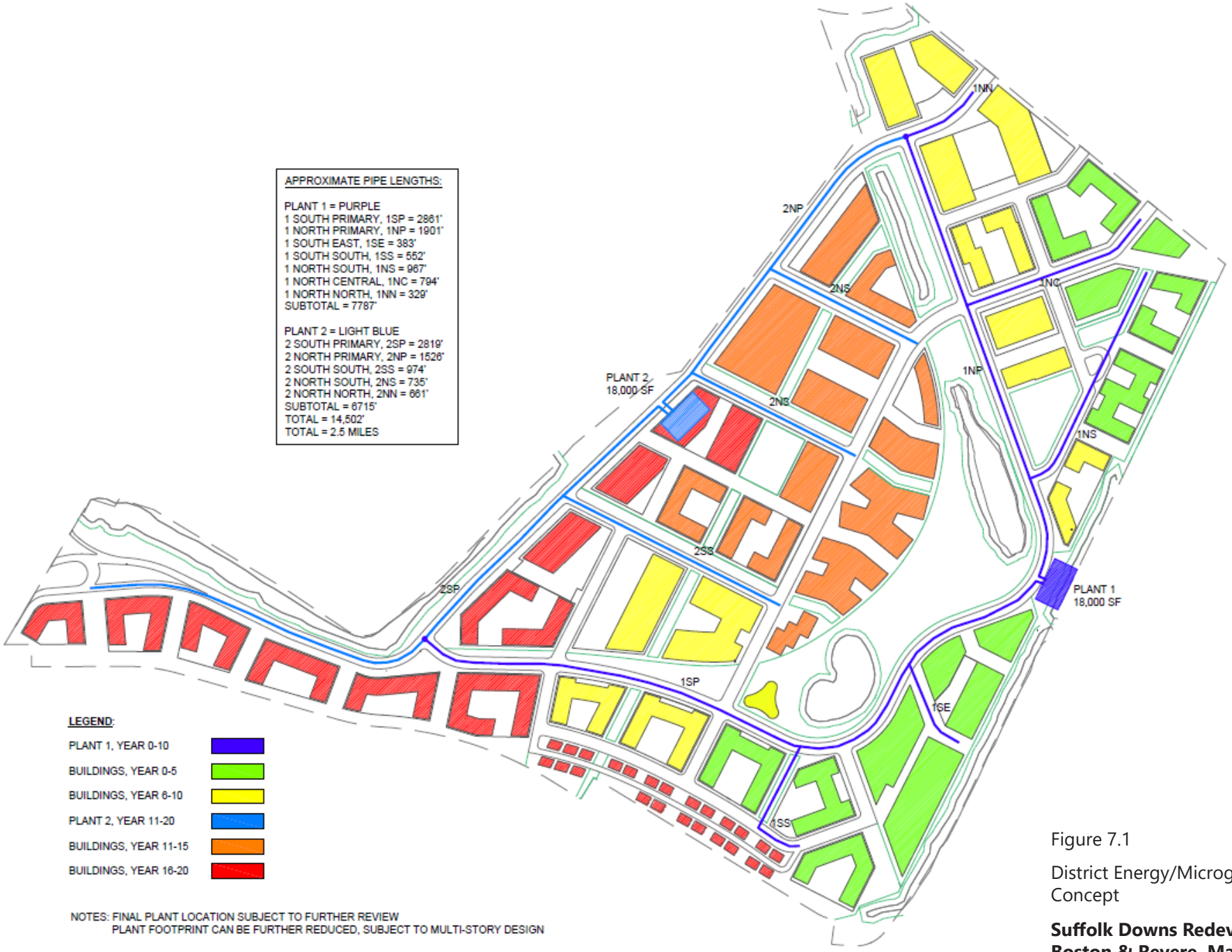


Figure 7.1

District Energy/Microgrid System Concept

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

8

Climate Change Resiliency

This chapter considers the potential impacts due to predicted changes in climate conditions related to sea level rise, coastal flooding, and extreme weather, including increased precipitation and temperatures. The following describes the climate change adaptation and resiliency study undertaken for the Project in response to the MEPA and BPDA scopes, which required the study of climate change impacts both on- and off-site (the "Resiliency Study"). Specifically, the study:

- Identifies relevant future climate conditions.
- Examines existing Site exposure and vulnerabilities.
- Models current hydraulic and hydrologic conditions, as well as future precipitation and coastal storm conditions, that may impact the Project Site.
- Evaluates potential off-site impacts associated with full build out of the Master Plan Project.
- Describes the proposed resiliency approach and identifies potential conceptual on- and off-site/district-wide adaptation measures for consideration both near- and long-term.

As requested in the EEA Secretary's Certificate on the EENF/EPNF and BPDA Scoping Determination, this chapter addresses the following topics:

- Site vulnerabilities related to the potential effects of climate change, including sea level rise, increased frequency and intensity of precipitation events, and extreme heat events.
- The process used to select climate scenarios, storm surge elevations, and potential on-site inundation elevations.
- Site-specific dynamic flood modeling developed to understand the potential impact of sea level rise and storm surge on the Project Site.
- Conveyance and control of on-site flood waters during and after storm events.
- Potential impacts to DCR's Bennington Street pump station under baseline and future conditions, and long-term maintenance and management of the facility.
- Possible impacts of climate change on the adjacent Belle Isle Marsh, as well as adjacent MBTA facilities.
- Potential impacts of future climate conditions on proposed structures, building access, roadways, utilities, and first floor uses.
- Options for designing flexibility into new buildings and public realm infrastructure to accommodate future changes.

- Active and passive recreation areas and open space features designed to flood.
- Ecosystem-based adaptation measures and infrastructure design to minimize and mitigate impacts.
- Opportunities to incorporate adaptation and flood prevention measures that provide protection to the Project Site and the surrounding community.
- Temporary floodwater barriers.
- The role of open space resources, tree canopy, and building materials in relation to mitigating heat island.
- How alternative energy systems may provide added resiliency.

This chapter also addresses additional analysis requested by state agencies after the Secretary's Certificate was issued, as detailed in Section 8.2.3 below. Appendix F provides the complete model results and other materials in support of the Resiliency Study.

8.1 Summary of Key Findings and Benefits

The key findings of the Resiliency Study and related analysis related to climate change resiliency include:

- Without the Project, the Project Site and adjacent areas would be subject to flooding due to projected increases in precipitation and sea level rise.
- The Master Plan has been developed with a key focus on resiliency.
- Site design strategies that reduce the impacts of increased precipitation and coastal storm flooding across the Project Site, to off-site neighborhoods, and to nearby infrastructure include:
  - A Master Plan that incorporates an extensive open space system covering over 25 percent (over 40 acres) of the Project Site.
  - Site grading and drainage plan that raises key portions of the Project Site for flood protection while optimizing flood storage capacity.
  - Large areas of open space that can be utilized as flood storage for the Sales Creek watershed system.
  - Construction of parking garages that can be utilized as flood storage for the Sales Creek watershed system under extreme flooding conditions.
  - A stormwater management system designed to address potential increases in storm intensity due to climate change in accordance with recent BWSC guidance (i.e., the forecasted 10-year and 100-year events).
  - Targeting building first floor elevations per BPDA design recommendations.
  - An upgraded and optimized Bennington Street Pump Station.
  - An additional tide gate on the culvert at the eastern limits of the property.

- A robust tree canopy within the Central Common and streetscapes for increased stormwater absorption.

› The Project has targeted a shelter in place strategy for future residents through 2070 for a majority of the Site where reasonable and feasible. This will be achieved by substantially raising the Project Site to provide a roadway network that will have passable corridors during significant storm-events providing access to the Site and enabling most buildings to be located above projected flood elevations.

› The Project Site has been designed using an iterative modeling process that considers the potential impact of the proposed grading and stormwater management approach on both on-site and off-site flooding under current and future conditions.

› The scope of the model evolved through a collaboration with MEPA, CZM, DCR and DEP and went beyond the requirements of the MEPA EENF certificate and BDPA scoping determination. The Project team also modeled a series of very low probability events as requested by the above agencies.

› The model provides insight into the potential effects of climate change not only for the Project Site, but can also be used as a regional planning tool for the City of Revere and DCR to understand the impacts of climate change on the Sales Creek Watershed system.

› The analysis considered a wide range of storm and tidal scenarios in conjunction the projections of the High Emission SLR Scenario and went to the detail of evaluating events with a probability of 0.00005% of occurring in a given year. The model results demonstrate:

- For all 22 modeled scenarios, the calculated maximum water surface elevation under Build conditions was at or lower than No-Build conditions for properties upstream of the Project Site, which includes over one thousand properties in the Shirley Avenue and Beachmont neighborhoods.
- To protect upstream neighborhoods, this report evaluates erecting an additional tide gate on the eastern boundary of the Property. As described in Section 8.7, the additional tide gate is necessary to alleviate upstream flooding which is projected to occur as a result of sea level rise whether or not the Project is constructed. The additional tide gate provides significant benefits for upstream properties in Revere, although for very low probability events (a 0.0016% maximum probability, see section 8.7 regarding probabilities) the additional tide gate results in minor increases (0.4-feet maximum) in calculated water surface elevations east of the Project Site near Washburn Avenue and the Beachmont and Suffolk Downs MBTA stations. An increase in water surface elevation also occurs under a modeled No-Build scenario with the additional tide gate for these very low probability events.
- Conceptual upgrades to optimize the Bennington Street Pump Station have been evaluated.

- A regional flood protection barrier along the Bennington Street Corridor could eliminate the need for an additional tide gate and eliminate the minor increases in calculated water surface elevations for the above referenced properties upstream of the Project Site.

› The risk of flooding to buildings on-site will be reduced by raising the elevation of the Project Site. The majority of the buildings will target an at-grade first floor elevation (FFE) of 20.5 feet BCB for non-critical buildings and 21.5 feet BCB for critical buildings, infrastructure and ground floor residential space, per BPDA guidance, to provide one to two feet of freeboard above the projected 2070 BFE.

› In areas where setting building grades at the recommended FFEs is not achieved due to site constraints, alternative flood protection measures will be implemented, such as:

- Using dry floodproofing materials.
- Maintaining emergency access where practicable.
- Designing adaptable ground-floor space.
- Designing with the ability to add temporary flood barriers to building openings, such as flood logs and flood gates, should they become necessary.
- Moving critical components of buildings to upper stories when necessary.

› Proposed strategies to reduce the impacts of increased heat, or heat island effect, include:

- Designing the tree canopy to serve the dual purpose of mitigating high temperatures through provision of shade and transpiration.
- Specifying materials with less heat absorbing capacity for paved surfaces in the public realm.
- Selecting paving materials with a high Solar Reflective Index to offset the effects of increasingly hot summers.

› Strategies to mitigate the impacts of increased average temperatures and extreme heat on future buildings include:

- Designing efficient building envelopes that exceed minimum code values for glazing and roof insulation.
- Specifying operable windows for residential buildings and considering them for hotel and office buildings.
- Using a 95°F peak day for sizing of building mechanical systems.
- Locating a robust and diverse urban tree canopy in the central common and throughout the street network to shade buildings.
- Using the open/green space and tree canopy to help mitigate heat island impacts and make the Project Site more resilient to increasing temperatures.

8.2 Regulatory Context

The following sections provide an overview of the state and local regulatory context related to climate change resiliency, including the *Draft MEPA Climate Adaptation and Resiliency Policy*, and the Boston Planning and Development Agency's *Climate Change Preparedness and Resiliency Policy* and related materials. The following sections also describe the process in which the project team and various agencies engaged to reach consensus on an agreed-upon scope for the Resiliency Study and baseline conditions presented in this chapter.

8.2.1 Draft MEPA Climate Adaptation and Resiliency Policy

MEPA requires that state agencies study the environmental consequences of their actions, and that they take all feasible measures to avoid, minimize, or mitigate damage to the environment. In order to address climate change adaptation (as opposed to just mitigation), in late 2014, the Massachusetts Executive Office of Energy and Environmental Affairs (EOEEA) released the Draft MEPA Climate Change Adaptation and Resiliency Policy (CCARP). It describes how projects should assess and mitigate the risks and vulnerabilities that are likely to result from climate change impacts. Although CCARP is still in draft form, it provides useful information on which to base a resiliency strategy for the Master Plan Project. CCARP directs proponents to draw on information included within the specific reports to evaluate how a project may be impacted by climate change related events.

This DEIR uses data from the most updated publication from the Executive Office of Energy and Environmental Affairs, which is the March 2018 report titled *Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins,* authored by the Northeast Climate Adaptation Science Center. This supersedes previously-cited data sources including the *Massachusetts Climate Change Adaptation Report* (September 2011); the Massachusetts Office of Coastal Zone Management's *Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning* (December 2013); and various publications for the Northeast on the United States Global Change Research Program website.

8.2.2 BPDA Climate Change Preparedness and Resiliency Policy

In conformance with the Mayor's 2011 Climate Action Leadership Committee's recommendations, the BPDA requires projects subject to Boston Zoning Article 80 Large Project Review to comply with the BPDA's Climate Change Preparedness and Resiliency Policy (the "Resiliency Policy"). The Resiliency Policy states that, utilizing the best available science, project proponents should identify changes in the climate and environment and how such changes will affect the project's environmental impacts including the survivability, integrity and safety of the project and its inhabitants. In conjunction with its Resiliency Policy, the BPDA has also released a Climate Resiliency Guidance document that calls for all projects to consider present

and future climate conditions in assessing project environmental impacts, including carbon emissions, extreme precipitation, extreme heat, and sea level rise (SLR), and to identify building strategies that would eliminate, reduce, and/or mitigate adverse impacts including those due to changing climate conditions.

Compliance requires completion of the Climate Change Preparedness and Resiliency Checklist (the "Resiliency Checklist"), which is reviewed by the Interagency Green Building Committee (IGBC). The Resiliency Checklist provides a framework and specific resiliency targets for assessing project vulnerabilities and adverse impacts. Projects must identify initial strategies for reducing vulnerabilities and adverse impacts, as well as future adaptation strategies for meeting or exceeding resiliency targets and further reducing vulnerabilities and adverse impacts due to future climate conditions. The required checklist has been completed for the Project and is provided in Appendix B.

The BPDA's Climate Resiliency Guidance document states that projects within the FEMA Special Flood Hazard Area (SFHA) or the BPDA Sea Level Rise – Flood Hazard Area (SLR – FHA) should use its recommended Sea Level Rise – Design Flood Elevation (SLR – DFE) for the year 2070 as the minimum performance target for assessing SLR impacts and for reducing or eliminating flood risk, potential damage, and related adverse impacts.

The projected SLR – DFEs are comprised of two components: the SLR-BFE and freeboard. The SLR-BFE is based on the Boston Harbor Flood Risk Model (BH-FRM) results, which include 40-inches of SLR, 2.5 inches of local subsidence,[1] and the 1% annual chance coastal flood event in 2070. Freeboard consists of raising the first floor an additional amount above the BPDA SLR-BFE. The BPDA recommends 12-inches of freeboard for non-critical, non-residential uses and 24-inches for critical buildings, infrastructure and ground floor residential to a location's highest SLR-BFE to reach the recommended SLR – DFE.

We note that the Master Plan Project's approach to climate change is consistent throughout the Project Site. Thus, while the Resiliency Policy is applicable to the portions of the Master Plan Project to be constructed in Boston, the approach to climate change and resiliency will be comparable for portions of the Master Plan Project to be constructed in Revere.

8.2.3 Agency Coordination

In order to confirm the scope of the Resiliency Study and baseline conditions, the Proponent and its project team met with MEPA, CZM, DCR and DEP on several occasions. On March 27, 2018, representatives from each organization met to discuss the status of the Master Plan Project and reach agreement on the following: sources of information to be reviewed and considered in the study undertaken for

[1] Subsidence is the motion of the earth's surface as it shifts downward, resulting in decreased elevation. Subsidence along the New England coastline is primarily due to post-glacial isostatic rebound.

this DEIR; the modeling approach; and the analysis years. On May 16, 2018, the Proponent met with the BPDA resiliency representatives to review the Resiliency Study approach. Lastly, on June 14, 2018, the state agency group met to review the modeled results of the existing/current conditions, referred to in this report as the baseline condition. These meetings resulted in an increase in the scope beyond that called for in the MEPA certificate and BPDA scoping determination, issued on January 26, 2018 and February 21, 2018, respectively. The Proponent accepted this requested increase in scope, and an agreed upon statement of work finalized on July 2, 2018 that accomplished the following:

- Identified the documentation to be reviewed as part of the Resiliency Study.
- Specified the Master Plan Project's design life and the time frame to be analyzed.
- Defined the forecasted SLR scenarios and data source to be used for design and analysis.
- Outlined the proposed methodology and approach for the analysis and discussion of vulnerabilities of the Project Site to the potential effects of climate change, including SLR, increased frequency and intensity of precipitation events, and extreme heat events.
- Summarized key input model parameters, including 22 specific investigation scenarios (identifying, for example, multi-day storm events and model runs with the Broad Sound gate closed).
- Indicated the documentation to be included in the DEIR/DPIR.

8.3 Resiliency Study Outline

This Resiliency Study uses a combination of qualitative and quantitative approaches. It follows the five-step process outlined below:

- Review climate change information sources and data (Section 8.4).
- Study Site context and existing conditions (Section 8.5).
- Delineate the study area, develop a hydrologic and hydraulic modeling approach and compare baseline and future conditions; (Section 8.6).
- Analyze on-site and potential off-site impacts (Sections 8.7).
- Devise a resiliency approach and identify additional adaptation measures (Section 8.8).

8.4 Climate Change Information Sources and Data

To develop an understanding of potential future conditions and inform site design and building elevations, the Proponent and its project team considered the following publications:

- The Boston Research Advisory Group (BRAG) *Report on Climate Change and Sea Level Rise Projections for Boston* issued for the Climate Ready Boston project (2016).
- The BPDA Climate Resiliency Policy, Climate Resiliency Guidance and Checklist, and Sea Level Rise-Flood Hazard Area (SLR-FHA) Mapping Tool (2017).
- *Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins (2018)*, authored by the Northeast Climate Adaptation Science Center and published by the Massachusetts Executive Office of Energy and Environmental Affairs. This publication supersedes the Massachusetts Office of Coastal Zone Management's *Sea Level Rise: Understanding and Applying Trends and Future Scenarios for Analysis and Planning* (2012).
- The Boston Water and Sewer Commission's *Comprehensive-Integrated Sustainable Wastewater and Storm Drainage System Facilities Plan Final Report* (2015).

These reports and their integration into the Resiliency Study are described in the sections that follow.

8.4.1 Climate Ready Boston and The Boston Research Advisory Group (BRAG) Report

The *Climate Ready Boston: Climate Change and Sea Level Rise Projections for Boston (2016)* reports were created to provide a set of agreed-upon climate projections to use for planning purposes throughout the City of Boston. The various reports also identify areas of the City of Boston vulnerable to various climate impacts; engage in in-depth analysis of particular neighborhoods; and develop policy, planning, programmatic, and financial initiatives designed to address the identified risks associated with climate change.

To develop projections for future SLR a team of climate scientists, known as the Boston Research Advisory Group (BRAG), used state of-the-art process modeling, expert assessment, and expert elicitation to produce a continuum of Boston-specific probability distributions. BRAG's projections for SLR are based on three emissions scenarios developed by the Intergovernmental Panel on Climate Change:

- A **High-Emissions Scenario**, often characterized as a continuation of "Business as U*sual*".
- A **Medium-Emission Scenario**, in which emissions remain around their current levels through 2050 and then are slowly reduced in the second half of the century through *Moderate Emissions Reductions*.
- A **Low-Emission Scenario**, in which net global emissions are reduced to less than a third of their current levels by 2050 and are brought to zero by about 2080 through *Major Emissions Reductions*.

Table 8-1 includes a selection of the lower-probability SLR projections for Boston Harbor under the High emissions scenario, reported in feet above the mean sea level (MSL) in the year 2000,[2] for the timeframe considered in this DEIR/DPIR.

Table 8-1 BRAG Relative Sea Level Rise Projections for Boston, MA (feet above MSL 2000)

Likelihood of Exceedance	2030	2050	2070
99%	-0.1	0.1	0.6
95%	0.1	0.4	1.0
83%	0.3	0.7	1.5
50%	0.5	1.1	2.2
17%	0.7	1.5	3.1
5%	0.9	1.8	3.7
0.5%	1.1	2.2	4.5
0.1%	1.2	2.4	4.8

Source: Climate Ready Boston: Climate Projections Consensus Executive Summary, May 2016.

8.4.2 Boston Planning and Development Agency (BPDA)

In conjunction with its Resiliency Policy, the BPDA released a Climate Resiliency Guidance document that identifies scenarios that the City believes represent reasonable SLR risk thresholds for evaluating impacts to new development. The BPDA used the BH-FRM to create its Sea Level Rise – Flood Hazard Area (SLR-FHA) map, which depicts the 1% annual chance flood event with 40 inches (3.3 feet) of SLR. This represents a combination of the mean SLR (3.2 feet above 2013 MSL) plus 2.5 inches of local subsidence that is projected to occur by 2070. This is generally consistent with the BRAG report's medium emissions scenario, wherein there is a only a 5% probability that SLR will be higher than 3.7 feet above 2000 MSL by 2070.

8.4.3 Northeast Climate Adaptation Science Center (NECASC)

In March 2018, the EEA published the *Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins,* authored by the Northeast Climate Adaptation Science Center. The NECASC projections include mean SLR scenarios relative to the Boston Tide Station based on projections for the National Climate Assessment global scenarios. The use of this source of data for SLR projections was identified as a requirement by CZM and MEPA during post-certificate coordination meetings.

[2] All climate scenarios include an assumed Relative Sea Level Rise rate due to subsidence of 0.8 +/- 0.3 mm/yr.

The NECASC projections are based on the probabilistic assessment of future relative SLR given two future atmospheric greenhouse gas concentration pathways: medium regional concentration pathway (RCP) 4.5 and RCP 8.5. RCP 8.5 is the highest emissions scenario consistent with the continuation of fossil-fuel intensive economic growth that characterized the past two centuries. The NECASC projections used in this analysis are based on the following four scenarios/probabilistic projections:

- **Intermediate:** 17% probability of being exceeded given a high emissions pathway.
- **Intermediate – High:** 5% probability of being exceeded given a high emissions pathway.
- **High:** 0.5% probability of being exceeded given a high emissions pathway.
- **Extreme (Maximum Physically Possible):** 0.1% probability of being exceeded given a high emissions pathway.

Table 8-2 below provides the NECASC's SLR projections at the Boston tide gage for the time period covered in this DEIR/DPIR under the four scenarios described above for the RCP 8.5 emissions scenario.

Table 8-2 NECASC Relative SLR Projections for Boston, MA (feet above MSL 2018)[3]

Scenario	Likelihood of Exceedance	2030	2050	2070
Intermediate	17%	0.7	0.8	1.2
Intermediate – High	5%	1.4	1.7	2.4
High	0.5%	2.3	2.9	4.2
Extreme (Maximum physically plausible)	0.1%	4.0	5.0	7.6

Source: Northeast Climate Adaptation Science Center, Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins, March 2018. p.15.

The NECASC report also developed temperature and precipitation projections based on simulations from the latest generation of climate models from the International Panel on Climate Change and scenarios of future greenhouse gas emissions for the 27 major drainage basins of Massachusetts.4 The Boston Harbor basin is expected to experience increased average, seasonal, and extreme high temperatures throughout Project's design life, as indicated in Table 8-3 below

[3] NECASC reports projections for Mean Sea Level (MSL) based on the North American Vertical Datum of 1988 (NAVD88). For ease of comparison, in Table 8-2 they have been converted to SLR projections in feet above MSL in the year 2018 based on DeConto, R. and Kopp, R. 2017. Massachusetts Sea Level Assessment and Projections, and using NOAA's Published Rate of SLR for Boston Harbor of 2.82 mm/yr.

[4] As defined by the U.S. Geological Survey Water Resources Division and the MA Water Resources Commission.

Table 8-3 NECASC Temperature Data for the Boston Harbor Basin, MA

Parameter	Observed Baseline 1971-2000 (°F)	Projected Change in 2030s (°F)	Mid-Century Projected Change in 2050s (°F)	Projected Change in 2070s (°F)
Avg Annual Temp	50.1	+2.1 to +4.0	+2.7 to +6.1	+3.2 to +8.9
Max Annual Temp	59.6	+1.9 to +3.9	2.6 to +6.0	+2.9 to +8.9
Min Annual Temp	40.7	+2.2 to +4.2	+2.9 to +6.2	+3.5 to +8.9
Annual Days with Max Temp over 90°F	8.0	+6 to +16	+8 to +29	+9 to +49
Annual Days with Max Temp over 95°F	1.0	+2 to +7	+2 to +13	+3 to +26
Annual Days with Max Temp over 100°F [a]	< 1	+<1 [a] to +1	+<1 [a] to +4	+<1 [a] to +9
Annual Days with Minimum Temperature Below 0°F	3.0	-1 to -2	-1 to -2	-1 to -2
Days with Minimum Temperature Below 32°F	119.0	-12 to -27	-17 to -42	-21 to -55
Annual Heating Degree-Days (Base 65°F)	6079.0	-501 to -1035	-672 to -1473	-798 to -1956
Annual Cooling Degree-Days (Base 65°F)	636.0	+217 to +443	+281 to +764	+327 to +1206

Source: Northeast Climate Adaptation Science Center, *Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins,* March 2018.

[a] Over the observed period, there were some years with at least 1 day with seasonal Tmax over a certain threshold while in all the other years that threshold wasn't crossed seasonally at all.

The projections for expected total rainfall, number of days receiving over 1-, 2-, and 4-inches of rainfall, and consecutive dry days are variable for the Boston Harbor basin, fluctuating seasonally between loss and gain of days. On average, by the 2070s, the number of days with heavy precipitation is expected to increase by up to 3 days per year, the total annual precipitation is expected to increase by up to 7.7 inches, and the number of consecutive dry days per year could increase by up to 3 days. The annual precipitation data is provided in Table 8-4 below.

Table 8-4 NECASC Precipitation Data for the Boston Harbor Basin, MA

Parameter	Observed Baseline 1971-2000 (°F)	Projected Change in 2030s (°F)	Mid-Century Projected Change in 2050s (°F)	Projected Change in 2070s (°F)
Annual Days w/ Precipitation Over 1"	9.0	+<1[a] to +2	+1 to +3	+1 to +3
Annual Days w/ Precipitation Over 2"	1.0	+<1[a] to +1	+<1[a] to +1	+<1[a] to +1
Annual Days w/ Precipitation Over 4"	<1[a]	+0 to +<1[a]	+0 to +<1[a]	+0 to +<1[a]
Total Annual Precipitation	46.1	+0.0 to +4.7	+0.3 to +6.2	+1.2 to +7.7
Annual Consecutive Dry Days	17.0	-0 to +1	-0 to +2	-1 to +3

Source: Northeast Climate Adaptation Science Center, *Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins,* March 2018.

[a] Over the observed period, there were some years with at least 1 day with seasonal precipitation over a certain threshold while in all the other years that threshold wasn't crossed seasonally at all.

8.4.4 The Boston Water and Sewer Commission

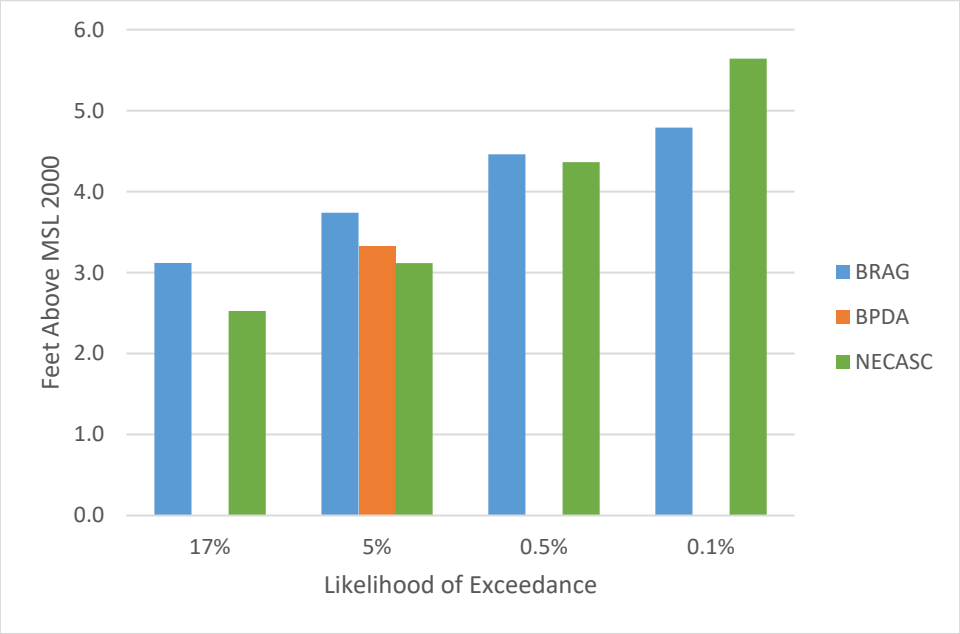
The BWSC's Comprehensive-Integrated Sustainable Wastewater and Storm Drainage System Facilities Plan Final Report (June 2015) incorporated development and evaluation of climate change adaptation strategies for changing wet weather conditions, SLR, and storm surge scenarios. The goal of the climate change evaluation was to define the risks associated with climate change that affect the Commission's operation and long-term capital plans.

Sources for data inputs for the hydrologic model described in Section 8.6.2 below include the National Oceanic and Atmospheric Administration (NOAA) Atlas 14 for current conditions, and the BWSC report A1F1 "precautionary" scenario for projected precipitation.

8.4.5 Comparison of SLR Projections

Chart 8.1 below compares the BRAG and NECASC projections for SLR in 2070 under the high emission scenario along with the BH-FRM's projection of 40 inches used to create the BPDA SLR-FHA map. The likelihood that seas will rise higher than three feet by 2070 is stated to be higher in the BRAG and BPDA reports than in NECASC's report, but the likelihood that seas will rise higher than five feet by 2070 is stated to be higher in the NECASC's report than in the BRAG Report. This indicates that these two sources of projections are not significantly dissimilar at these probability levels, and that the SLR projection used by the BPDA falls within the range of the BRAG and NECASC projections.

Chart 8-1 Comparison of Sea Level Rise Projections for High Emissions Scenario in 2070



Sources: Climate Ready Boston: Climate Projections Consensus Executive Summary, May 2016; Northeast Climate Adaptation Science Center, Massachusetts Climate Change Projections – Statewide and for Major Drainage Basins, March 2018; BPDA SLR-FHA map.

8.4.6 Selected SLR Projections

The Master Plan Project is being planned for a design life of approximately 50 years and is expected to be built out over an approximately 15-20-year period beginning in 2019. While highly unpredictable market-driven variables are anticipated to impact phasing, for the purposes of this analysis, it is assumed full-build will be reached in 2035 so that the impacts of the full-build scenario can be studied in conjunction with a future climate condition.

The SLR projections chosen for incorporation into the hydrologic and hydraulic model described in Section 8.6 roughly correspond to multiple NECASC scenarios,[5] as depicted in Chart 8-2 below.[6] Acknowledging this correspondence allows the team to consider multiple timeframes and probabilities of sea level rise within the Project's design life. This approach is identical to that used by the Woods Hole Group for development of the BH-FRM.[7] This study considers the following sea level conditions:

[5] For example, SLR in 2070 under the High scenario (4.2 feet - 0.5% probability of being exceeded) is similar to SLR in 2100 under the Intermediate scenario (4.0 feet - 17% probability of being exceeded).

[6] Please note that Chart 8-2 has excluded the most extreme scenario given its high unlikelihood of occurring

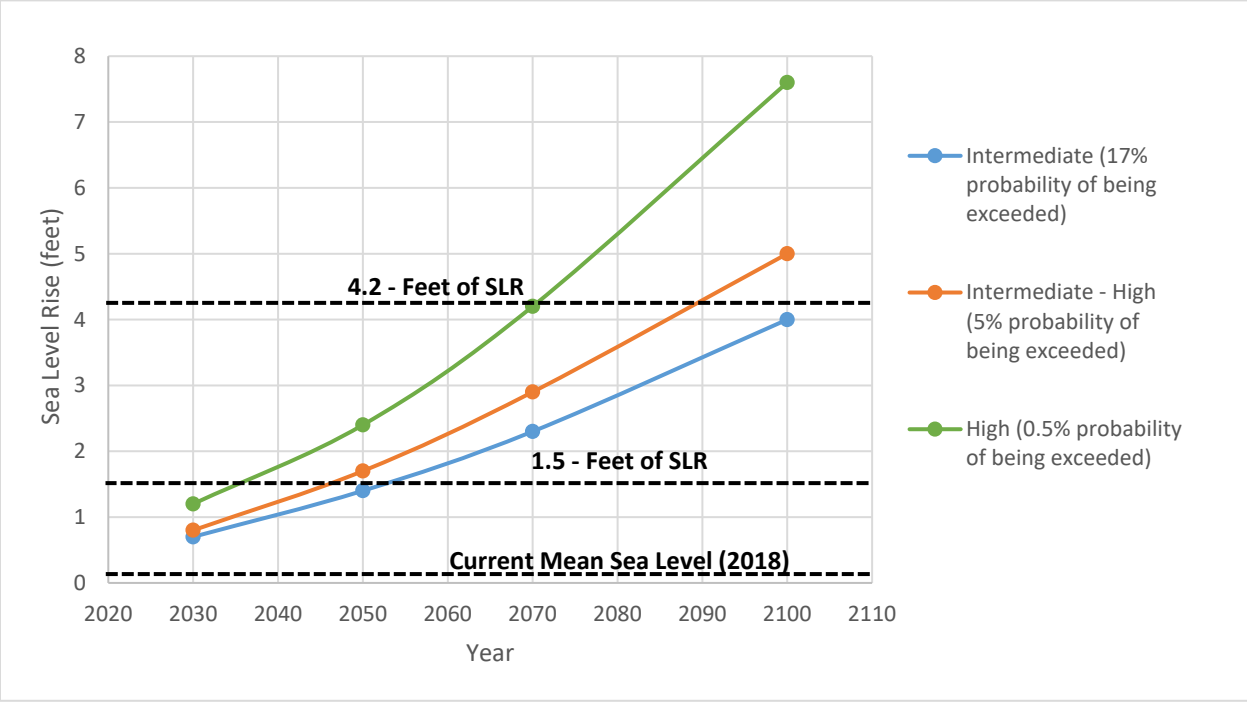
[7] MassDOT-FHWA. June 2015. Pilot Project Report: Climate Change and Extreme Weather Vulnerability Assessments and Adaptation Options for the Central Artery. Boston, MA.

› Current Sea Level

› 1.5 feet of SLR (2035 High/2050 Intermediate – RCP 8.5 Emissions Scenario)

› 4.2 feet of SLR (2070 High/2100 Intermediate – RCP 8.5 Emissions Scenario)

Chart 8-2 NECASC SLR Projections (RCP 8.5)



8.5 Site Context and Existing Conditions

Vulnerability to flooding is primarily related to the Project Site's position in relation to Belle Isle Inlet, Broad Sound and Chelsea Creek; its elevation; and its location within the Sales Creek watershed as described in the sections below.

8.5.1 Site Location and Elevation

The Project Site, as shown in Figure 8.1, is separated from Belle Isle Inlet to the east by the MBTA rail line and Bennington Street, and is within less than 0.5 miles of Broad Sound to the east and Chelsea Creek to the West. The low-lying Shirley Avenue and Beachmont neighborhoods are situated to the northeast, between the Project Site and Broad Sound. Directly to the west of the Project Site, separating it from Chelsea Creek, is the Irving Oil terminal, which is also low-lying. A portion of the Project Site is low-lying as well, but has not historically experienced a high level of flooding. It is located within the one percent annual chance floodplain delineated on FEMA FIRM panel 25025C0038J and is subject to coastal flooding with a base flood elevation (BFE) of 16.5 to 17.5 feet Boston City Base (BCB) (10 to 11 feet NAVD88). Figure 8.2 shows low points on the Project Site that constitute potential

flood paths from Bennington Street, the easternmost point of the Project Site at the Beachmont MBTA Blue Line Station, and the western side of the Project Site proximate to Chelsea Creek. The Project Site contains Sales Creek, an existing pond originally constructed in the 1930s (the "horseshoe pond"), as well as other wetlands resource areas.

8.5.2 Sales Creek

The Project Site is located within the approximately 594-acre (0.93 square-mile) Sales Creek watershed, a sub-watershed of the larger Boston Harbor watershed. Sales Creek is primarily a manmade drainage channel that bisects the Project Site along a portion of the East Boston and Revere border and runs from approximately the northwest corner of the Project Site through the northern portion of the race track infield, continuing east of the Project Site and connecting to the Belle Isle Inlet. It is culverted at several locations, including under Winthrop Avenue, Tomasello Drive, the northern portion of the race track (twice), the MBTA tracks, and Bennington Street.

Sales Creek is separated and protected from tidal flows by the Bennington Street tide gates and a pumping station. During lower tides, Sales Creek flows directly to Belle Isle Inlet via culverts under Bennington Street. During higher tides, when the tide gates are closed, flow in Sales Creek may be pumped to Belle Isle Inlet to reduce water levels in the creek. The pump station is further described in the sections below.

A sliding gate used to control the flow of water, known as the "Broad Sound Sluice Gate," is located within the closed drainage system between the Beachmont neighborhood and Sales Creek. The gate was installed as part of a United States Army Corps of Engineers ("USACE") Flood Protection Project to prevent backwater of Sales Creek entering into the Beachmont neighborhood, although there are no known events in which the sluice gate has been closed by either the City of Revere or the USACE.

For detailed information on the bathymetry of Sales Creek, culvert size and inverts, and additional topographic information in critical areas, please see Appendix F.

8.5.2.1 Bennington Street Pump Station

The land within the northern reaches of the Sales Creek watershed consists primarily of dense urban residential uses and is approximately 68 percent impervious. There is little opportunity for stormwater runoff to be absorbed by natural features and recharged into the ground, resulting in a significant amount of runoff in this portion of the Sales Creek watershed. Prior to the early 1980s, during storm events that occurred during high-tide, and when the tide gates at Bennington Street were closed, stormwater would be detained within the Sales Creek system with no outlet. According to the DEIR on the Sales Creek Flood Control Project (EOEA No. 01346), completed in 1976, approximately 700 homes and 2,000 people, as well as public facilities including the Garfield School, Our Lady of Lourdes Church and the MBTA

Blue Line, were impacted by periodic flooding. The impacted properties are located along the northern reach of Sales Creek, at the low point of the watershed, the elevation of which is lower than current-day mean high tide.

In the early 1980s the Bennington Street Pumping Station was installed to alleviate this flooding problem by enabling the trapped stormwater to drain to Belle Isle Inlet. The pumping station is manually operated and maintained by DCR. For detailed information on standard operating procedures for the pumping station, pump rating curves, and tide gate elevation data, please see Appendix F.

8.6 Modeling Approach

Flooding conditions at the Project Site are heavily influenced by both the nearby coastal waterbodies and rainfall runoff from the surrounding watershed. In order to understand how proposed changes to the Project Site may affect the water cycle, and how anticipated changes to the water cycle due to climate change may in turn affect conditions both on-site and off-site, two types of site-specific flood models (described in detail below) were created to form a baseline against which Build conditions could be compared. The "No-Build" condition represents the Site without the Project, as if the Site and surrounding properties are not altered from existing conditions, and the "Build" condition reflects the proposed master plan Project coupled with an additional tide gate and pump station upgrades, described in more detail in the sections below.

A coastal transect was developed to estimate the impacts of SLR, wind generated waves and storm surge, and a riverine hydrologic and hydraulic model of Sales Creek was developed to estimate the impacts of the proposed Project. The hydrologic model predicts how water will move through the watershed system and produces a precipitation runoff value. The hydraulic model, which examines the flow of water in pipes, rivers, and channels from a physics perspective, uses the runoff value to project the depth of flow and velocity through the riverine system. These two separate models were used together to analyze the physical movement of water onto and off of the Project site from coastal and riverine flooding. These models are described in more detail below.

8.6.1 Study Area

As shown in Figure 8.3, the study area used for the resiliency modeling process includes Sales Creek and its active overbank areas including the low-lying areas of the Broad Sound and Beachmont neighborhoods, the area near Furlong Drive, and the Suffolk Downs Project Area. The model also includes areas that are potentially impacted by coastal storm surge including properties along Route 1A and Bennington Street. The model limits were developed based upon flooding disconnects (flood protection barrier) described further in the Technical Appendix and developed to exclude high-lying areas protected from flooding, i.e. Orient Heights.

8.6.2 Coastal Transect Model

The BH-FRM was commissioned by the Massachusetts Department of Transportation (MassDOT) and the Federal Highway Administration (FHWA) to determine inundation risk and flooding pathways and to simulate the dynamic nature of flooding in the City of Boston. It simulates the effects of tides, storm surge, wind, waves, wave setup, river discharge, and sea level rise under current conditions and future climate change scenarios. The model was used to evaluate SLR scenarios in Boston Harbor and includes regional predictions for future coastal storm flood depths.

Hydraulic models were also developed to support the FEMA Flood Insurance Study (FIS) for Suffolk County, Massachusetts. The effective FEMA coastal hydraulic models that cover the area surrounding the Project Site were used, including:

- FEMA CHAMP model Transects 6, 7, 8.
- SWAN 2d and other applicable models used during the effective FEMA coastal study, to develop wave input parameters for the CHAMP model.

The FEMA and BH-FRM models were run for the 1% annual chance coastal flood events for the selected analysis years, as described in Sections 8.5 and 8.7 and in Appendix F.

8.6.3 Sales Creek Hydrologic and Hydraulic (H&H) Model

Hydrologic and hydraulic modeling software were used to produce a combined model representing existing and proposed hydrologic/hydraulic conditions of the Sales Creek system.[8] This enabled evaluation of the Sales Creek system based on varying tidal tailwater[9] conditions, DCR's Bennington Street pumping and tide gate operations, and rainfall events. Belle Isle Inlet and Chelsea Creek are both tidal waters, therefore the tides in these waterbodies influence the movement of water in and out of the area being modeled.

The model was run for current and future 10-, and 100-year, 24-hour rainfall events,[10] a 100-year multi-day significant storm event (e.g., represented by the Blizzard of 1978), and current and future tidal tailwater conditions. In addition, at the request of DCR during the previously referenced agency coordination meetings, a scenario in which

[8] Hydrologic Engineering Center (HEC), Hydrologic Modeling System (HMS), and River Analysis System (RAS) models. See Appendix F for details.

[9] Tailwater refers to waters located immediately downstream from a hydraulic structure, such as a dam, bridge or culvert.

[10] Return periods for future storms and coastal events were recalibrated to reflect future conditions.

the Broad Sound sluice gate was closed was analyzed. The HEC-RAS model incorporated proposed on-site grading and proposed mitigation to the Sales Creek system. The model estimated the Master Plan Project's impacts to the water surface elevations and flow patterns during the above events. The pump station input parameters,[11] including number of pumps, pump flow rate, and standard operating procedure and protocol, were confirmed with DCR.

Tidal tailwater boundary conditions used data from the tide gauge at NOAA's Tide Station at Boston Harbor (8443970) for a non-storm tide cycle, a king tide (an especially high spring tide) and a 1% annual chance storm surge. SLR was added to the tidal boundary elevations for the 2035 and 2070 analyses. Additional details regarding the H&H model can be found in Appendix F.

8.6.4 Site Design Development Process

Existing (pre-construction) conditions were modeled to establish the baseline condition against which subsequent modeled conditions could be compared. Then, using an iterative process, multiple schematic design conditions were modeled using each of the approaches above. These conditions varied the location, amount, and elevation of fill, and aspects of the stormwater management design, as described below.

The Project Site's vulnerability to coastal flooding is due to the proximity to the Atlantic Ocean, existing abutting properties at low-lying elevations (Bennington Street, Route 1A) and the existing low-lying elevation of the Site. To provide long term resiliency to the Project and enable a "shelter-in-place" strategy for future residents, the proposed master plan grading raises the Project Site grade substantially, providing for a network of roads that will remain passable during significant coastal storms through 2070. The at-grade building FFEs have also been raised where feasible to substantially meet the BPDA SLR-DFE design recommendations. Key infrastructure, such as the sewage lift station, will also be sited above projected flood levels.

Along with the master grading plan a master stormwater management design was developed. The overall approach to stormwater management has been to design a system that significantly improves the quality of the stormwater being discharged to the watershed; to not exceed peak discharge rates to off-site design points in the post development condition; to meet the DEP stormwater management standards; and to address potential increases in storm intensity due to climate change in accordance with recent BWSC guidance (i.e., the forecasted 10-year and 100-year events). An initial design was developed that achieved these goals.

The project team modeled this initial site design and it resulted in a slight increase in off-site flooding for the low probability modeled storm events (see Section 8.7 for

[11] The source of the pump station input parameters was the Hatch Mott Macdonald Report titled Restoration of Sales Creek Drainage System – Final Engineering Report – Hydraulic and Hydrology Analysis for Conduit Sizing dated July 22, 2005.

probabilities) at some locations under these conditions. To mitigate this potential issue, alternative lower grading in select areas and stormwater management approaches were developed, modeled, and tested. Through various model runs, it was determined that minimizing the stormwater volume discharged to Sales Creek would minimize the off-site impacts, as would providing additional flood storage within the Central Common. As a result, the Project Site grading and the stormwater management system designs were revised to direct a larger proportion of Project Site stormwater to Chelsea Creek to reduce the volume of runoff being discharged to Sales Creek, and to further reduce runoff by providing new and additional flood storage along Sales Creek as part of the Master Plan Project. This included re-grading the Central Common to a lower elevation, which provided additional flood storage capacity that could be taken advantage of during higher probability flood events. This approach resulted in greatly reduced off-site flooding impacts.

Through the iterative design process, it became clear to the design team that directing additional stormwater to Chelsea Creek and maximizing on-site flood storage would not solve all off-site increases in maximum water surface elevations while maintaining the goal of raising the Site to create a resilient community. Off-site impacts were occurring during two main types of events: significant coastal storm surge events (where Bennington Street is overtopped) and significant rainfall events (i.e. 10 and 100-year rainfall events).

8.6.4.1 Additional Tide Gate and Pump Station Upgrades

The design team determined that during significant coastal storm surge events that peak at elevations above 14 BCB, Bennington Street would be overtopped and water would begin to travel northwesterly from Belle Isle Inlet towards the Project Site and Revere. These events have a low probability of occurring in current day, but as SLR rise they begin to increase in probability of occurring. These events left the existing Bennington Street Pump Station and Tide Gate non-functional in practical terms. In order to address these projected significant coastal storm surge events either a regional barrier solution or an additional tide gate along the eastern property limits might be necessary. The additional tide gate would protect the Project Site and upstream portions of Revere during events that overtop Bennington Street by preventing coastal storm surge from flowing upstream within Sales Creek.

The addition of a new tide gate significantly improved modeled flooding at off-site properties, specifically the approximately one thousand properties in the Shirley Avenue and Beachmont neighborhoods. Although flooding was improved, there were still rises for significant rainfall events during which Bennington Street was not overtopped. This was due in part to the increase in elevation of resulting from the resiliency strategy for the Project that entails raising the Project Site to enable a shelter in place community. In order to resolve the increases in water surface elevation for these events, an optimized pump station with increased pump capacity was included in the modeling. As part of this revised modeling, the Bennington

Street Pump station operating procedure was revised to allow the pumps to be turned on and off as water reaches different elevations and the pump capacity was increased from 300 cubic feet per second to 600 cubic feet per second.

Further site design modifications, along with the additional tide gate and updated Bennington Street Pump Station operations, resulted in a system that would fully address the off-site flooding impacts in the upstream Sales Creek neighborhoods and over 1,000 abutting properties for both typical and non-typical events. This was done by iteratively directing more stormwater to Chelsea Creek, increasing the area of the Central Common that could be used for extreme event flood storage, and developing a grading plan to allow on-site parking garages to be used for flood storage. (Refer to Section 8.7 below for a description of the key site design and infrastructure features included in the model results).

This latest conceptual design iteration reduces calculated off-site peak water surface elevations over the No-Build condition for the upstream Sales Creek watershed, significantly improves the stormwater quality being discharged to the watershed, and meets the DEP stormwater management standards, with the exception of meeting peak discharge rates (for which DEP is allowed to grant a waiver for discharges directed to coastal waters, such as Chelsea Creek, as described in Section 10.3.2.). Section 8.7 provides the modeling results. The final design is described in the Modeling Results section and subsequent sections below.

It is important to note that although the Project is able to mitigate future flooding impacts through implementation of the modeled tide gate and pump station upgrades, a regional district-scale flood barrier may be a better solution that better-protects more properties for a longer period of time and is a solution that would likely be necessary under either the Build or No-Build condition. The modeled tide gate and pump station upgrades are considered conceptual only, and any flood improvement infrastructure should be implemented in a coordinated approach with potential regional solutions to maximize potential flood benefits. As design development progresses, the Project team will continue to work with city and state officials to develop flood infrastructure improvements in a coordinated fashion. A potential regional solution is explored in further detail in Section 8.8 below.

8.7 Modeling Results

The results presented below reflect the application of the models applied to both existing conditions and proposed conditions, which is the Master Plan Project under full-build conditions, including all proposed grading, fill, drainage and roadway infrastructure.

As requested by the agency working group comprised of representatives from MEPA, CZM, DCR and DEP, 22 scenarios comprised of different combinations of precipitation event return periods and tide events for current and forecasted climate conditions, and positions of the Broad Sound sluice gate (open or closed) were

inputted into the models.[12] These 22 scenarios represent a broad range of possible storm events including precipitation events, coastal storm surge, and a combination of the two. Scenarios include tidal boundary conditions updated for climate change forecasts of 1.5-feet, and 4.2-feet of SLR, and precipitation forecasts for the years 2035 and 2070. Agency officials specifically requested several model scenarios including a multi-day event and a scenario in which the Broad Sound gate was closed. Appendix F provides additional information regarding the 22 scenarios and the methodology for each scenario. The 22 scenarios were run for both the No-Build and Build conditions.

These 22 scenarios have various probabilities of occurrence during a given year, as indicated in Table 8-5 below. The probabilities shown below are based the on the joint probability or likelihood of the sea level rise for a specific year, a precipitation event, and a tide event all occurring at the same time. Each variable has its own probability associated with it (shown in parentheses). The annual (joint) probability is the product of each variable's probability for that event.

Table 8-6 below indicates the joint probability of several low probability events occurring at once. This further decreases the probability of occurrence of each of these combined events. For example, in the year 2035, there is only a 0.00005% chance (or 1 in 2 million) that there will be 1.5 feet of sea level rise, coupled with a simultaneous 1% annual chance precipitation event and a 1% annual chance flood event over the course of that year.

Table 8-5 Annual Probability of Event Occurring in Corresponding Year (High Emission Scenario RCP 8.5)

	Precipitation Event		**10-Yr (10%)**			**100-Yr (1%)**			**Multi-day 2-year (50%)**	**Broad Sound Gate Closed 100-year (1%)**
Year	**Coastal Event**		**Normal (100%)**	**King (3.3%)**	**100-Yr (1%)**	**Normal (100%)**	**King (3.3%)**	**100-Yr (1%)**	**84-hr Blizzard of 1978 (1%)**	**Normal (100%)**
2018	**Current Sea Level**	**(100%)**	10.00%	0.33%	0.10%	1.00%	0.03%	0.01%	0.50%	N/A
2035	**1.5-Feet of SLR**	**(0.5%)**	0.05%	0.0016%	0.0005%	0.005%	0.00016%	0.00005%	0.0025%	N/A
2070	**4.2-Feet of SLR**	**(0.5%)**	0.05%	0.0016%	0.0005%	0.005%	0.00016%	0.00005%	0.0025%	0.05%

Note: In the year 2100, 4.2 feet of SLR would have a 17% chance of occurrence. The joint probability of this event and a 10-year precipitation event and a normal tide, a King tide, and a 100-year flood event would be 1.7%, 0.056%, and 0.017% respectively; a 100-year precipitation event and a normal tide, a King tide, and a 100-year flood event would be 0.17%, 0.0056%, and 0.0017% respectively; a multi-day 2-year event would be 0.085%; and a 100-year flood event with the Broad Sound age closed would by 1.70%.

[12] The Bennington Street Pump Station is assumed to be functional under both current and future conditions.

Tables 8-6 through 8-8 below illustrates the investigation scenarios chosen for analysis at the Southern Shirley Avenue, Shirley Avenue, and Beachmont neighborhoods (Figure 8.3). These locations were chosen to present because they represent the upstream Revere neighborhoods (over 1,000 upstream properties) that could be potentially affected by the Project. The results at additional locations can be found in Appendix F.

Table 8-6 Calculated Peak Water Surface Elevation at Southern Shirley Avenue Neighborhood (Feet BCB)

Precipitation Event	**10-Yr**						**100-Yr**						**Multi-day 2-year**		**Broad Sound Gate Closed 100-year**	
Coastal Event	**Normal**		**King**		**100-Yr**		**Normal**		**King**		**100-Yr**		**48-hr Blizzard of 1978**		**Normal**	
Current Sea Level	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build
	7.6	7.4	7.6	7.4	14.9	13.7	11.2	9.1	11	9.1	15.1	14.4	14.9	11.7	NA	
1.5-Feet of SLR (2035)	8.3	7.4	13.4	11.4	16.5	15.4	12	10.4	14.4	13.8	16.3	16	16.2	15.3	NA	
4.2-Feet of SLR (2070)	14.5	13.6	16.2	15.6	20.5	20.1	14.9	14.3	16.3	16.2	20.6	20.2	20.5	20.3	14.9	14.3

Table 8-7 Calculated Peak Water Surface Elevation at Shirley Avenue Neighborhood (Feet BCB)

Precipitation Event	**10-Yr**						**100-Yr**						**Multi-day 2-year**		**Broad Sound Gate Closed 100-year**	
Coastal Event	**Normal**		**King**		**100-Yr**		**Normal**		**King**		**100-Yr**		**48-hr Blizzard of 1978**		**Normal**	
Current Sea Level	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build
	9.4	9.2	9.4	9.2	12.4	11.7	11.7	11.1	11.7	11.1	13.1	12.8	11.5	10	NA	
1.5-Feet of SLR (2035)	10.1	9.8	12	11	16.3	13.3	12.4	11.8	13.2	12.9	16.1	14.7	15.5	12.7	NA	
4.2-Feet of SLR (2070)	12.5	12	15.6	13.6	20.3	19.9	13.7	13.4	15.9	15.4	20.3	19.9	20.2	20.1	10.8	9.2

Table 8-8 Calculated Peak Water Surface Elevation at Beachmont Neighborhood (Feet BCB)

Precipitation Event	**10-Yr**						**100-Yr**						**Multi-day 2-year**		**Broad Sound Gate Closed 100-year**	
Coastal Event	**Normal**		**King**		**100-Yr**		**Normal**		**King**		**100-Yr**		**48-hr Blizzard of 1978**		**Normal**	
Current Sea Level	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build	No-Build	Build
	9.4	9.2	9.4	9.2	12.3	11.7	11.7	11.1	11.7	11.1	12.8	12.5	11.5	10	NA	
1.5-Feet of SLR (2035)	10.1	9.8	11.9	11	16.3	13	12.3	11.8	12.8	12.6	16.1	14.5	15.3	12.6	NA	
4.2-Feet of SLR (2070)	12.4	11.9	15.4	13.4	20.3	19.9	13.3	13	15.7	15.3	20.3	19.9	20.2	20.1	10.8	9.2

8.7.1 Existing Conditions

The project team modeled six scenarios using current sea level and precipitation conditions under the No Build scenario. The results were used as a comparison to the proposed Build conditions, and existing BH-FRM and FEMA flood studies.

Both the BH-FRM and FEMA FIS modeled and mapped the extent of the estimated 1% annual exceedance event (i.e. 100-year flood). The BH-FRM is a macro-scale coastal storm surge model of Boston Harbor which excludes riverine flooding along Sales Creek. The FEMA FIS uses a coastal transect model that notes the Project Site and major portions of Revere are within the 1% annual exceedance flood limits (100-year floodplain) at elevation 16.56 and 17.56 BCB (elevation 10 + 11 NAVD 88). This implies that the flood elevations in the Sales Creek watershed equal the coastal flood elevations on the FIRM and in the FIS. However, as described below, this is not in fact the case.

Our project-specific modeling, as previously discussed, studied the low-lying areas of the Sales Creek overbanks and includes both coastal and riverine flooding. This model produced a detailed analysis of the estimated flood limits and elevations within the study area. Model results indicate that the elevation of the 1%-annual exceedance event (100-year flood) within the Project Site is approximately 10 BCB and is approximately 11 BCB in the Shirley Avenue and Beachmont Neighborhoods. This is an approximately six- to seven-foot difference from the forecasted 100-year event in the FEMA FIS. Figure 8.4 compares the calculated flood limits of our project-specific model and the FEMA FIS.

Although the results indicate a difference with the FEMA FIS elevations, these upstream neighborhoods are subject to flooding at the calculated elevations of 10 and 11 BCB for a current 1% annual event under existing conditions. DCR contracted the firm of Hatch Mott Macdonald to complete a study of Sales Creek and the Pump Station in 2005. The

study recommended that to protect the Garfield School and the west branch of Sales Creek the Pump Station from a 25-year event at mean tide the flow capacity of the Pump Station would need to be upgraded to 400 cubic feet per second.

8.7.2 Future No-Build Conditions

The Project team also modeled future No-Build condition as part of the analysis to provide a comparison to the future Build condition.

Future No-Build modeling results indicate flooding within the Sales Creek watershed in the upstream Shirley Avenue Neighborhood, the Beachmont Neighborhood, and at the Project Site. Results indicate that as sea levels rise, these neighborhoods will be more susceptible to greater depths and duration of flooding. This is partially because Bennington Street begins to be overtopped more frequently, which allows coastal stormwater to flow upstream from Belle Isle Inlet into these neighborhoods and the Project Site. For example, No-Build model results for the Southern Shirley Avenue Neighborhood indicate that the 10-Year precipitation event coupled with a king tide event at current sea levels results in an estimated peak water surface elevation of 7.6-feet BCB, while the same event with an additional 1.5-feet of sea level rise estimates a peak water surface elevation of 13.4-feet BCB. The approximately 5.8-foot rise in water level from an additional 1.5-feet of SLR is likely due to Bennington Street being overtopped, which effectively leaves the existing tide gate, barrier and pump station ineffective.

This rise in water surface elevations occurring between existing and future No-Build conditions is independent of the proposed Project. It would seem likely that these rises will be unacceptable to upstream properties and additional flood protection infrastructure will be required even in the No-Build condition.

Potential solutions are a regional flood barrier, improved Bennington Street Pump Station, and/or an additional tide gate along the eastern project boundary where the Project's eastern property line would act as a barrier. Each of these strategies has benefits and costs. For example, the additional tide gate along the eastern project boundary provides cost-effective benefits to the upstream Sales Creek neighborhoods (over one thousand properties in Revere).

However, during some very low probability storm events there is the potential of a minor impact to surface water elevations (up to a 0.4-foot rise) to a limited area along Washburn avenue and the entrance to the MBTA Beachmont Station. These very low probability events are when there is 1.5 feet of SLR and the simultaneous occurrence of the 100-year precipitation event and the 100-year coastal flood event, which has a 0.00005% chance of occurrence (or 1 in 2 million) in the year 2035. This rise in estimate water surface elevation results from the installation of the additional tide gate and would occur even if the Project were not implemented.

A regional flood barrier along the Bennington Street corridor, which is described below in Section 8.8.1, coupled with an improved Bennington Street Pump Station would provide the highest flood protection measures for all areas. It is recommended that all stakeholders, including DCR and the Cities of Boston and Revere, work together to plan and implement the most effective solutions.

8.7.3 On-Site Future Build Conditions

The proposed Project Site design approach takes vulnerability to increased flooding into account and seeks to greatly reduce risk across the Project Site, to off-site neighborhoods, and to nearby infrastructure using several strategies as described below.

8.7.3.1 Grading

The master grading plan has been developed with a key focus on resiliency. The Project has targeted a shelter in place strategy for future residents through 2070. This will be achieved by substantially raising the Project Site to provide a roadway network that will have passable corridors during significant storm-events providing access to the Site and enabling most of the buildings to be sited above projected flood elevations, providing protection against anticipated impacts of future flooding. The Project's open space has been largely designed to be at lower elevations, enabling it to be utilized for flood storage during extreme storm events.

Key portions of the Project Site will be raised to provide protection against anticipated impacts of future flooding. Due to the scale of the Project Site, the Master Plan Project is a long-term development that will be implemented in phases over a period of 15-20 years. The Master Plan Project is, therefore, being conceived with an overall development program that provides a degree of flexibility to balance different residential and commercial uses as development proceeds. Given its complexity and long build-out period, and to account for the entirety of the fill and its potential impacts, the Project was modeled as a final master plan.

The first anticipated phase of development in Revere is expected to be located along Winthrop Avenue and Washburn Avenue near the Beachmont MBTA Station. Although the buildings to be developed in the first Revere development phase are targeting an at-grade FFE in accordance with the BPDA recommendations, the physical constraints of matching the existing topography at the property limits will restrict some of these buildings from meeting the full recommendations. To maintain connectivity to Winthrop Avenue, the initial Revere development phase portion of the Site will be raised less than later phases of the Project and is anticipated to require a lesser amount of fill as compared to later phases. The Master Plan Project will likely maintain the existing grades of the track infield and all grades along Sales Creek as part of development proposed to be included in the first development phase. Also, as discussed previously the calculated existing conditions 1% annual event (i.e. 100-year event) area and elevation is significantly

less that what is shown by FEMA. As shown on Figure 8.4 these areas are greatly reduced throughout the Project Site. Post-development stormwater runoff rates discharging to Sales Creek will be at rates equal to or lower than pre-development rates to limit Project-related impacts to the functionality of the Bennington Street Pump Station. Because of these features, the first phase of development in Revere is not anticipated to require fill in the active floodplain storage areas.

The Master Plan Project is also proposing an initial phase of development within Boston, in the southeast corner of the Project Site near the Suffolk Downs MBTA Station. The project team previously completed a climate change and resiliency analysis on development within this portion of the Project Site that indicated no adverse flood or climate change impacts (see Suffolk Downs Phase 1 Project EPNF December 5, 2017).

Phase 2 is expected to provide increased flood storage around sensitive areas along Sales Creek. It will include the completion of the Central Common, which, as certain site areas are lowered in elevation, will result in a net reduction in elevation for that phase. Future Phases will also include daylighting Sales Creek and increasing flood storage at lower elevations throughout the Sales Creek watershed system, resulting in the Project Site being filled gradually over time. As design development progresses, the project team will evaluate the potential for additional storage areas (including temporary storage) around Sales Creek.

To maximize flood protection benefits, the installation of additional flood infrastructure (for example, the modeled additional tide gate and upgrades to Bennington Street Pump Station) should be completed in a coordinated approach if a regional flood protection barrier is being considered by state and local officials. The project team will continue to work with city and state officials to identify flood protection strategies, assess the timing to implement such strategies, and devise a coordinated approach to implementation.

8.7.3.2 Stormwater Management

The stormwater management system is integrated within the network of open spaces, which are designed to hold water and will help to reduce the risk of flooding to the adjacent buildings, and adjacent areas outside the Project Site. As described in Chapters 3 and 10, the Central Common Basin and Outdoor Theater Basin have been designed to accommodate additional flooding from both coastal and significant rainfall events above the advanced 100-year design storm ponding elevation. The Central Common basins includes an additional 3.5± acre-feet of storage and the Outdoor Theater Basin has been designed with an additional 0.6± acre-feet of storage. This totals an additional 4.1± acre-feet (6,615 cubic yards) of potential flood storage. The Central Common has been designed so that it can provide flood storage for the Sales Creek watershed during significant coastal and

rain events. Additional areas of flood storage, such as floodable garages, may be evaluated as the design advances.

A robust tree canopy will be created within the Central Common and streetscapes throughout the Project Site, serving many functions including aiding in storm water management. The network of open space, including the large open spaces, the multitude of landscaped spaces to be located throughout the Site, and vegetated streets and walkways, allows for increased stormwater absorption. This green infrastructure reduces flooding risk and stress on the city's water systems and supports the social benefits of open space while integrating resilient solutions into the design.

The roadway and infrastructure network has also been designed while taking into account flooding due to climate change. Critical infrastructure and primary roadways have been designed above projected flood elevations to allow for building access even when flooding occurs.

8.7.4 Off-Site Future Build Conditions

Impacts of the Master Plan Project on the surrounding neighborhoods, the Bennington Street Pump Station, and MBTA facilities are discussed below. In addition, the impacts of SLR on the Belle Isle Marsh and potential resulting effects on the Master Plan Project are also considered.

Beachmont and Suffolk Downs MBTA Stations and Washburn Avenue

Properties located east of the Project Site are closer to the Atlantic Ocean, are generally at lower elevations, and are increasingly vulnerable under future sea level conditions to coastal storm surge. This includes the MBTA right-of-way and Beachmont Station, Bennington Street Pump Station, the Washburn Avenue neighborhood, Fredericks Park, and Beachmont Veterans Memorial School which are located at elevations approximately 12-17 BCB. As sea levels increase these areas will experience coastal flooding with greater frequency and depths. Unless each property (or right of way) were to be raised individually, a flood protection barrier will ultimately be required to protect these properties from more frequent coastal storm surge and daily tidal flooding that will increase over time.

In the interim, prior to the implementation of a regional flood protection barrier, the Project is proposing to add a tide gate at the eastern Project limits at Sales Creek as shown in Figure 8.5. This tide gate protects upstream off-site areas (over one thousand properties in Revere) during coastal events that overtop Bennington Street where coastal water would begin to travel upstream along Sales Creek. As discussed previously such events render the Bennington Street Pump Station and existing Bennington Street Tide Gate ineffective. As such, the modeling results include this additional tide gate.

As described in Section 8.7.2 above, a drawback to the additional tide gate is that it its construction is predicted to results in minor impacts to surface water elevations (up to a 0.4-foot rise) to a limited area along Washburn avenue and the entrance to the MBTA Beachmont Station during very low probability events. These events are when there is 1.5 feet of SLR and the simultaneous occurrence of the 100-year precipitation event and the 100-year coastal flood event, which has a 0.00005% chance of occurrence (or 1 in 2 million) in the year 2035.

Although the installation of the tide gate results in these minor increases in calculated flood elevations in this limited area, the alternative of not installing the tide gate was determined to be more unfavorable because that scenario could expose over one thousand properties in Revere to flooding during low probability coastal storm events. As previously discussed, if the additional tide gate were installed under the No-Build condition, these properties along Washburn Avenue and the MBTA would still see a similar increase in water surface elevations.

Alternatively, if a regional flood barrier solution were to be implemented along the Bennington Street corridor, the additional tide gate would not be necessary: The overtopping of Bennington Street would be resolved, and there would be a significant reduction in peak water surface elevations for all areas. Coordination with DCR and the Cities of Boston and Revere is required to assess options.

8.7.4.1 Surrounding Neighborhoods

Orient Heights (Boston)

The Orient Heights neighborhood is located at elevations generally ranging from 30-120-feet (BCB). These elevations provide protection from both Sales Creek riverine and coastal flooding. This Master Plan Project will have no flood impacts given the neighborhood is in a high-lying area.

Beachmont (Revere)

Revere's Beachmont neighborhood consists of both low- and high-lying topography. Generally, the high-lying areas of Beachmont are located to the South, while the low-lying areas are to the north, west (including Washburn Avenue and Beachmont MBTA station), and the far south, with the most southern properties located along Belle Isle Inlet including the Beachmont Veterans Memorial School and Fredericks Park east of Bennington Street.

Similar to the Orient Heights Neighborhood, the high-lying areas of Beachmont (elevations over 20 feet BCB) are protected from both riverine and coastal flooding, and therefore will not experience any flood impacts due to the Project. Besides these raised areas, and a few properties directly abutting Belle Isle Inlet which are at direct exposure to coastal flooding and will not be impacted by the Project, the Beachmont neighborhood was modeled as part of this analysis. Modeling results indicate a reduction in peak flood elevations from No-Build to Build conditions for

all 22 modeling scenarios for the Beachmont neighborhood (except for very low probability events affecting the Washburn Avenue neighborhood as described above). In addition to a reduction in calculated peak water surface elevations, model results indicate a reduction in the duration of flooding during peak events from No-Build to Build conditions. Appendix F provides further information regarding the duration and peak water elevations of flooding. As previously noted above there are some increases in water surface elevation near the Beachmont MBTA Station in some low probability events with SLR (see section 8.7.4).

Shirley Avenue Neighborhood (Revere)

The entirety of the low-lying area of the Shirley Avenue neighborhood, including the Garfield Elementary School, was modeled in both No Build and Build conditions as part of this resilience analysis. Model results indicate a reduction in peak water surface elevation and duration of flooding from no-build to build conditions.

Southern Shirley Avenue Neighborhood (South of Winthrop Avenue, Revere)

This area consists of the Furlong Drive commercial neighborhood and the residential neighborhood north of Sales Creek and south of Winthrop Avenue. Model results again indicate a reduction in peak water surface elevation and duration of flooding from no-build to build conditions.

8.7.4.2 Bennington Street Pump Station

DCR's Bennington Street Pumping Station is effective at reducing stormwater flooding along Sales Creek, but due to its location and elevation, its effectiveness can be reduced if it is impacted by a large coastal storm. Bennington Street itself was built on an embankment that acts as a barrier to flood waters from tides and coastal storm surge. At the road's lowest elevation, located approximately 750-feet to the north of Sales Creek, it is hydraulically connected to Belle Isle Inlet via Fredericks Park. It is anticipated that coastal storm surge events that exceed the height of the pump station/tide gate (elevation 14 BCB) would simultaneously overtop Bennington Street at its low point (via Fredericks Park). For more typical events with tide and surge elevations below the elevation of the pump station/tide gate, Bennington Street and Fredericks Park provide flood protection for the overall Project Site from the Belle Isle Inlet

DCR has noted that the pump station operation typically involves the removal of a significant amount of Phragmites. The Phragmites is a maintenance and operation concern for DCR. As described in Chapter 5, *Wetlands and Waterways*, the Project is proposing an aggressively-managed invasive species removal plan which should help with the upstream Phragmites problem.

The Proponent will work with DCR to design and upgrade the DCR-owned pump station as needed.

A description of the Route 1A culvert and other flood management infrastructure can be found in Appendix F.

8.7.4.3 Sea Level Rise Impacts to Belle Isle Marsh

While the Master Plan Project does not directly impact Belle Isle Marsh because it will not result in increased runoff to the Marsh, the Belle Isle Marsh is likely to be impacted by changing climate conditions including sea level rise and changes in precipitation and temperature patterns. In general, predicting how salt marshes will respond to rising sea levels is a challenge because marsh development depends on a multitude of complex factors, including primary productivity, biomass allocation, decomposition, sediment supply and deposition, erosion, subsidence, glacial isostacy, and tectonic uplift.[13] In addition, sea-level rise-induced changes in salinity and flood regime can significantly impact plant growth and community composition.[14] Current sedimentological theory holds that marshes with higher mineral inputs are better able to accrete in the face of rising sea levels.[15] Marshes that experience high rates of accretion rise vertically, and may build in place. They may also expand horizontally, or migrate, if there are no barriers present.

In the case of Belle Isle Marsh, it is surrounded by developed land with virtually no opportunity for migration. In addition, there is evidence that when sediment supplies are low or when the pace of relative SLR is rapid, rates of marsh accretion may not be able to keep pace with rising waters. Recent evidence suggests that marshes located in areas of low sediment loads (<20 mg L) will drown once a threshold of 0.5 cm (0.39 in) per year of RSLR is attained.[16] Under the High emission scenario considered in this study, this rate of RSLR would be exceeded by 2030. If Bell Isle Marsh were to become open water, it would remain quite protected from wave generation, and wave heights would not be expected to dramatically increase. The fetch length, or the length of water over which wind can blow to induce waves, is not expected to increase due to the existing development surrounding the marsh. In order to understand how Belle Isle Marsh is responding to changes in climate, a study of accretion rates over time and in relation to RSLR would need to be conducted by DCR.

[13] Carey, J & B. Moran, S & Kelly, Roger & Kolker, Alexander & Fulweiler, Wally. (2015). The Declining Role of Organic Matter in New England Salt Marshes. Estuaries and Coasts. 10.1007/s12237-015-9971-1.

[14] Stagg, Camille L.; Krauss, Ken W.; Cahoon, Donald R.; Cormier, Nicole; Conner, William H.; and Swarzenski, Christopher M., "Processes Contributing to Resilience of Coastal Wetlands to Sea-Level Rise" (2016). USGS Staff -- Published Research. 991. http://digitalcommons.unl.edu/usgsstaffpub/991

[15] Allen, J. 2000. Morphodynamics of Holocene salt marshes: a review sketch from the Atlantic and Southern North Sea coasts of Europe. Quaternary Science Reviews 19: 1155–1231

[16] Kirwan, M., G. Guntenspergen, and J. Langley. 2014. Temperature sensitivity of organic-matter decay in tidal marshes. Biogeosciences 11: 4801–4808.

8.8 Resiliency Approach and Additional Adaptation Measures

While climate projections for the future are easily accessible, it is still difficult to project how the land and infrastructure surrounding the Project Site will change over time in response to both the changing climate and ordinary development pressures. For example, will Route 1A (owned by MassDOT) and the properties abutting the Chelsea Creek (privately owned) may be raised at some future date, and elements of the Bennington Street right-of-way (owned by MassDOT and the City of Boston) may eventually be elevated to reduce flooding impacts. For this reason, it is important to retain some flexibility in designing the Project so that it can be adapted not only to changing climate conditions, but to the changing responses in the surrounding environment to those conditions.

8.8.1 District-Scale Flood Protection

Regardless of whether the Project is constructed, that is, under both No-Build and Build conditions, by 2030 areas near the Project Site that are currently at risk of coastal flooding from the 1% annual chance flood are likely to become susceptible to flooding, including incrementally increased risks associated with the 10% annual chance flood (10-year flood), with such areas including Bennington Street and the MBTA Blue Line tracks. By the 2050s these same areas may be susceptible to tidal flooding, and portions of the Beachmont neighborhood and the tank farm to the West of the Project Site may become susceptible to coastal storm flooding from high probability events, barring the implementation of any flood mitigation measures. These impacts could result in isolating East Boston from Revere. In the long term, flood mitigation will be required on both the east and west sides of the East Boston peninsula.

In light of these future potential risks, it may become appropriate for regulators to consider or implement district-scale flood protection along both the Belle Isle Marsh and Chelsea Creek to protect those areas prior to the occurrence of projected flood events.

Along Belle Isle Marsh, one potential solution to increased flooding would be to construct a raised multi-use path as shown in Figure 8.6. This potential new path would likely need to be elevated to between 20 and 23 feet BCB to provide adequate protection through 2070 based on current SLR projections.

Adjacent to Chelsea Creek, along Route 1A, there is an opportunity to implement flood control measures as adjacent parcels are redeveloped and/or through the conversion of an existing rail right of way to a flood barrier/community path.

While district scale improvements completed by others (such as those referenced above) would be intended to address matters beyond the scope of the Master Plan Project and its potential impacts, the Proponent is open to and interested in working

with stakeholders to explore these and other ideas for improving the resiliency of the surrounding area. It is recommended that all stakeholders, including DCR and the Cities of Boston and Revere, work together to plan and implement the most effective solutions.

8.8.2 Site Design

The open spaces throughout the Project Site, including the 15-acre Central Common, network of linear and smaller open spaces, and existing wetlands, also serve to mitigate high temperatures. The urban canopy improves thermal comfort though shade and cools the air through transpiration. Vegetated and tree-covered areas are distributed across the Site, to induce cooling effects throughout the Project.

The impact of paving type on the heat island effect will be considered with public realm paving and sidewalks by specifying materials with less heat absorbing capacity. Paving materials will be selected with a high Solar Reflective Index to offset the effects of increasingly hot summers.

8.8.3 Building Design and Operations

According to the SLR – FHA Mapping Tool, the SLR-BFE for the Project Site ranges from elevation 19.3 to 19.5 feet BCB for 2070. The Project is targeting a Finished Floor Elevation of 20.5 feet BCB for non-critical buildings and 21.5 feet BCB for critical buildings, infrastructure and ground floor residential, per the BPDA guidance, to provide one to two feet of freeboard above the projected 2070 BFE. In areas where elevating FFEs to these elevations is not possible due to Site constraints, alternative flood protection measures will be implemented, including:

- Using dry floodproofing materials in areas susceptible to flooding.
- Maintaining emergency access.
- Designing adaptable ground-floor space.
- Designing with the ability to add temporary flood barriers to building openings, such as flood logs and flood gates, should they become necessary.
- Moving critical components of buildings to upper stories when necessary.

Strategies to mitigate the impacts of increased average temperatures and extreme heat on future buildings include:

- Designing efficient building envelopes that exceeds minimum code values for glazing (i.e. both U-value and solar heat gain coefficient ["SHGC"]) and roof insulation (R-40).
- Specifying operable windows for residential buildings and considering them for hotel and office buildings.
- Using a 95°F peak day for sizing of building mechanical systems, which exceeds ASHRAE Fundamentals 2017 of 90.6°F.

- Locating a robust and diverse urban tree canopy in the central common and throughout the street network to shade buildings.
- Using the open/green space and tree canopy to help mitigate heat island impacts and make the Project Site more resilient to increasing temperatures.

On-site renewable energy, higher capacity emergency generators and other small - scale CHP systems may provide added resiliency during periods of power loss during storms. As described in Section 7.3.6 of Chapter 7, *Greenhouse Gas Assessment*, a district energy/microgrid is unlikely to be feasible for the Master Plan Project. Given the changing incentive marketplace for solar PV and the length of time for the Master Plan Project to be completed, solar PV systems will continue to be assessed for their feasibility as the design for individual buildings move forward.

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Figure 8.1

Sea Level Rise Resiliency Adaptation Study
Site Location and Critical Infrastructure

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

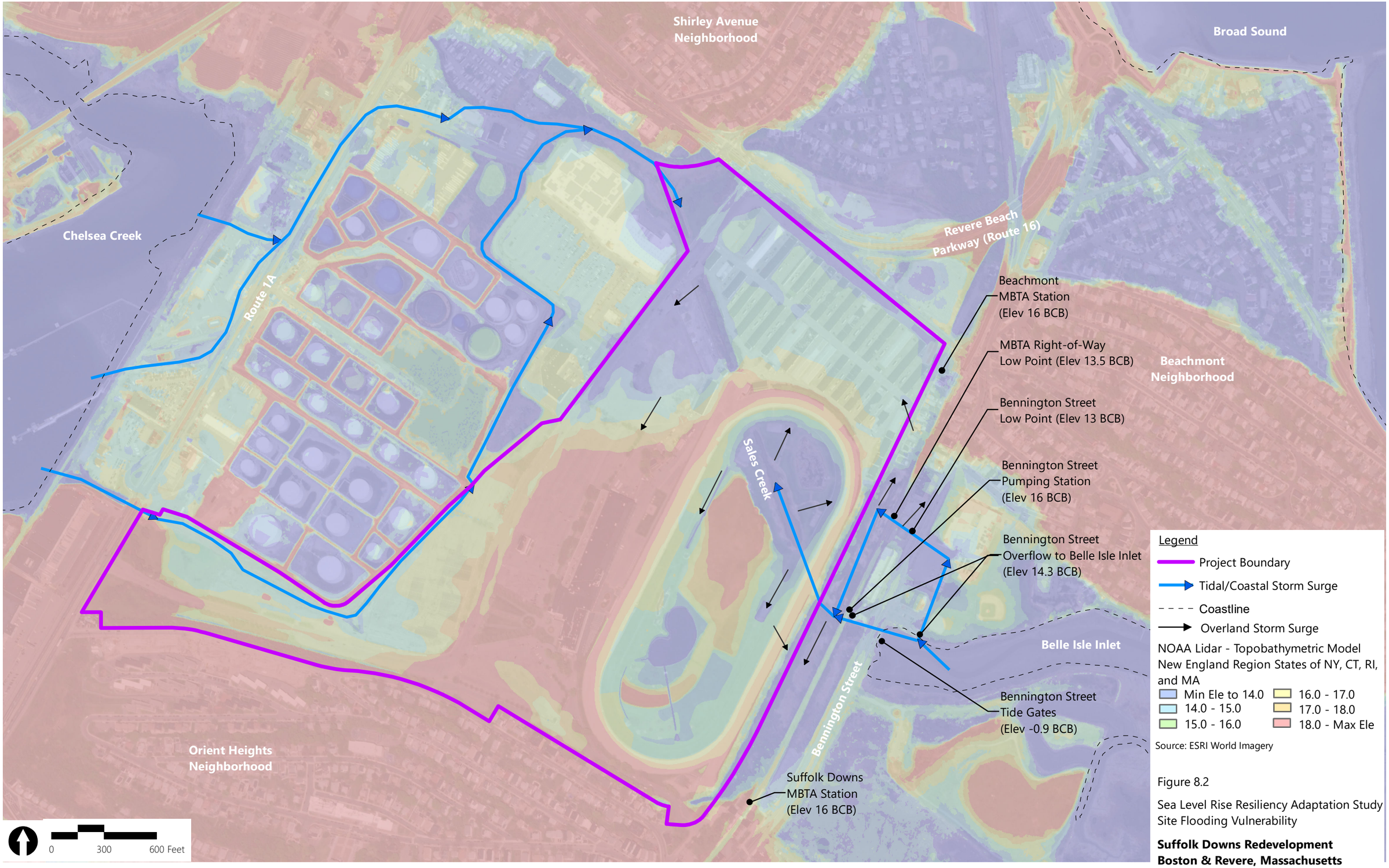

Figure 8.2

Sea Level Rise Resiliency Adaptation Study
Site Flooding Vulnerability

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

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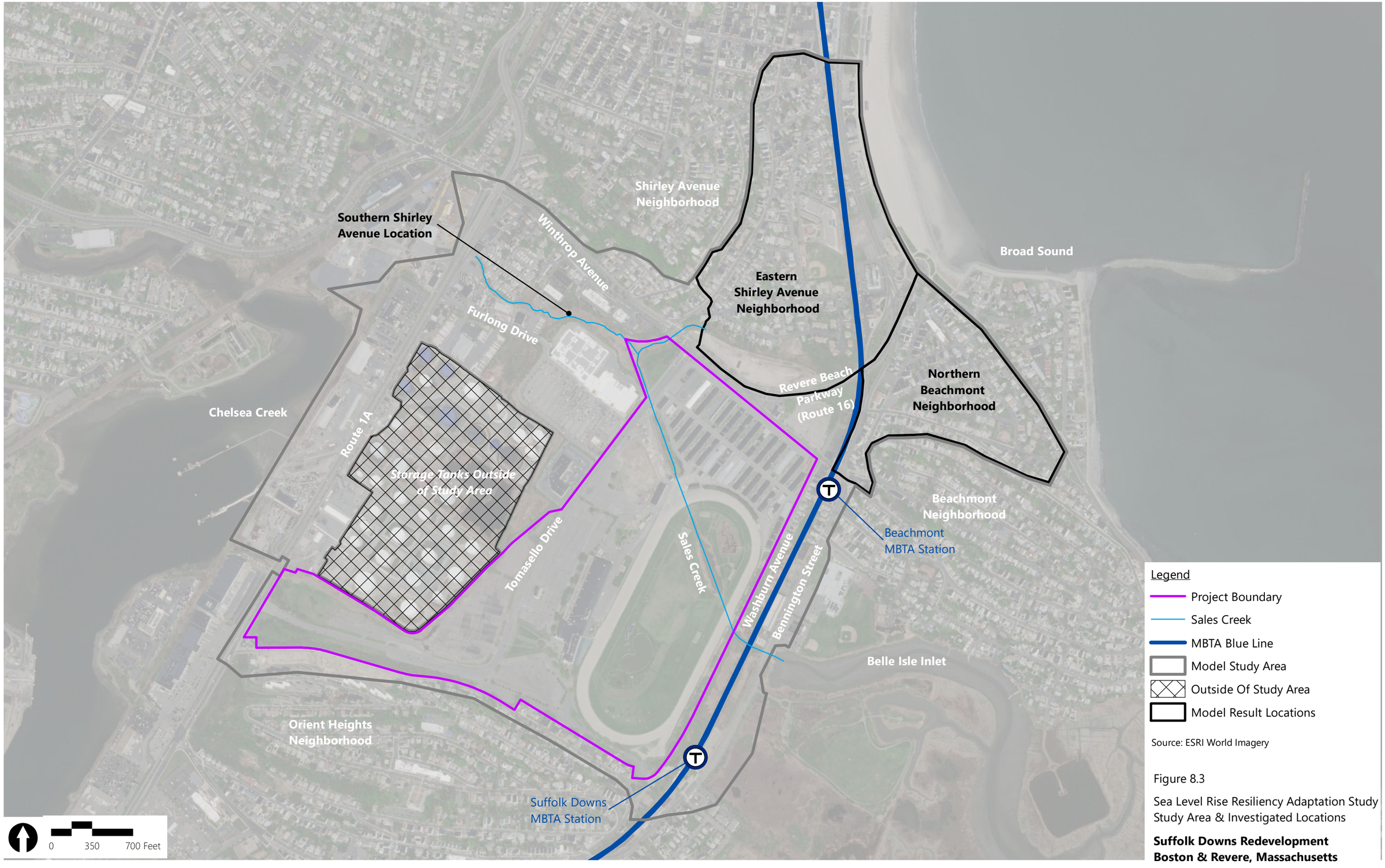

Figure 8.3

Sea Level Rise Resiliency Adaptation Study
Study Area & Investigated Locations

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

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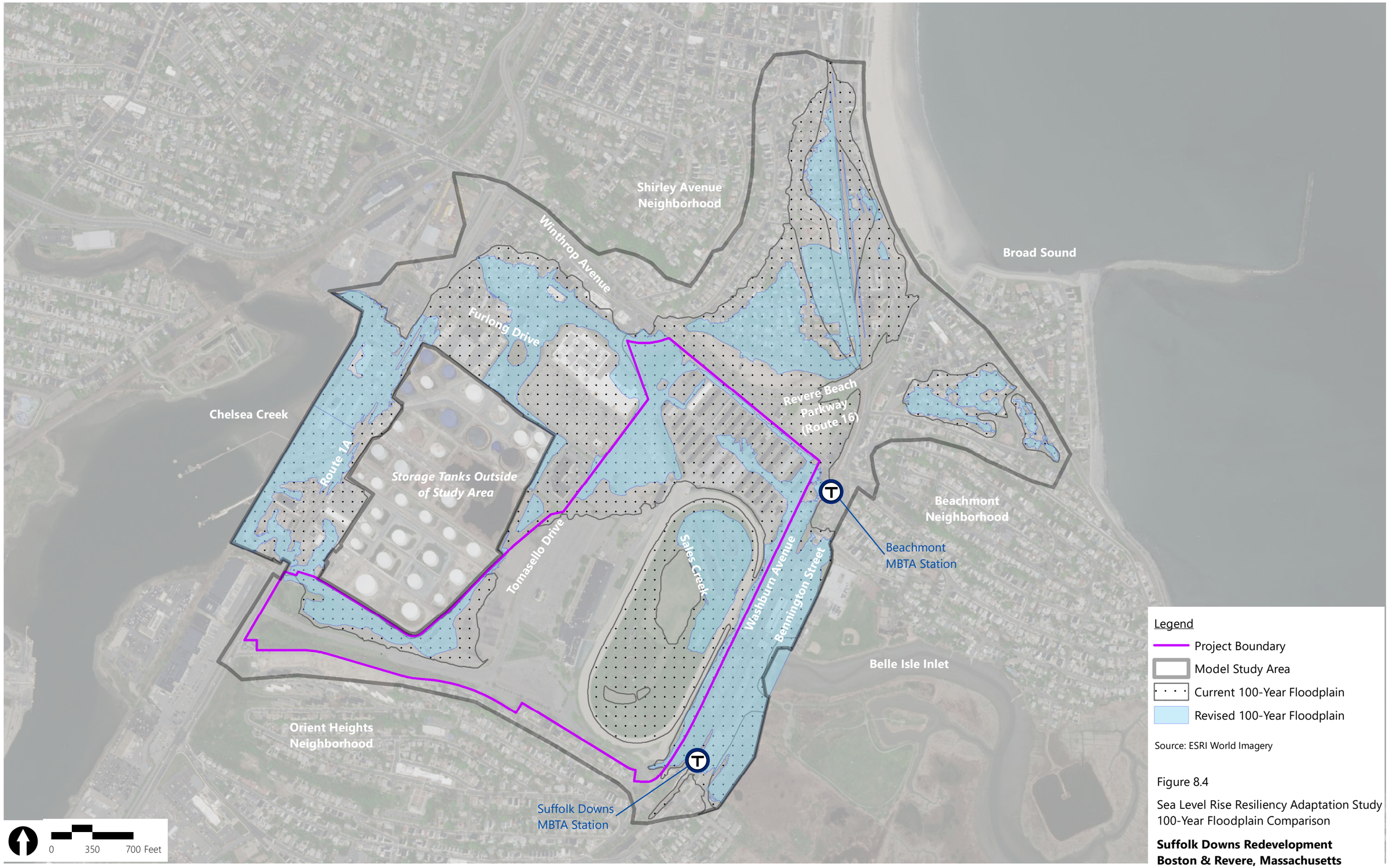

Figure 8.4

Sea Level Rise Resiliency Adaptation Study
100-Year Floodplain Comparison

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

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Source: ESRI World Imagery

Figure 8.5

Sea Level Rise Resiliency Adaptation Study
Conceptual Site Design with Resilience Measures

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

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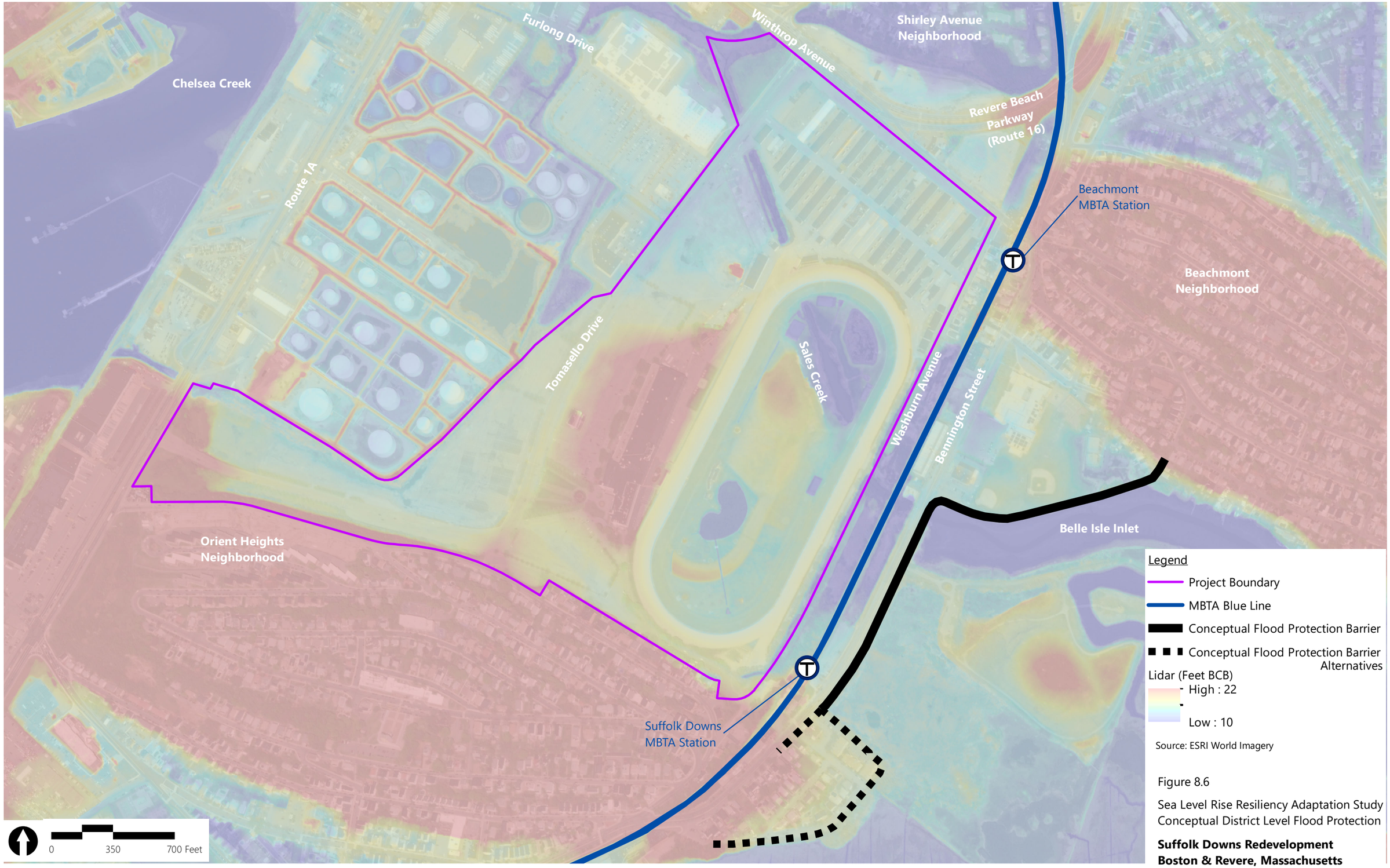

Figure 8.6

Sea Level Rise Resiliency Adaptation Study
Conceptual District Level Flood Protection

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

9

Environmental Protection

This chapter provides information on existing environmental conditions at the Project Site and the potential changes that may occur as a result of the Master Plan Project. A key goal of the Master Plan Project is to redevelop the Project Site for more efficient and improved uses, and to build on/complement adjacent uses while avoiding or minimizing potential adverse environmental impacts to the greatest extent feasible.

As discussed in more detail below, the Master Plan Project-related impacts, which are to be expected in any development of this scale, are counterbalanced by the significant benefits for the adjacent neighborhoods and municipalities. The following sections identify impacts and discuss steps that have been or will be taken through design and management to avoid, minimize, and/or mitigate adverse effects. Temporary construction-period impacts will be managed to minimize disruption to the surrounding neighborhoods.

As requested in the EEA Secretary's Certificate on the EENF and in the BPDA Scoping Determination, this chapter provides information on wind, shadow, air quality and construction for the Master Plan Project. The study of potential impacts related to solar glare, daylight, and noise will be provided for future subsequent phases of development as part of the BPDA design review process. No additional solid and hazardous waste sampling or site assessment activities have occurred since the EENF/EPNF filing.

9.1 Summary of Key Findings and Benefits

The analysis of potential environmental impacts resulting from the Master Plan Project include the following conclusions:

- **Wind –** With appropriate mitigation, the Master Plan Project is not anticipated to result in any new unacceptable or unsafe wind conditions in or around the Project Site. As design progresses for each phase of the Master Plan Project, mitigations measures, such as shaping buildings, incorporating setbacks and/or detailed architectural façade elements and landscape interventions will improve conditions.
- **Shadow –** Shadow impacts have been minimized to the extent practicable to avoid noticeable pedestrian impacts. The shadows generated by the Master Plan Project will have minimal impact on existing open spaces and are not anticipated to adversely impact onsite-wetland resources. On-site open spaces are oriented to provide unshaded areas throughout the daytime.

- **Air Quality –** The air quality analysis demonstrates that the Master Plan Project will conform to the National Ambient Air Quality Standards and will not have an adverse impact on local air quality.
- **Construction –** The Master Project has been designed to avoid, minimize and mitigate potential construction-related impacts. The Project team will work with the City of Boston and City of Revere to reduce potential construction period impacts.

9.2 Wind

Pursuant to Section IV.B.1 of the BPDA Development Review Guidelines, an analysis of anticipated pedestrian-level wind conditions was conducted for the Master Plan Project full build-out to determine the suitability of particular locations to various activities (e.g. walking, sitting, eating, etc.). We note that the Revere portions of the Project Site and Master Plan Project were analyzed using the same approach taken for the Boston portions of the Project Site and Master Plan Project.

Appendix G provides a wind tunnel study of the proposed Phase 1 Project and two residential buildings as part of the anticipated initial phase of development in Boston at the request of the BPDA Urban Design Department at a meeting held April 30, 2018 following issuance of the BPDA Scoping Determination. As they are advanced, subsequent development phases and/or individual buildings of the Master Plan Project will be analyzed quantitatively through a wind tunnel analysis as part of future design review.

9.2.1 Methodology

Wind flows around the Project Site and its surroundings were simulated using Virtualwind™, which is a proprietary software developed by RWDI for a computer-simulated assessment of pedestrian wind conditions. The prevailing winds from the west-northwest, northeast and southwest were simulated for the existing Project Site and with the full build-out of the Master Plan Project. The architectural model of the Master Plan Project provided sufficient massing details that would affect wind flows in the area. For a conservative estimate, landscaping was not included in the computer model.

The Revere portions of the Project Site and Master Plan Project were analyzed using the same approach taken for the Boston portions of the Project Site and Master Plan Project.

9.2.2 Pedestrian Wind Comfort Criteria

The BPDA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 miles per hour (mph) should not be exceeded more than one percent of the time. The second set of criteria used by the BPDA to determine the

acceptability of specific location is based on the work of Melbourne.[1] This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing or walking. The criteria are expressed in terms of benchmarks for the one-hour mean wind speed exceeded one percent of the time (i.e., the 99th percentile mean wind speed) and are presented in Table 9-1.

Table 9-1 BPDA Mean Wind Criteria*

Dangerous	> 27 mph
Uncomfortable for Walking	> 19 and ≤ 27 mph
Comfortable for Walking	> 15 and ≤ 19 mph
Comfortable for Standing	> 12 and ≤ 15 mph
Comfortable for Sitting	< 12 mph

* Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BPDA effective gust velocity criterion. However, without any mitigation measures, this typical downtown wind climate is likely to be frequently uncomfortable for more passive activities, such as sitting.

9.2.3 Master Plan Project Wind Impacts

Based on the computer model results, the Master Plan Project is not anticipated to generate any unsafe wind conditions at or near the Project Site. Although some increased wind speeds may be experienced along the corners of future buildings within the Project Site, these impacts will be mitigated by either locating entrances, pick-up/drop-offs, outdoor cafes, etc., away from the building corners, and/or incorporating canopies, recessed entrances, windscreens, planters, etc., as necessary. The proposed building typologies with podiums and tower setbacks help reduce downwashing winds and the potential for channeling effect due to the distance between the tower elements. Wind protection around the perimeter of public spaces and local measures around seating areas is anticipated to maintain desirable conditions in key areas.

The interaction of winds with major buildings, especially those that protrude above their surroundings, often cause increased local wind speeds at the pedestrian level. Typically, wind speeds increase with elevation above the ground surface, and taller buildings intercept these faster winds and deflect them down to the pedestrian level (downwashing flows). The funneling of wind through gaps between buildings (channeling flows) and the acceleration of wind around corners of buildings may also cause increases in wind speed. Conversely, the ground level environments may benefit from the sheltering effects provided by multiple buildings that compose an urban environment.

1 Melbourne, W.H., 1978, "Criteria for Environmental Conditions," Journal of Industrial Aerodynamics, 3 (1978) 241-249.

The Master Plan Project includes several positive design features for wind control. As a result, the existing wind conditions in the surrounding areas, such as the MBTA Blue Line Stations and public sidewalks, will not be altered significantly. On the Project Site, suitable wind conditions are predicted for most sidewalks and the proposed green spaces throughout the year. To ensure a comfortable and safe environment within and surrounding the Project Site, such mitigation measures will be evaluated further as the design is advanced for individual buildings or development phases of the Master Plan Project.

At this stage of planning of the Master Plan Project the buildings are not fully designed and represent conceptual building height and massing. As the design progresses to a more detailed level through the design review process for each individual phase, mitigation measures, such as shaping buildings, incorporating setbacks and/or detailed architectural façade elements (i.e., canopies, louvers) and landscape interventions will improve conditions.

9.3 Shadow

An analysis of the shading impact under the no-build and build conditions is a requirement of the Article 80, Large Project Review (Section 80B-2(c) of the Boston Code). The shading analysis was prepared in accordance with the requirements of Section B.2. of the BPDA Development Review Guidelines. Shadow studies for the Master Plan Project are presented in Figures 9.1 through 9.4. Additional shadow studies will be produced for each development phase or building based on more advanced design as part of the subsequent Design Review process.

9.3.1 Methodology

A shadow impact analysis was conducted at regular time intervals to investigate the effect that the Master Plan Project will have throughout the year. A computer model of the Master Plan Project and surrounding urban area was developed. A number of days and times were analyzed, as required under Article 80. The analysis used "clear sky" solar data at Boston's Logan International Airport, meaning the assumption that no cloud cover ever occurs; therefore, providing a "worst case" scenario showing the full extent of when and where shadow could occur.

In order to represent a variety of shadow conditions at various times of the day, and times of the year, three time intervals (9:00 AM, 12:00 PM, 3:00 PM) are represented for the Vernal and Autumnal Equinoxes (March 21st and September 21st, respectively), Summer Solstice (June 21st), and Winter Solstice (December 21st). Per the BPDA Development Review Guidelines, 6:00 PM has been added to the June 21st and September 21st shadow studies. This study takes into consideration Daylight Savings Time ("DST"), and therefore times are presented in Eastern Standard Time ("EST") and Eastern Daylight Time ("EDT"). The analysis focuses on the shadow cast onto existing pedestrian areas, open spaces, and sidewalks adjacent to and in the vicinity of the Project Site.

Table 9-2 shows the solar azimuth and altitude data. Times are listed as EST and EDT, as appropriate. The data reflects a latitude of 42.358º and a longitude of -71.06º.

Table 9-2 Solar Azimuth and Altitude Data

Date	Time	Azimuth[1]	Altitude[2]
March 21 EDT	9:00 AM	112.59	23.61
March 21 EDT	12:00 PM	161.17	46.69
March 21 EDT	3:00 PM	223.5	39.26
June 21 EDT	9:00 AM	93.51	39.95
June 21 EDT	12:00 PM	149.52	68.8
June 21 EDT	3:00 PM	246.32	56.48
June 21 EDT	6:00 PM	280.71	23.83
September 21 EDT	9:00 AM	115.54	25.89
September 21 EDT	12:00 PM	166.28	47.2
September 21 EDT	3:00 PM	227.1	37.14
September 21 EDT	6:00 PM	140.54	27.83
December 21 EST	9:00 AM	184.36	24.12
December 21 EST	12:00 PM	224.96	10.1
December 21 EST	3:00 PM	112.59	23.61

1 Azimuth is measured in degrees clockwise from North
2 Altitude is measured in degrees up from the horizon
EST Eastern Standard Time
EDT Eastern Daylight Time

9.3.2 Shadow Study Findings

Shadows generated by the Master Plan Project will have minimal impact on existing open spaces and are not anticipated to adversely impact onsite-wetland resources. On-site open spaces are oriented to provide unshaded areas throughout the daytime. The Master Plan Project increases shading to on-site wetlands and waterways as compared to existing conditions, under which there is very minimal shading at certain times and seasons. However, full sunlight is still maintained to the on-site wetlands and waterways for at least a portion of each day in the full build condition, and the increased shading could act to mimic a natural tree canopy, which is not currently present on-site.

March 21st

The net new shadows associated with the Master Plan Project for March 21 are illustrated in Figures 9.1a through 9.1c. March 21 is the vernal equinox; the length of daytime and nighttime are equal at this date. The sun rises at 6:31 AM EDT in the southeastern sky and sets at 6:42 PM EDT to the southwest.

At 9:00 AM the morning shadow associated with the Master Plan Project is generally contained within the Project Site, with shadows falling to the northwest and shading internal streets and sidewalks, as well as a small portion of the horseshoe pond and central common. An incremental amount of shadow is cast on the adjacent oil tank farm site and a small portion of Route 1A to the west of the Project Site in Boston, as well as the adjacent shopping plaza property in Revere (Figure 9.1a). Similarly, at 12:00 PM, shadow is contained on-site with shadow falling north of the proposed buildings (Figure 9.1b). A minimal amount of shadow is cast to the north of the Project Site onto a small portion of Winthrop Avenue in Revere.

At 3:00 PM, the shadow associated with the Master Plan Project is generally contained with the Project Site with limited new shadow is cast onto portions of Winthrop Avenue and a small area of Revere Beach Parkway just north of the Project Site in Revere (Figure 9.1c).

June 21st

The new shadows associated with the Master Plan Project for June 21 are illustrated in Figures 9.2a through 9.2d. June 21 is the summer solstice and the longest day of the year. The sun rises at 5:08 AM EDT in the southeastern sky and sets at 8:25 PM EDT. Shadows during the summer are generally shorter than other seasons as the sun is highest in the sky.

At 9:00 AM, the morning time shadow is contained almost entirely within the Project Site, with some new shadow falling westward along Tomasello Drive and portions of the internal pedestrian network and public open space within the Revere portion of the Project Site (Figure 9.2a). Due to the higher angle of the sun, the shadows quickly shorten and rotate eastward and, by 12:00 PM, shadows are entirely contained within the Project Site, with some incremental new shadow falling onto internal streets and sidewalks only (Figure 9.2b).

At 3:00 PM, shadow extends northeast from the Project Site with limited net new shadow cast off-site onto portions of Winthrop Avenue and a small area of Revere Beach Parkway just north of the Project Site in Revere (Figure 9.2c).

At 6:00 PM, the sun begins to set where shadow associated with the Master Plan Project extends to the east over sections of the MBTA Blue Line tracks in Boston, and Washburn Street in Revere, as well as to the north over sections of Winthrop Avenue and Revere Beach Parkway in Revere. These shadows are later in the day and, given it is summer, could provide some relief from the sun and heat.

September 21st

The net new shadows associated with the Master Plan Project for September 21 are illustrated in Figures 9.3a through 9.3d. September 21 is the autumnal equinox; the length of daytime and nighttime are equal for this date. The sun rises at 6:31 AM EDT in the southeastern sky and sets at 6:42 PM EDT to the southwest.

At 9:00 AM, the morning time shadow is generally contained within the Project Site, with shadows falling to the northwest and shading internal streets and sidewalks, as well as a small portion of the horseshoe pond and the central common (Figure 9.3a). An incremental amount of shadow is also cast off-site onto Route 1A, and some new shadow is cast on the adjacent oil tank farm in Boston, as well as the shopping plaza property to the west of the Project Site in Revere.

At 12:00 PM, shadow falls to the north of the proposed buildings and is almost entirely on-site. A very small amount of shadow is cast to the north of the Project Site onto a small portion of Winthrop Avenue in Revere.

At 3:00 PM, shadow extends northeast from the Project Site with limited net new shadow cast off-site onto portions of Winthrop Avenue and a small area of Revere Beach Parkway just north of the Project Site in Revere (Figure 9.3c).

At 6:00 PM, the sun begins to set where shadow associated with the Master Plan Project extends to the east over adjacent sections of the MBTA Blue Line tracks, and portions of Bennington Street, and very limited portions of the Belle Isle Mash and Inlet in Boston (Figure 9.3d). Shadow also extends northeast over Washburn Street, Winthrop Avenue frontage, and portions of Revere Beach Parkway in Revere. These shadows are later in the day and, given the warmer time of year, could provide some relief from the sun and heat.

December 21st

The net new shadows associated with the Master Plan Project on December 21 are depicted on Figures 9.4a through 9.4c. December 21 is the winter solstice and the shortest day of the year. The sun is at its lowest inclination above the horizon at each hour of the day. Even low buildings cast long shadows in northerly latitudes such as Boston. The sun rises at 7:10 AM EST and sets at 4:15 PM EST in December.

At 9:00 AM, due to the low sun angle, morning time shadows extend to the northwest shading internal streets and sidewalks (Figure 9.4a). New shadow extends across Route 1A towards Chelsea River and onto a portion of the adjacent oil tank farm site in Boston. In Revere, some new shadow is cast on a portion of Furlong Drive and the shopping plaza property to the west of the Project Site, as well as along the northern portion of Winthrop Avenue frontage.

At 12:00 PM, as shadow shifts northward, the majority of new shadow is cast on-site with limited shadow over Route 1A and the adjacent oil tank farm site in Boston Figure 9.4b). New shadow is also cast over small sections of Winthrop Avenue frontage and portions Revere Beach Parkway north of the Project Site in Revere.

At 3:00 PM, new shadow extends to the northeast over the internal Project Site. New shadow extends east over Washburn Street in Revere but does not quite reach the MBTA Blue Line Tracks in Boston (Figure 9.4c). New shadow extends to the north over Winthrop Avenue and portions of Revere Beach Parkway, as well as limited portions of properties just to the north of the Project Site. Although net new shadow associated with the Master Plan Project has increased under this condition, it is

limited due to new building construction on the north side of Revere Beach Parkway. Additionally, days during this time of year are less bright and there is much less contrast between shaded and unshaded areas.

9.4 Air Quality

The Master Plan Project is located in East Boston and Revere, which are both within Suffolk County. As such, the Master Plan Project is subject to reviewing/conducting mesoscale and microscale air quality analyses under both MEPA/BPDA guidelines. Subject to consultation with Revere City Officials, the same guidelines will be used for the portion of the Master Plan Project located in Revere.

This section presents an overview of the air quality assessment for the Master Plan Project. The purpose of the air quality assessment is to demonstrate that the Master Plan Project will not result in a violation of applicable local, state, and federal air quality standards. A microscale analysis was conducted to show that carbon monoxide ("CO") concentrations at study area intersections will not violate National Ambient Air Quality Standards (NAAQS). Additionally, a mesoscale analysis was performed for oxides of nitrogen ("NOx") and volatile organic compounds ("VOCs") to determine the potential impact on the regional Ozone inventory. The Master Plan Project will incorporate reasonable and feasible mitigation measures to reduce VOCs and NOx emissions for the build condition, including a robust TDM program and roadway improvements.

9.4.1 Microscale Analysis

This section presents an overview of and the results for the microscale ("hot spot") assessment conducted for the Master Plan Project. The purpose of the air quality assessment is to demonstrate that the Master Plan Project satisfies applicable local, state and federal requirements, and to determine whether it complies with the 1990 Clean Air Act Amendments ("CAAA") following the local and the U.S. Environmental Protection Agency ("EPA") policies and procedures.

The air quality assessment conducted for this Master Plan Project includes a localized analysis of CO concentrations. The microscale analysis evaluated CO concentrations from vehicles traveling through congested intersections in the area around the Project Site under the existing conditions, as well as concentrations from Master Plan Project-specific impacts under the future conditions. The results from this evaluation were compared to the NAAQS.

Background

The CAAA resulted in states being divided into attainment and non-attainment areas, with classifications based upon the severity of their air quality problems. Air quality control regions are classified and divided into one of three categories: attainment, non-attainment and maintenance areas depending upon air quality data and ambient concentrations of pollutants. Attainment areas are regions where

ambient concentrations of a pollutant are below the respective NAAQS; non-attainment areas are those where concentrations exceed the NAAQS. A maintenance area is an area that used to be non-attainment but has demonstrated that the air quality has improved to attainment. After 20 years of clean air quality, maintenance areas can be re-designated as attainment areas. Projects located in maintenance areas are required to evaluate their CO concentrations on the NAAQS.

The Master Plan Project is located in the City of Boston and the City of Revere, which under the EPA designation, is a CO maintenance area. As such, CO concentrations need to be evaluated for this Master Plan Project.

Air Quality Standards

Carbon monoxide is directly emitted by motor vehicles, and the predominant source of air pollution anticipated from typical developments is emissions from project-related motor vehicle traffic. A product of incomplete combustion, CO is a colorless and odorless gas that prevents the lungs from passing oxygen to the blood stream. According to the EPA, 60 percent of CO emissions result from motor vehicle exhaust, while other sources of CO emissions include industrial processes, non-transportation fuel combustion and natural sources (i.e., wildfires). In cities, as much as 95 percent of CO emissions may come from automobile exhaust.[2]

The EPA has established the NAAQS to protect the public health. Massachusetts has adopted similar standards as those set by the EPA. Table 9-3 presents the NAAQS for carbon monoxide.

Table 9-3 National Ambient Air Quality Standards

	Primary Standards		
Pollutant	**Averaging Time**	**Level**	**Form**
Carbon Monoxide	1-hour	35 ppm (40 mg/m^3)	Not to be exceeded more than once per year
	8-hour	9 ppm (10 mg/m^3)	

Background Concentrations

The total CO concentrations that receptor locations will experience include background concentrations from other existing surrounding emission sources. Background concentrations are ambient pollution levels from other stationary, mobile, and area sources. DEP maintains a network of air quality monitors to measure background CO concentrations. Background concentrations are ambient pollution levels from all stationary, mobile, and area sources. Background CO concentrations are determined by choosing the maximum of the 2nd-highest annual values from the previous three years. Looking at the air quality monitor closest to and most representative of the Phase 1 Project Site (Von Hillern) for the years 2014-2016, the CO background values are 1.7 ppm for the 1-hour averaging time and 0.9

[2] U.S. EPA. 2003. National air quality and emissions trends report – 2003 special studies edition. EPA/454/R-03/005. Research Triangle Park, NC.

ppm for the 8-hour averaging time. These values are much less than the 1-hour and 8-hour NAAQS. The background values are presented in Table 9-4.

Table 9-4 Air Quality Background Concentrations

	Background Concentrations		NAAQS	
Pollutant	**Level**	**Averaging Time**	**Level**	**Averaging Time**
Carbon Monoxide	0.9 ppm	8-hour	9 ppm	8-hour
	1.7 ppm	1-hour	35 ppm	1-hour

Monitoring Location: Von Hillern, Boston, MA. Years 2014-2016.

BPDA Development Review Guidelines

The BPDA Development Review Guidelines require that "a microscale analysis predicting localized carbon monoxide concentrations should be performed, including identification of any locations projected to exceed the National or Massachusetts Ambient Air Quality Standards, for projects in which:

- Project traffic would impact intersections or roadway links currently operating at Level of Service D, E, or F or would cause LOS to decline to D, E, or F; or
- Project traffic would increase traffic volumes on nearby roadways by 10 percent or more (unless the increase in traffic volume is less than 100 vehicles per hour); or
- The project will generate 3,000 or more new average daily trips on roadways providing access to a single location.

As presented in Chapter 6, *Transportation*, the traffic analysis indicates that the LOS at some of the study intersections will remain at LOS D, E or F under the build condition and a few may decline to D, E, or F as well under the build condition. As such, a microscale analysis was conducted pursuant to the BPDA Development Review Guidelines.

Microscale ("Hot Spot") Analysis Methodology

The modeling for the microscale analysis followed the EPA's guidelines. The traffic data was evaluated, and locations were selected based on the requirements of the BPDA Development Review Guidelines and the EPA modeling guidance.

EPA's Office of Transportation and Air Quality ("OTAQ") has developed the Motor Vehicle Emission Simulator ("MOVES2014a"). MOVES2014a is EPA's latest motor vehicle emissions model for state and local agencies to estimate pollutants from cars, trucks, buses, and motorcycles. Emission factors were developed using the MOVES2014a program and were combined with the traffic data in EPA's Cal3QHC model to calculate the CO worst-case concentrations. EPA's Cal3QHC is an air quality dispersion model that applies emission factors obtained from MOVES2014a to projected traffic conditions to obtain localized pollutant concentrations at real-world locations.

The microscale analysis utilized the traffic (volumes and speeds) and emission factor data for the 2038 No Build and 2038 Build Condition. These data were incorporated into air quality models and demonstrate that the Master Plan Project will meet the CAAA criteria. The microscale analysis calculated CO concentrations at congested intersections near the Project Site under No Build and Build Condition. The worst-case CO concentrations were added to the background levels to determine if the Master Plan Project's concentrations complied with the NAAQS.

The microscale analysis calculates maximum 1-hour and 8-hour CO concentrations in the Master Plan Project area during the peak CO season (winter). EPA's computer model CAL3QHC Version 2.0[3] was used to predict CO concentrations for each intersection. Receptor locations were selected near the congested intersections based upon areas where the public may have access. The intersection receptors were placed at the edge of the roadway, but not closer than 10 feet (3 meters) from the nearest travel lane; as required by EPA. The results calculated at these receptor locations represent the highest concentrations at each intersection. Receptor locations farther away from the intersections will have lower concentrations because of the dispersion characteristics. The receptor locations that are along other roadways in the study area are also expected to have lower concentrations than the receptor locations at the intersection. The emission rates for vehicles traveling along these roadways are much lower than the emission rates for vehicles queuing at intersections.

The air quality study evaluates the air quality impacts of the vehicular traffic associated with the Master Plan Project on the environment. The vehicle traffic represents the worst-case conditions, which also includes the increase in traffic volumes due to specific developments proposed for the study area, projected traffic growth over time, and future traffic associated with the Master Plan Project. The air quality study utilizes traffic and emissions data for the future No-Build and future Build Condition. These data are incorporated into the EPA air quality models to generate air pollutant concentrations that demonstrate whether or not the Master Plan Project would have air quality impacts. The scenarios modeled include:

- **No-Build Condition (2038):** reflects background growth associated with other planned projects and general background regional growth.
- **Build Condition (2038) without Mitigation:** assuming the 2038 No-Build Condition background growth with the Master Plan Project fully constructed and in operation but with no proposed traffic mitigation included.

Operating conditions under the Build with Mitigation Condition are expected to improve with reduced delays compared to the Build Condition. As such, the Build Condition without Mitigation was modeled to evaluate the worst-case pollutant concentrations against the NAAQS.

[3] User's Guide to CAL3QHC Version 2.0: A Modeling Methodology for Predicting Pollutant Concentrations Near Roadway Intersections, US Environmental Protection Agency, Office of Air Quality Planning and Standards, Technical Support Division; Research Triangle Park, NC; EPA-454/R-92-005; November 1992

Emission Rates

All the vehicle emission factors used in the microscale analysis were obtained using the EPA's MOVES2014a emissions model. MOVES2014a calculates CO emission factors from motor vehicles for free-flow conditions in grams per vehicle mile and for idling conditions in grams per vehicle hour. The emission rates used in this study were developed with the assistance of DEP. The emission factors for the microscale analysis were based upon a peak hour on a typical weekday in the winter for Suffolk County. The CO emission factors were calculated for idle and free-flow conditions based upon roadway travel speeds.

The emissions calculated for this air quality assessment include Tier 3 emission standards, which is an EPA program that sets new vehicle emissions standards, including lowering the sulfur content of gasoline, heavy-duty engine, and vehicle GHG regulations (2014-2018), and the second phase of light-duty vehicle GHG regulations (2017-2025). It also includes Massachusetts specific conditions, such as the state vehicle registration age distribution and the statewide Inspection and Maintenance ("I/M") Program. These stringent emissions regulation programs often result in smaller emissions inventories with the passage of time when comparing similar scenarios.

Traffic Data

The air quality study uses traffic data (volumes, delays, and speeds) developed for each analysis condition based upon the traffic analysis for the Master Plan Project. The traffic volumes and level of-service for the study area were evaluated, and based on the BPDA Development Review Guidelines, six intersections were selected for analysis:

- Route 1A at Boardman Street
- Route 1A at Tomasello Way
- Route 1A at Furlong Drive
- Winthrop Avenue at North Shore Road/Tomasello Way
- Winthrop Avenue at Revere Beach Parkway/Harris Street
- Revere Beach Parkway at Garfield Avenue/Webster Avenue

The analysis considered the evening peak hour traffic conditions as intersection volumes are generally larger and LOS is generally lower.

Microscale Air Quality Study Results

The CO concentrations for each intersection under the No-Build and Build Condition without Mitigation are presented in Table 9-5. The results show that there are minimal increases for 1-hour and 8-hour CO concentrations between the No Build and Build Condition without Mitigation due to the traffic volume increases and intersection delays experienced at the study intersections. The 1-hour CO concentrations ranged from 1.8 to 2.2 ppm, and the 8-hour CO concentrations ranged from 1.0 to 1.3 ppm for the No Build and Build Condition without Mitigation.

The results of the microscale analysis demonstrate that the No Build and Build Condition without Mitigation CO concentrations (both 1-hour and 8-hour values) for the Master Plan Project are well below the NAAQS.

Table 9-5 Predicted Maximum 1-Hour and 8-Hour CO Concentrations

	1-Hour CO Concentrations (ppm)1,2		8-Hour CO Concentrations (ppm)3,4	
Intersection	**No Build**	**Build**	**No Build**	**Build**
Route 1A/Boardman Street	2.0	2.1	1.1	1.2
Route 1A/Tomasello Way	2.1	2.2	1.2	1.3
Route 1A/Furlong Drive	2.0	2.2	1.1	1.3
Winthrop Avenue/North Shore Road/ Tomasello Way	1.8	2.0	1.0	1.1
Winthrop Avenue/Revere Beach Parkway/Harris Street	1.9	2.0	1.0	1.1
Revere Beach Parkway/Garfield Avenue/Webster Avenue	1.9	2.0	1.0	1.1

Source: VHB, Inc.

1 The concentrations are expressed in parts per million (ppm) and include a 1-hour background concentration of 1.7 ppm. The 1-hour NAAQS for CO is 35 ppm.

2 Concentrations represent maximum concentrations within the grouping of receptors placed at each intersection.

3 The concentrations are expressed in parts per million (ppm) and include an 8-hour background concentration of 0.9 ppm and a persistence factor of 0.7. The 8-hour NAAQS for CO is 9 ppm.

4 Concentrations represent maximum concentrations within the grouping of receptors placed at each intersection.

Conclusion of Microscale Analysis

The air quality evaluation demonstrated that the development of the Master Plan Project would not result in adverse localized air quality impacts. The microscale analysis evaluated Master Plan Project-related vehicles traveling through congested intersections in the study area. This analysis demonstrates that all existing and future carbon monoxide concentrations are below the NAAQS. Specifically:

- All the one-hour CO concentrations ranged from 1.8 to 2.2 ppm and are well below the CO NAAQS of 35 ppm.
- All the eight-hour CO concentrations ranged from 1.0 to 1.3 ppm and are below the CO NAAQS of 9 ppm.

The microscale study demonstrates that the Master Plan Project conforms to the CAAA and the SIP because:

- No violation of the NAAQS is expected to be created.
- No increase in the frequency or severity of any existing violations (none of which are related to this development) is anticipated to occur.
- No delay in attainment of any NAAQS is expected to result due to the implementation of the proposed action.

Based upon the analysis presented herein and the conclusions summarized above, no significant adverse air quality impacts from the Master Plan Project are anticipated on the microscale level. This analysis represents very conservative emissions estimates as it does not account for the traffic mitigation measures that are proposed as part of this Master Plan Project. Even with this conservative approach, the microscale analysis shows that the CO concentrations under future Build Conditions without Mitigation are well below the NAAQS.

9.4.2 Mesoscale Analysis

The purpose of the mesoscale analysis is to estimate the area-wide emissions of VOC and NO_x during a typical day in the peak ozone season (summer), consistent with the requirements of the State Implementation Plan ("SIP"). The mesoscale analysis evaluates the change in VOC and NO_x emissions from the average daily traffic volumes and vehicle emission rates. To demonstrate compliance with the SIP criteria, the air quality study must show the Master Plan Project's change in daily (24-hour period) VOC and NO_x emissions.

DEP has established guidelines that define the modeling and review criteria for air quality studies prepared pursuant to review under the MEPA. These guidelines require that mesoscale analyses be prepared for proposed development projects to determine the change in Master Plan Project-related ozone precursor emissions. The predominant source of ozone precursor emissions anticipated from the Master Plan Project is emissions from Master Plan Project-related traffic. Ozone is not directly emitted by motor vehicles but is generated when VOC and NO_x emissions from motor vehicles, stationary sources, and area sources react in the atmosphere with sunlight and heat. Master Plan Project-related ozone impacts are determined by assessing the changes in VOC and NO_x emissions of motor vehicles. DEP criteria require that proposed development projects include all reasonable and feasible emission reduction mitigation measures if the ozone emissions from the Build Condition are greater than the No-Build Condition. Massachusetts has incorporated this criterion into the SIP.

Methodology

The mesoscale analysis evaluates the change in emissions with and without the Master Plan Project, specifically, daily (24-hour period) VOC and NO_X emissions from the average daily traffic volumes and vehicle emission rates. DEP guidelines require that the air quality study utilizes traffic and emissions data for existing and future (No-Build and Build) conditions. The traffic and emissions data are incorporated into the EPA and DEP air quality models to generate emission's estimates that demonstrate whether the Master Plan Project will have air quality impacts.

The mesoscale air quality analysis utilizes developed traffic data (volumes, speeds, and roadway geometry) and emission factor data for Existing, No-Build, Build, and Build with Mitigation Conditions. The mesoscale study area includes all links studied by the traffic analysis. Some of the major roadways that were included in the mesoscale analysis include Route 1A, Bennington Street, North Shore Road, Revere Street, Ocean Avenue, and Route 60.

The mesoscale analysis calculates the changes in VOC and NO_x emissions for the existing and future conditions within the study area. The mesoscale analysis traffic and emission factor data were developed for the aforementioned conditions. These data were incorporated into air quality model to evaluate the changes in VOC and NO_x emissions.

Analysis Conditions

Consistent with the traffic analysis, the following conditions were analyzed: the 2017 Existing Condition; and 2038 future No-Build, Build Conditions without Mitigation and Build Conditions with mitigation. The analysis compares the future No-Build and Build Conditions without Mitigation in order to identify the anticipated changes in traffic conditions and mobile source VOC and NO_x emissions as a result of the Master Plan Project. Where applicable, the Existing Condition is considered for comparison purposes only.

Emission Factor Modeling

All the vehicle emission factors used in the mesoscale analysis were obtained using EPA's MOVES2014a emissions model. MOVES2014a calculates emission factors from motor vehicles in mass per distance format (often grams per mile) for existing and future conditions and applies these factors to Vehicle Miles Travelled (VMT) data to obtain emissions inventories. The emissions calculated for this air quality assessment include Tier 3 emission standards, which is an EPA program that sets new vehicle emissions standards, including lowering the sulfur content of gasoline, heavy-duty engine, and vehicle greenhouse gas regulations (2014-2018), and the second phase of light-duty vehicle GHG regulations (2017-2025). It also includes Massachusetts-specific conditions, such as the state vehicle registration age distribution and the statewide I/M Program.[4] These stringent emissions regulation programs often result in smaller emissions inventories with the passage of time when comparing similar scenarios.

The MOVES2014a model was run at a project-level to obtain emission factors for each link of the mesoscale analysis. The model was set to calculate the emissions burden by choosing to model emissions processes that are specifically related to on-road travel. Links were created that used the appropriate speeds and grades for each roadway segment.

Traffic Data

The air quality study used traffic data (volumes) developed for each analysis condition. The mesoscale analysis uses typical daily peak and off-peak traffic volumes for the ozone summer season. The VMT data used in the air quality analysis were developed based on the traffic data analyzed in this DEIR/DPIR.

2 T*he Stage II Vapor Recovery System* is the process of collecting gasoline vapors form vehicles as they are refueled. This requires the use of a special gasoline nozzle at the fuel pump.

Existing Mesoscale Emissions

The mesoscale analysis calculated the existing VOC and NO_x emissions for the Master Plan Project inventory. These emissions, estimated to be 245.3 kilograms per day (kg/day) of VOCs and 250.2 kg/day of NOx establish an Existing Condition to which future emissions can be compared. This baseline Existing Condition reflects the traffic emissions related largely to the traffic on the roadways within the study area and very little traffic related to the Project Site due to the lack of on-site activity generated by the largely defunct race track.

Future Mesoscale Emissions

Future Master Plan Project-related emission calculations are based upon changes in traffic and emission factor data. The traffic data includes traffic volumes that were used to calculate VMT on the study network. The emission factor data included emission reduction programs, shifts in vehicle populations, and other factors. Under the 2038 No-Build Condition, VOC emissions were estimated to be 136.0 kg/day and NOx emissions were estimated to be 51.7 kg/day. The 2038 VOC and NO_x emission factors are lower than the 2017 emissions due to the implementation of emission control programs, such as the Federal Motor Vehicle Emission Control Program (Tier 3), the Stage II Vapor Recovery System, and the Massachusetts Vehicle Inspection and Maintenance program.

Under the 2038 Build Condition without Mitigation, as presented in Table 9-6, the VOC emissions are estimated to be 221.7 kg/day and the NO_X emissions are estimated to be 84.4 kg/day. The Build Condition without Mitigation emissions inventory was developed by considering the effects of the Master Plan Project generated trips on the No-Build network. The SIP requires that proposed projects with VOC and NO_X emissions under the Build Condition without Mitigation that are greater than the No-Build Condition include all reasonable and feasible emission reduction measures. The following section presents a summary of the extensive traffic mitigation measures that are proposed to mitigate traffic impacts and thereby mitigating future VOC and NOx emissions.

Table 9-6 Mesoscale Air Quality Analysis Results (kg/day)

Pollutant	2017 Existing Conditions	2038 No-Build Conditions[1]	2038 Build Conditions	Master Plan Project-Related Emissions[2]
Volatile Organic Compounds (VOCs)	245.3	136.0	221.7	85.7
Oxides of Nitrogen (NOx)	250.2	51.7	84.4	32.7

1 The future No-Build condition emission factors are lower than the Existing conditions emission factors due to the implementation of state and federal emission control programs, such as the Federal Motor Vehicle Emission Control Program (Tier 3) and the Stage II Vapor Recovery System, and the Massachusetts Inspection and Maintenance program.

2 Represents the difference in emissions between the Build and No-Build Conditions.

Proposed Mitigation Measures

A comprehensive transportation mitigation program has been developed to mitigate impacts of Master Plan Project-related traffic, including various roadway and intersection improvements. In addition to the intersection improvements the Proponent anticipates implementing a TDM program. Implementation of the TDM program is expected to improve air quality in the study area by promoting the use of alternative forms of transportation over the use of single-occupant motor vehicle trips. A full description of roadway and intersection improvements, and TDM measures is provided in Chapter 6*, Transportation*.

The physical roadway improvements result in delay savings and consequentially a 41.0 kg/day reduction of VOCs and a 15.4 kg/day reduction of NOx. Previous estimates of similar TDM programs have ranged on the order of a two to five percent reduction in vehicles miles traveled ("VMT"), which is assumed to result in comparable pollutant emission savings. Assuming a two percent reduction, the TDM plan is expected to provide 1.7 kg/day reduction of VOCs and a 0.7 kg/day reduction of NOx. This results in Master Plan Project-related emissions of 42.9 kg/day of VOCs and 16.6 kg/day of NOx. A summary of the mitigation emissions reduction is provided in Table 9-7.

Table 9-7 Mitigation Analysis Results (kg/day)

Pollutant	Master Plan Project-related Emissions[1]	Estimated Reductions Due to TDM Measures[2]	Estimated Reductions Due to Roadway Improvements[3]	Resulting Master Plan Project-related Emissions
Volatile Organic Compounds (VOCs)	85.7	1.7	41.0	42.9
Oxides of Nitrogen (NOx)	32.7	0.7	15.4	16.6

1 Represents the difference in pollutant emissions between the Build and No-Build Conditions.
2 Mitigation from TDM Measures estimated as 2 percent of unmitigated Master Plan Project-related emissions.
3 Mitigation from roadway improvement measures, such as signal optimization.

Conclusion of Mesoscale Analysis

The air quality assessment demonstrates that the Master Plan Project complies with local, state, and federal air quality requirements on a mesoscale level. The air quality assessment demonstrates that the Master Plan Project complies with CAAA and is consistent with the guidelines of DEP, and the Master Plan Project will incorporate reasonable and feasible measures to reduce VOC and NOx emissions in the ozone mesoscale analysis. The implementation of these mitigation measures will reduce the Build Condition without Mitigation VOC and NOx emissions associated with the Master Plan Project.

9.4.3 Stationary Source Permitting

Sizable combustion equipment with the potential to emit air pollutants at the Master Plan Project may be subject to air permitting under 310 CMR 7.00. DEP has established the "Environmental Results Program" ("ERP") to streamline the certification process of smaller combustion equipment subject to permitting regulations. The exact sizes, makes, models of equipment to be used by the Master Plan Project is currently unknown and will be determined throughout the design process. However, equipment that is likely to be used at the Master Plan Project, such as boilers or emergency generators, may be subject to permitting regulations. If a boiler with a rated capacity between 10 to 40 MMBtu per hour is used on the Project Site, the Proponent will submit the appropriate self-certification forms under the ERP process before the installation of the boiler. Additionally, if an emergency generator with a rated capacity equal to or greater than 37 kW is used on the Project Site, the Proponent will submit the appropriate self-certification forms under the ERP process within 60 days of generator startup.

Should a co-generation or tri-generation campus plant prove feasible and is chosen for implementation, an Air Plan Approval with DEP may be required. The applicability of the Air Plan Approval is determined by the types and sizes of equipment chosen for the campus plant. Should an Air Plan Approval be required, the proponent will need to demonstrate that equipment at the plant will not cause a violation of the NAAQS and that equipment will be outfitted with the Best Available Air Pollution Control Technology ("BACT").

9.5 Construction

Construction impacts are temporary in nature and are typically related to air (dust), noise, and stormwater runoff. Temporary construction-period impacts will be managed to minimize disruption to the surrounding neighborhoods. Construction Management Plans ("CMPs") will be prepared for each phase of the Master Plan Project to address temporary construction-related impacts. As requested in the MEPA EENF Certificate, the Proponent has developed a draft CMP for the Master Plan Project based on conceptual construction logistics scenario for each phase, which is presented in Appendix G. As each phase of development progresses through design and into the construction phase, the respective construction managers will refine and expand the respective CMPs in order to address sub-phases and reflect the input of the regulatory authorities having jurisdiction over CMPs.

The purpose of the draft CMP is to develop a proactive approach to identify and address the potential impacts on the community that may arise during construction and to minimize these impacts where possible. The Proponent will meet with local elected officials, as needed, during the development and implementation of the CMPs to address specific local concerns. The draft CMP aims to address impacts of the Master Plan Project construction activities. The CMPs to be developed for each phase of development will detail overall construction schedule, work hours, number

of construction workers, worker transportation and parking, and number of construction vehicles and routes. The CMPs will also include additional information on the following:

9.5.1 Noise and Vibration

The construction activity associated with the gradual buildout of the Master Plan Project may temporarily increase nearby sound levels at or adjacent to specific portions of the Project Site from time to time due to the use of heavy machinery. Heavy machinery is expected to be used intermittently throughout each phase, typically during daytime periods. The construction phases that will generate the highest sound levels include the demolition of existing structures, site excavation and grading, and construction of the foundation for the proposed buildings. Each CMP will include a construction noise assessment and identify measures to ensure that all applicable noise regulations related to construction activities are met. Other construction noise mitigation measures may include:

- Initiating a proactive program to ensure compliance with local noise limitation policies.
- Using appropriate mufflers on all equipment and regular maintenance of intake and exhaust mufflers.
- Muffling enclosures of continuously running equipment, such as air compressors and welding generators.
- Replacing specific construction operations and techniques by less noisy ones where feasible.
- Scheduling equipment operations as feasible to keep average noise levels low, to synchronize noisiest operations with times of highest ambient levels, and to maintain relatively uniform noise levels.
- Turning off idling equipment.
- Locating noise equipment away from sensitive areas.

9.5.2 Air Quality

Construction and demolition activities are expected to result in a short-term increase in air pollution emissions. The primary source of potential construction air emissions is fugitive dust from construction operations (e.g., demolition and excavation) and vehicle emissions from construction equipment. Overall, potential impacts on ambient air quality from construction activities associated with site-specific development are temporary and not expected to be significant. Specific measures to be implemented by contractors to reduce potential emissions and minimize impacts include:

- Using wetting agents to control and suppress dust that may come from excavated and construction materials.
- Covering all trucks used for transportation of construction debris.

- No long-term on-site storage of construction debris.
- Daily cleaning of street and sidewalks by mechanical means so as to minimize dust and dirt accumulation.

Fugitive Dust

Fugitive dust consists of soil particles that become airborne when disturbed by heavy equipment operations or through wind erosion of exposed soil after groundcover (either lawn or pavement) is removed. This construction-related air-quality impact (i.e., fugitive dust) would be of relatively short duration.

Dust control measures during dry or windy periods will be implemented. The appropriate methods of dust control would be determined by the surfaces affected (i.e., roadways or disturbed areas) and would include, as necessary, the application of water and/or the use of stone in construction roads and staging areas and washing truck tires at dedicated wheel wash stations prior to entering public streets. Additionally, regular sweeping of pavement of adjacent roadway surfaces during construction will be conducted to minimize the potential for vehicular traffic to create airborne dust and particulate matter.

Construction Vehicle Emissions

Emissions from the operation of construction machinery are short-term and not generally considered substantial. Emission controls for construction vehicle emissions will be employed, including, as appropriate, proper maintenance of all motor vehicles, machinery, and equipment associated with construction activities (i.e., the maintenance of manufacture's muffler equipment or other regulatory-required emissions control devices). The state's anti-idling law will be enforced during all construction phases of the Master Plan Project with the installation of on-site anti-idling signage at loading and drop-off/pick-up/waiting areas. In addition, the Proponent is committed to meeting the requirements the DEP State Revolving Fund ("SRF") for diesel construction equipment. These require that all non-road diesel equipment rated 50 horsepower or greater that will be used meet EPA's Tier 4 emission limits or be retrofitted with appropriate emission reduction equipment. Emission reduction equipment includes EPA-verified, CARB-verified or DEP-approved diesel oxidation catalysts or diesel particulate filters.

9.5.3 Water Quality

Development phases of one or more acres in size will require be required to comply with the National Pollutant Discharge Elimination System ("NPDES") under an EPA Construction General Permit. The intent of the NPDES is to minimize water pollution by regulating point sources that discharge pollutants into local waterways by developing and implementing an Erosion and Sedimentation Control ("ESC") Plan. Furthermore, any construction dewatering discharges will be appropriately controlled and discharged in accordance with the NPDES state and local dewatering standards. Specific BMPs and erosion controls will be identified as the design is

advanced, and particularly when associated permit applications are submitted to the various regulatory agencies. It is anticipated that the following materials and strategies, among others, will be utilized as appropriate:

- Erosion control barriers around the perimeter of work, including straw bales and silt fence, or silt socks.
- Temporary sediment basins.
- Silt booms for in water work.
- Routine inspection of erosion control BMPs.
- Routine inspection of equipment for leakage, equipment refueling and repair outside of resource areas and buffer zone.
- No parking of construction vehicles in wetland resource areas or buffer zone, with the exception of land subject to coastal storm flowage. Removal of construction vehicles from land subject to coastal storm flowage prior to major storms predicted to result in coastal flooding.
- Maintaining spill kits on-site.
- Designated washout areas at sufficient distance from storm drain inlets, stormwater conveyance, surface waters, and wetlands.
- Commencing stabilization measures within seven days of ceasing work.

9.5.4 Construction Waste Management

Each CMP will include a Construction Waste Management Plan ("CWMP") with an overall goal of diverting at least 75 percent of construction debris from landfills. All demolition debris waste which cannot be recycled will be separated and legally disposed of in regional landfills. Painted concrete from the demolition may be stockpiled on-site and potentially processed under a DEP Beneficial Use Determination for use as fill during construction or will be legally disposed of in out-of-state landfills. During construction and where feasible, unpainted concrete will be crushed, and asphalt will be ground, and the crushed unpainted concrete and ground asphalt will be reused on-site. DEP and local boards of health will be notified in accordance with 310 CMR 16.03 using the Exempt Recycling and Organics Management Notification Form at least 30 days prior to starting the crushing of concrete at the Project Site. Any steel located within concrete, where feasible, will be removed and recycled. During construction, wood, metals, gypsum, cardboard and plastic will be segregated and sent to recycling facilities. Construction debris will typically be sent to a solid waste sorting facility for separation of any recyclable materials.

9.5.5 Hazardous Materials

Building Demolition

Prior to demolition, a comprehensive asbestos survey will be conducted in accordance with Massachusetts regulations 310 CMR 715 and 453 CMR 6.00 and

asbestos containing materials will be properly abated prior to demolition, by a Massachusetts-licensed abatement contractor and will be inspected by a Massachusetts-licensed Project Monitor. Asbestos abatement will be conducted under the DEP Bureau of Waste Prevention Asbestos Notification Form AQ004. Prior to demolition a Demolition Notification form AQ06 will be submitted.

A comprehensive survey for PCBs will be conducted prior to demolition. Any PCB-containing materials will be abated and disposed of in accordance with state and federal.

Site Excavation

Where feasible, soils excavated during redevelopment are planned to be reused within the Project Site, initially for geotechnical surcharge and potentially as fill material. Fill material will be required to raise portions of the Project Site to higher elevations, including to raise certain areas above floodplain elevations. If soil from the Project Site were to be removed off-site, it will be handled in accordance with the provisions of applicable law, including MGL c.21E (and potentially c.21C), as applicable, and under the supervision of a Licensed Site Professional ("LSP").

As discussed in Section 6.2.5 of Chapter 6, *Environmental Protection*, of the EENF/EPNF, RTN 3-34499 is currently at the Initial Site Investigation Phase I of MCP and has not been Tier Classified. Based on the information obtained through a phase I environmental site assessment report, a very limited area of the Project Site was found to have trace elements of arsenic in soil which area is estimated to be less than 100 cubic yards. Prior to or during construction of relevant portions of the Project Site, a Release Abatement Measure ("RAM") Plan will be submitted to the DEP and this limited area of arsenic impacted soil will be excavated and disposed of off-site in accordance with applicable law, including the MCP. A Permanent Solution Statement ("PSS") will be prepared for this limited area of arsenic condition and it is anticipated that this will document that the condition poses No Significant Risk to human health, public safety welfare, or the environment. An Activity and Use Limitation ("AUL") is not anticipated to be needed to address the arsenic in soil. Arsenic remediation will be overseen by a LSP.

9.5.6 Traffic

To minimize and mitigate impacts to abutters and the local community, the Proponent will consider available measures, including through review of information on construction activities, specific construction mitigation measures, and construction materials access and staging area plans. Barricades, walkways, lighting and signage will be used to ensure public safety throughout the construction period.

As each phase of the Master Plan Project progresses in design and moves into construction, the applicable general contractor will identify specific truck routes as part of each CMP for relevant local review and approval. It is anticipated that construction vehicles would primarily enter and exit the Project Site from Route 1A

avoiding local roads/residential areas (refer to Figure 1 of the draft CMP in Appendix G).

9.5.7 Pedestrian Safety and Bicycle Access

There are presently no designated existing pedestrian or bicycle accommodations on the Project Site with an exception of a sidewalk from Winthrop Avenue to the adjacent shopping plaza along the west side of Tomasello Drive. This sidewalk, along with a new bus stop installed by the Proponent at the request of the City of Revere and the MBTA, will be maintained during the construction or temporarily relocated as needed to maintain pedestrian and bus access between Winthrop Avenue and the shopping plaza.

During construction, the Proponent will seek to maintain, where feasible and safe, bicycle and pedestrian access to key destinations, such as Suffolk Downs Station via Waldemar Avenue and Walley Street, Beachmont Station via Winthrop Avenue, the Orient Heights neighborhood via Tomasello Drive, and the adjacent shopping areas on Furlong Drive. The Proponent is also committed to incorporating interim on-site pedestrian and bicycle accommodations during construction, where feasible. It is intended that all temporary sidewalk and/or bike lane accommodations will be treated as a normal sidewalk and bike lane with regards to winter weather operations (clearing of snow and ice) and extreme rain events (prevent/resolve large puddles), to the extent feasible. As each phase progresses a detailed CMP will outline in detail the proposed interim pedestrian and bicycle pathways that will be incorporated.

9.5.8 Odor

If large quantities of organic soils are encountered, the Proponent will undertake appropriate mitigation measures to control the odor associated with their removal, such as:

- Cut and cover utility trenches whenever possible.
- Protection of excavated materials with plastic sheathing, where feasible to encapsulate odors.
- If such organic soils are to be removed, removal from the Project Site in a covered vehicle on a frequent basis.

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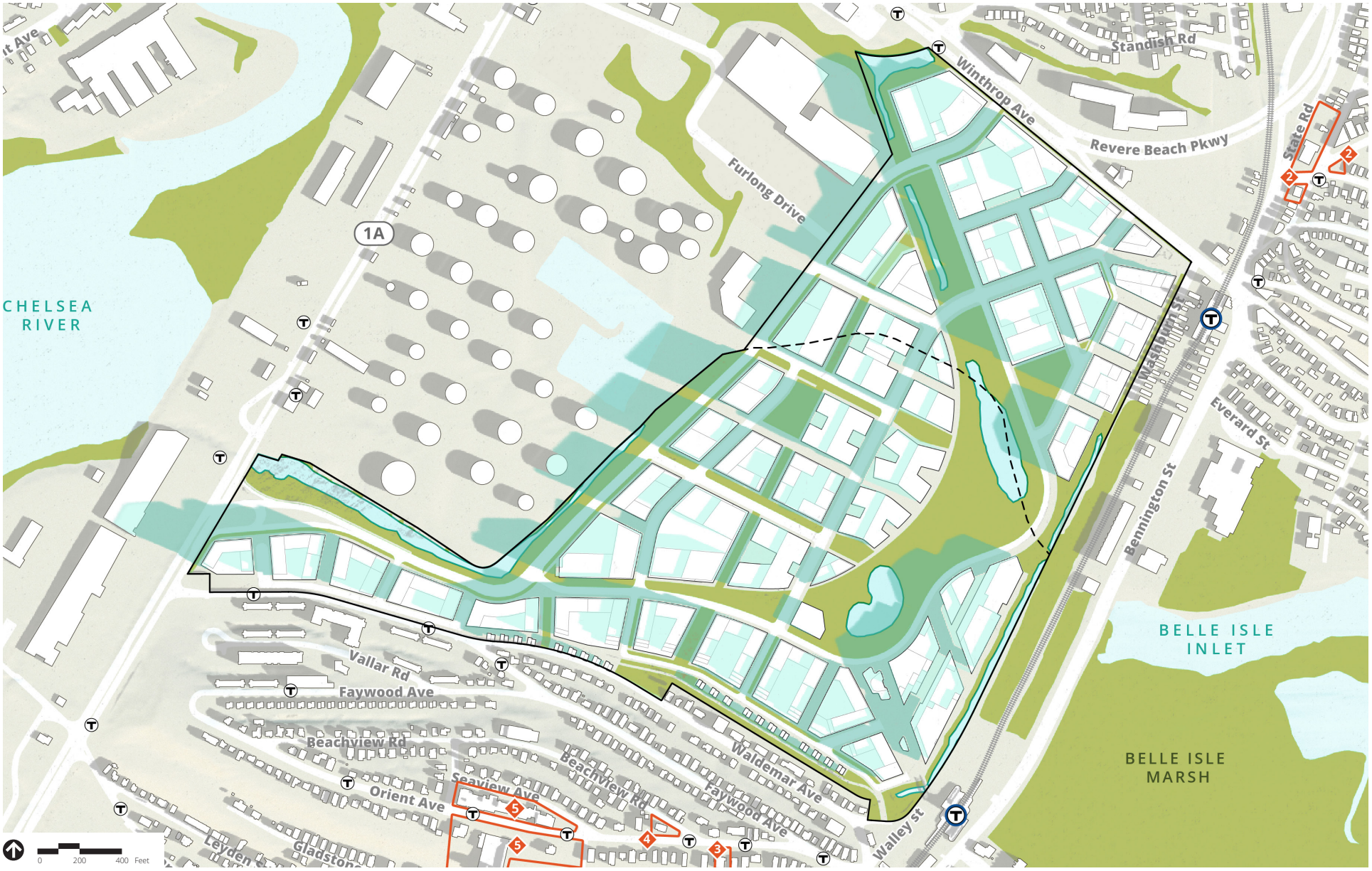


Source: **cbt**

Azimuth = **112.7 °**
Altitude = **23.4 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.1a
March 21 EDT | 9:00 am
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

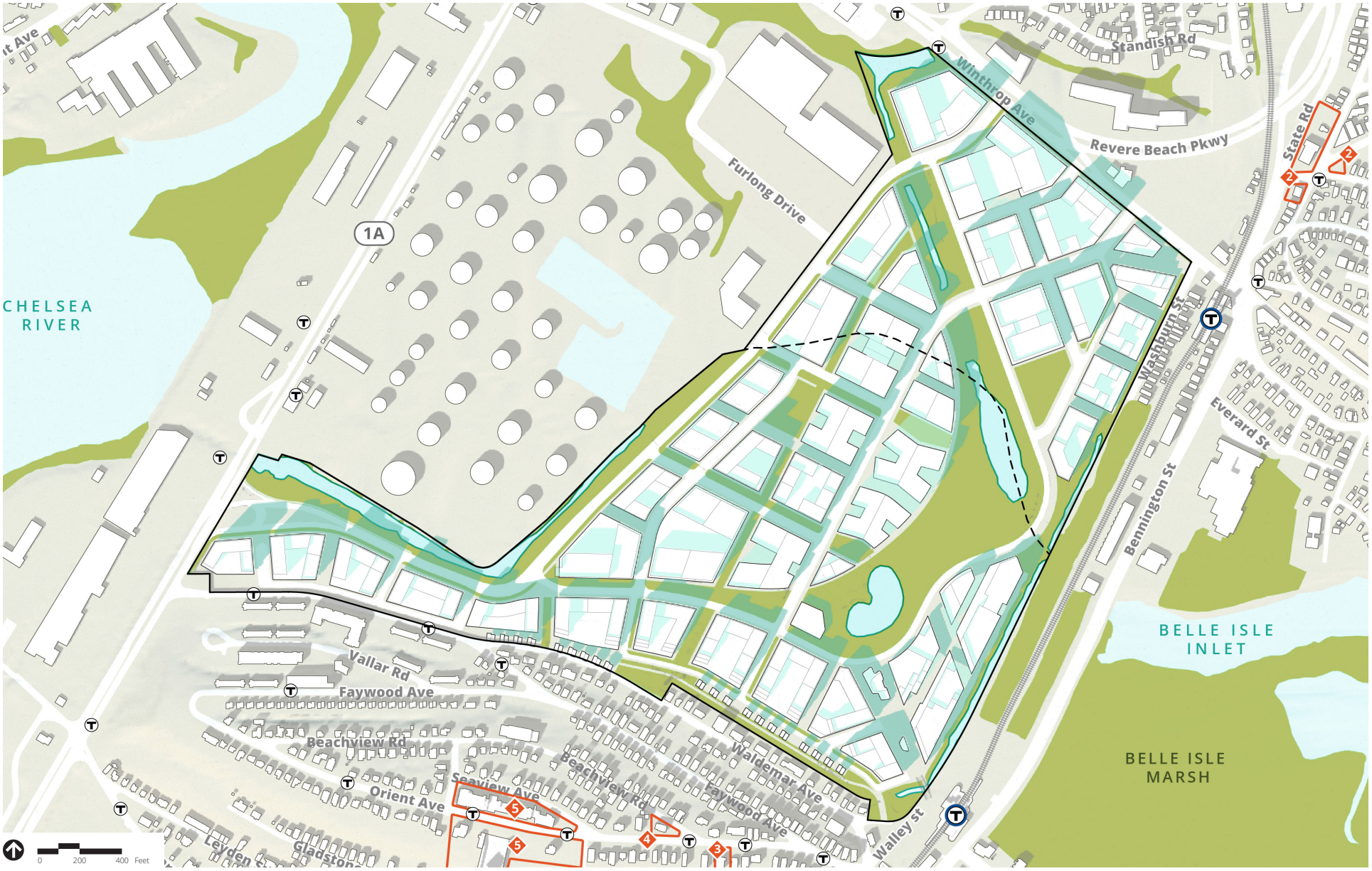
Source: **cbt**

Azimuth = **161.2 °**
Altitude = **46.2 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.1b
March 21 EDT | 12:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



Source: **cbt**

Azimuth = **223.3 °**
Altitude = **31.9 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.1c
March 21 EDT | 3:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Source: **cbt**

Azimuth = **93.5 °**
Altitude = **39.9 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.2a
June 21 EDT | 9:00 am
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

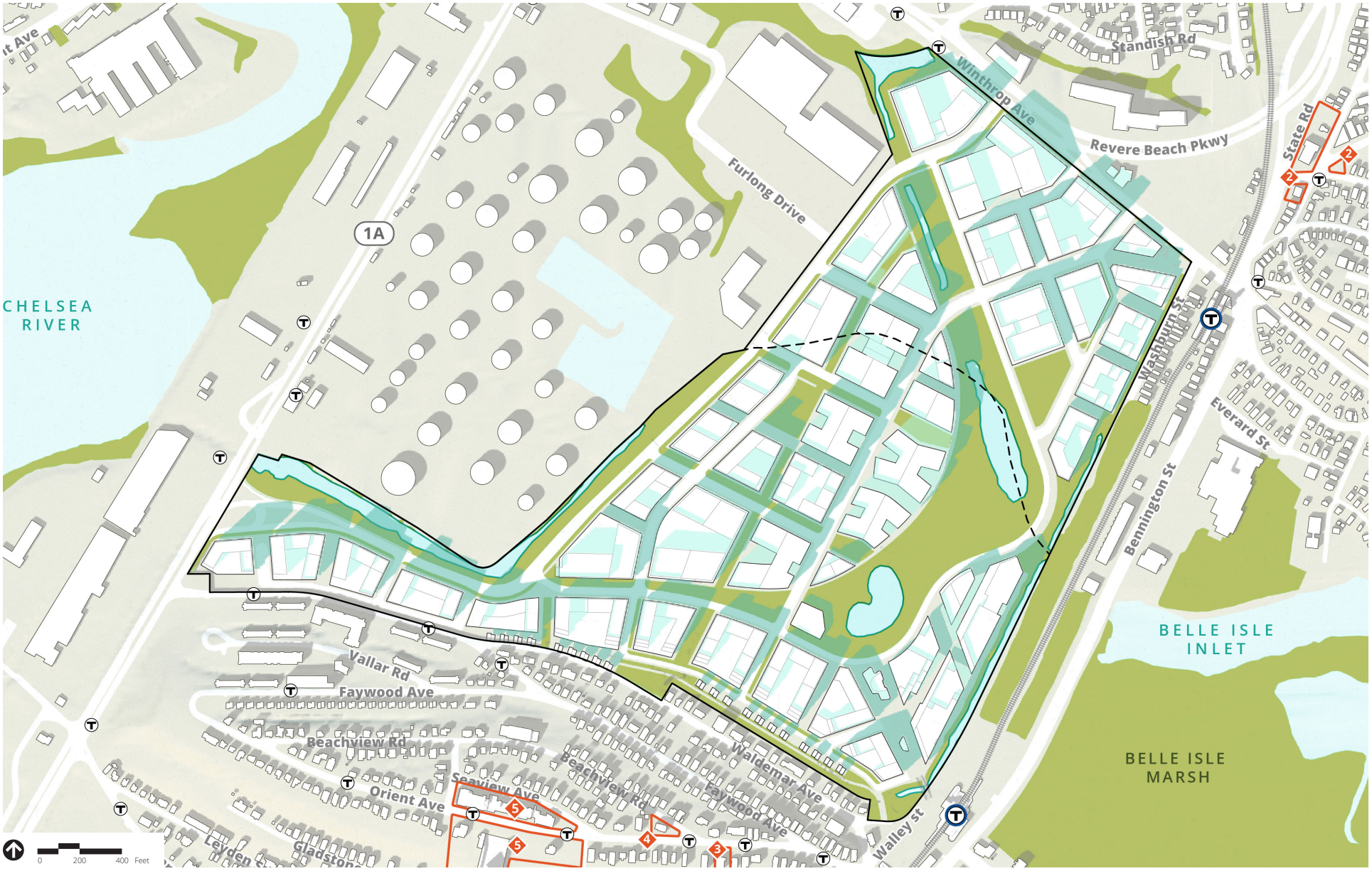
Source: **cbt**

Azimuth = **149.6 °**
Altitude = **68.8 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.2b
June 21 EDT | 12:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



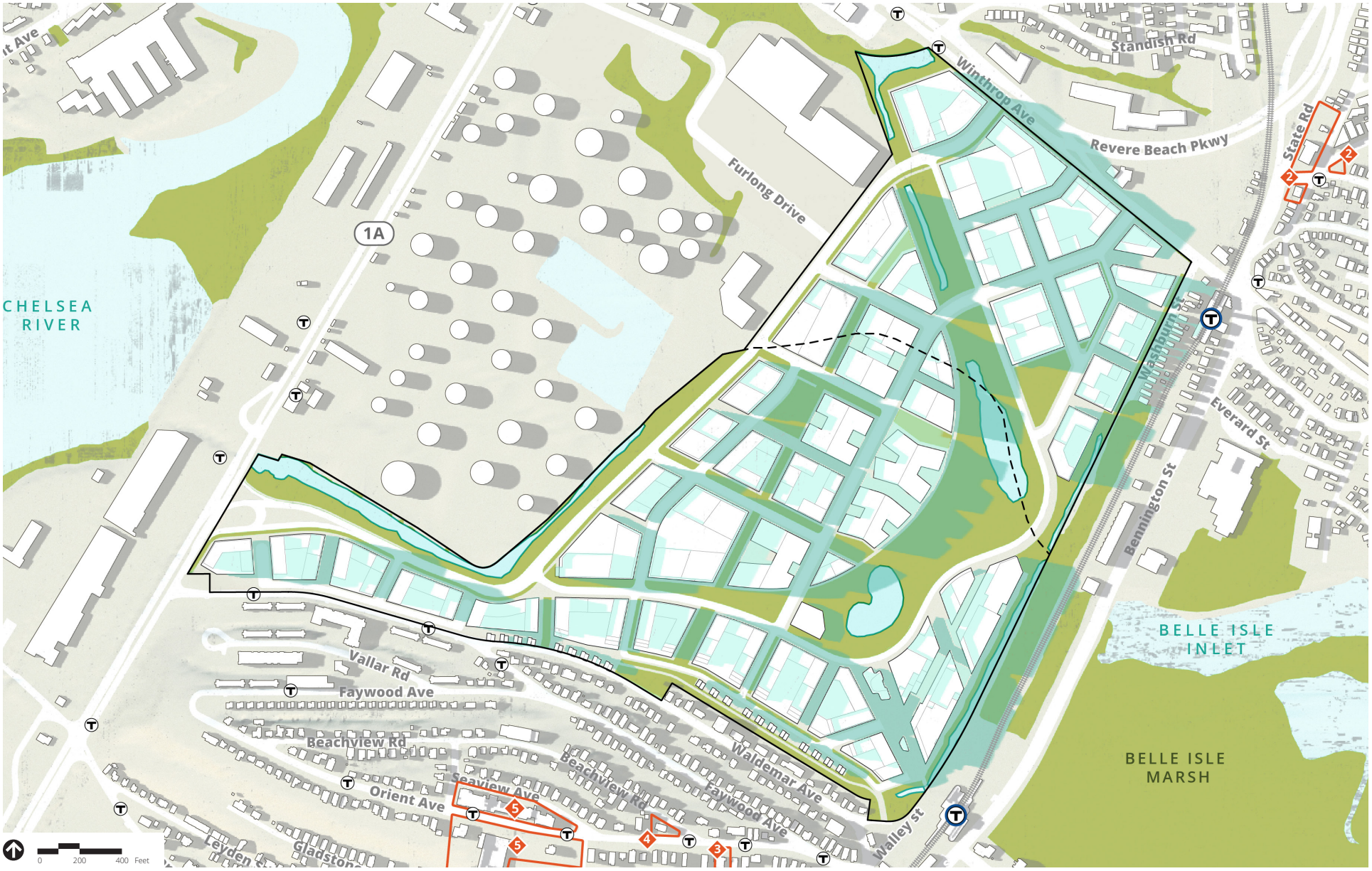
Source: **cbt**

Azimuth = **246.3 °**
Altitude = **56.5 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.2c
June 21 EDT | 3:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



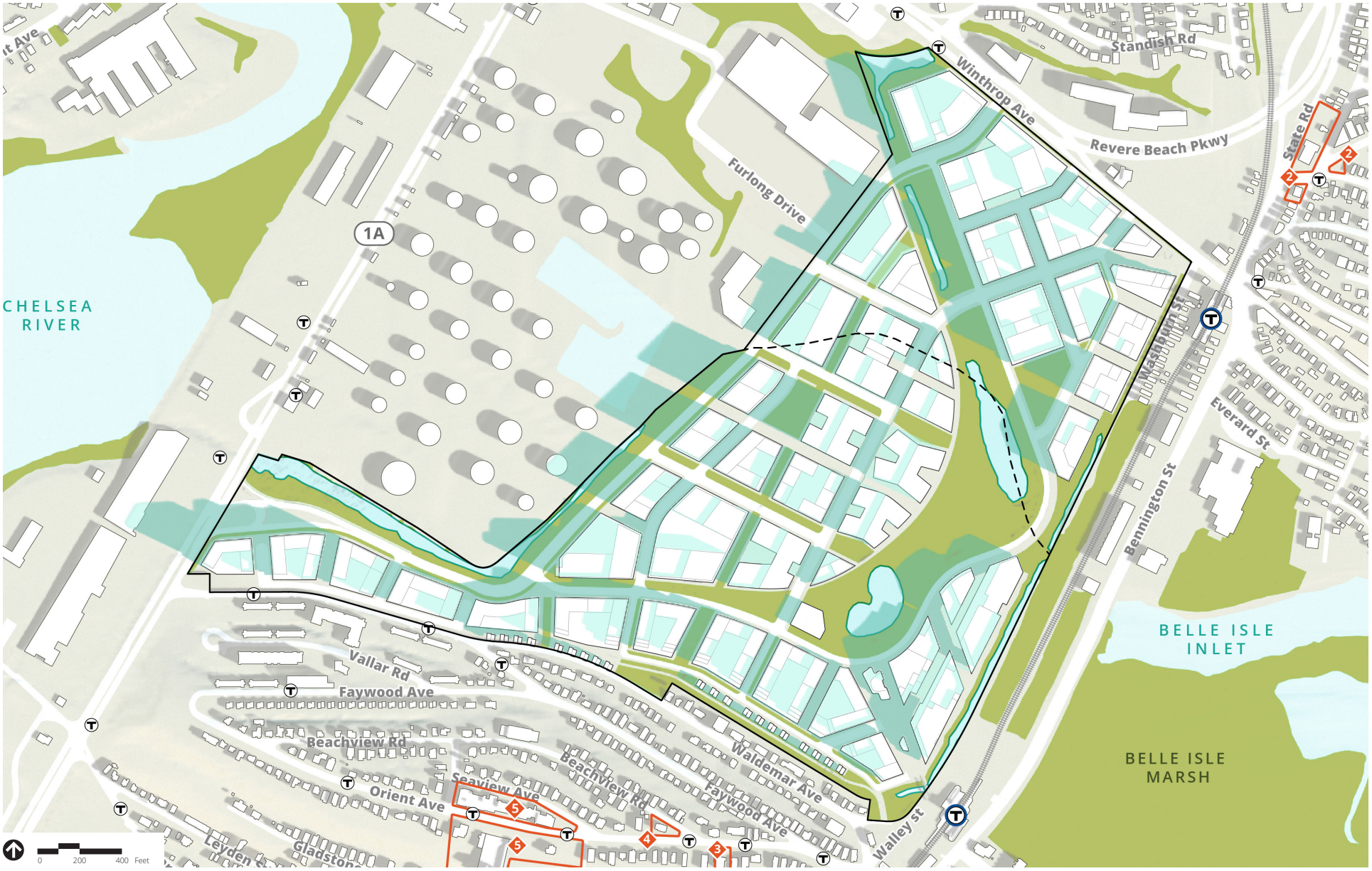
Source: **cbt**

Azimuth = **280.7 °**
Altitude = **23.8 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.2d
June 21 EDT | 6:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



Source: **cbt**

Azimuth = **115.4 °**
Altitude = **26.0 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.3a
September 21 EDT | 9:00 am
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

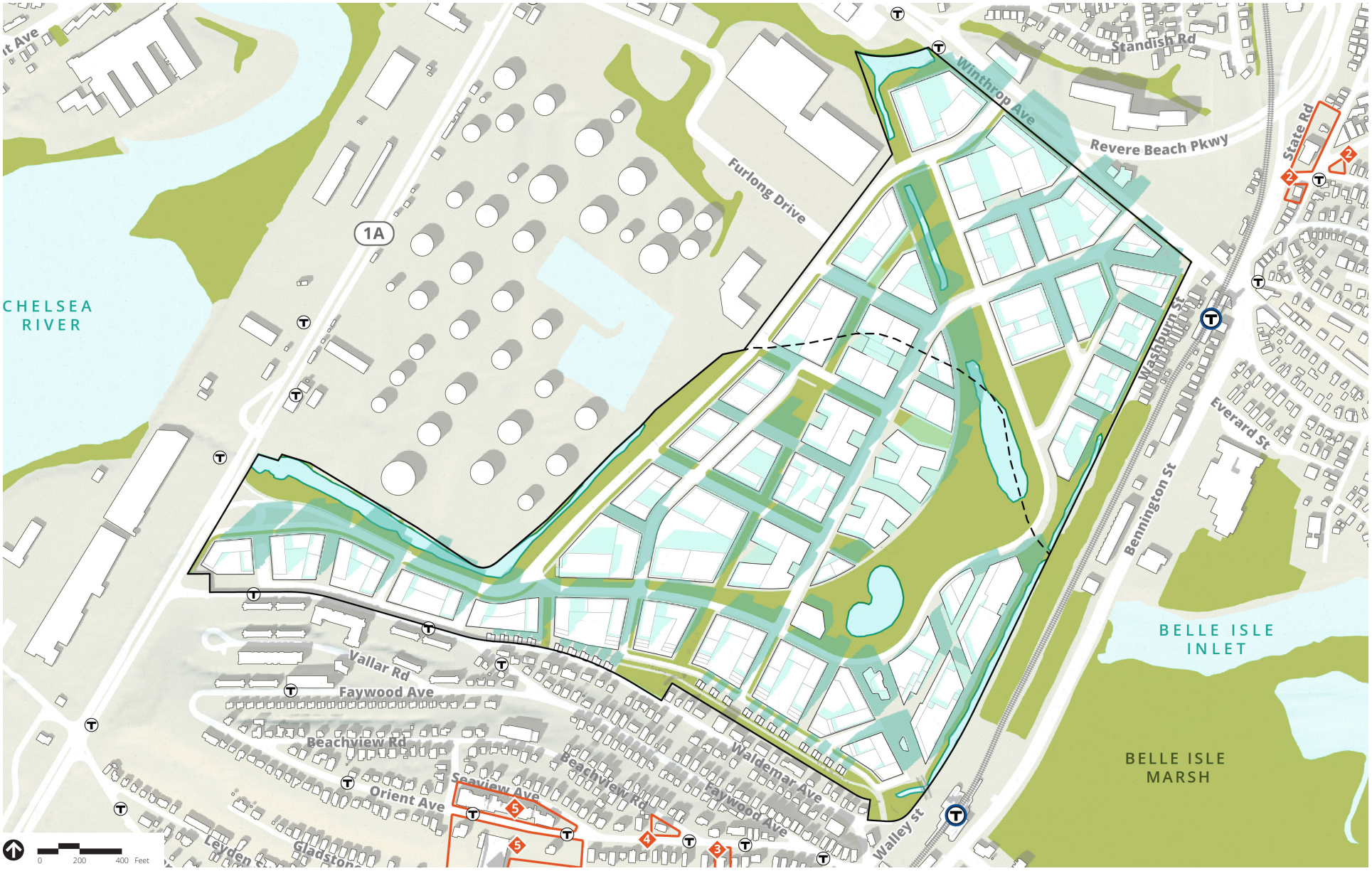
Source: **cbt**

Azimuth = **166.2 °**
Altitude = **47.4 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.3b
September 21 EDT | 12:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



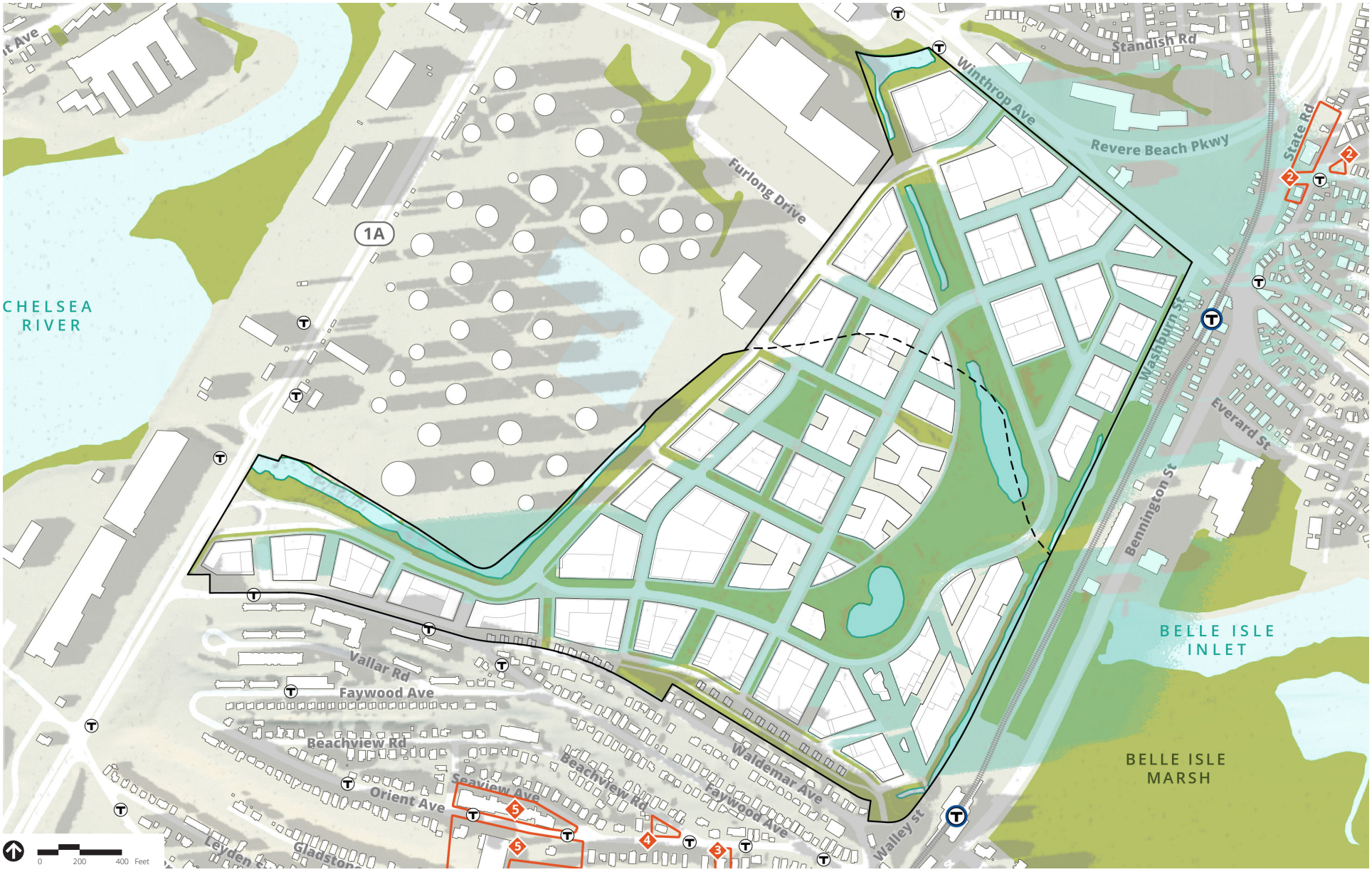
Source: **cbt**

Azimuth = **227.2 °**
Altitude = **37.3 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.3c
September 21 EDT | 3:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



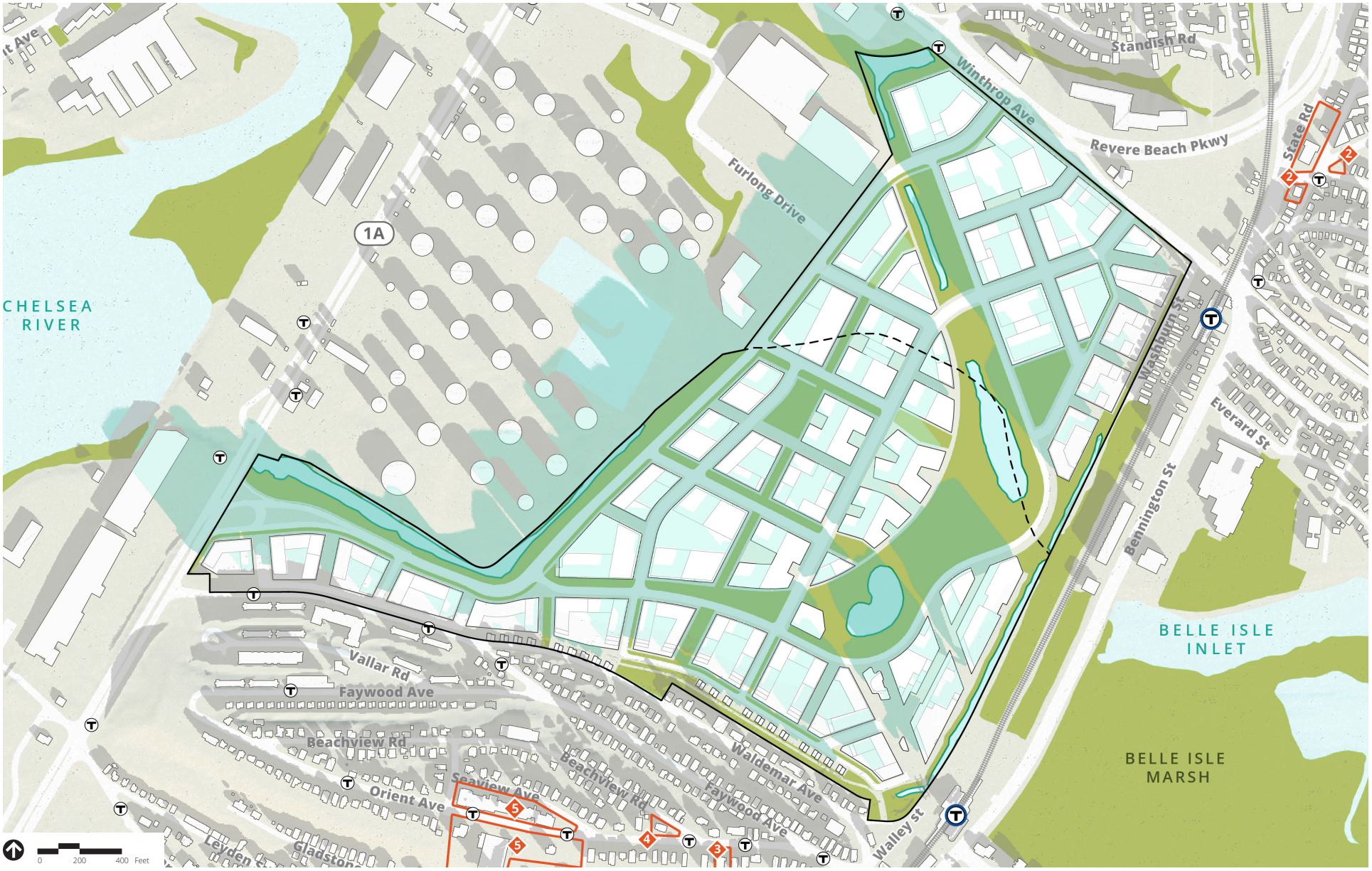
Source: **cbt**

Azimuth = **264.0 °**
Altitude = **7.2 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.3d
September 21 EDT | 6:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



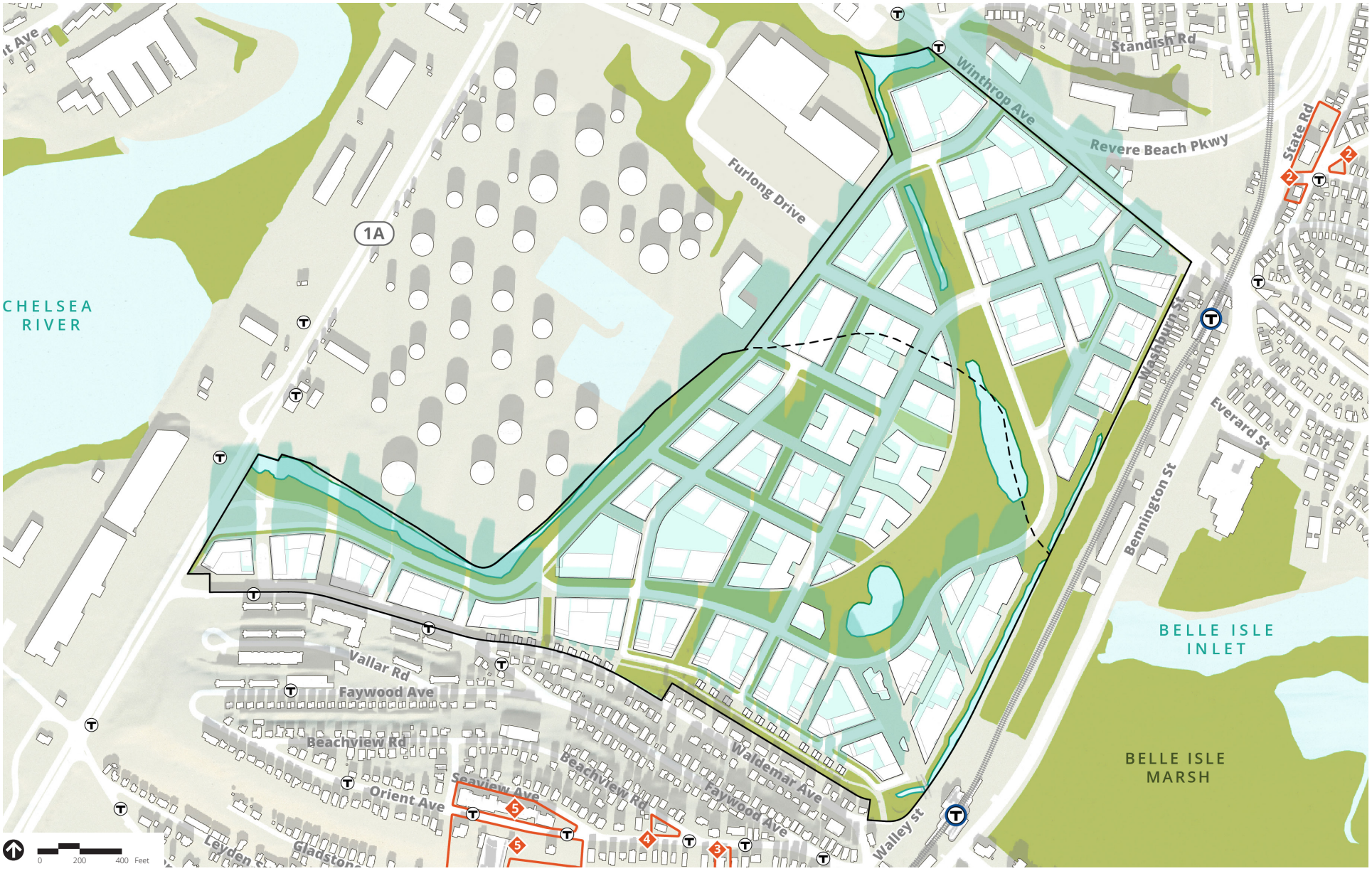
Source: **cbt**

Azimuth = **142. °**
Altitude = **14.3 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.4a
December 21 EST | 9:00 am
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



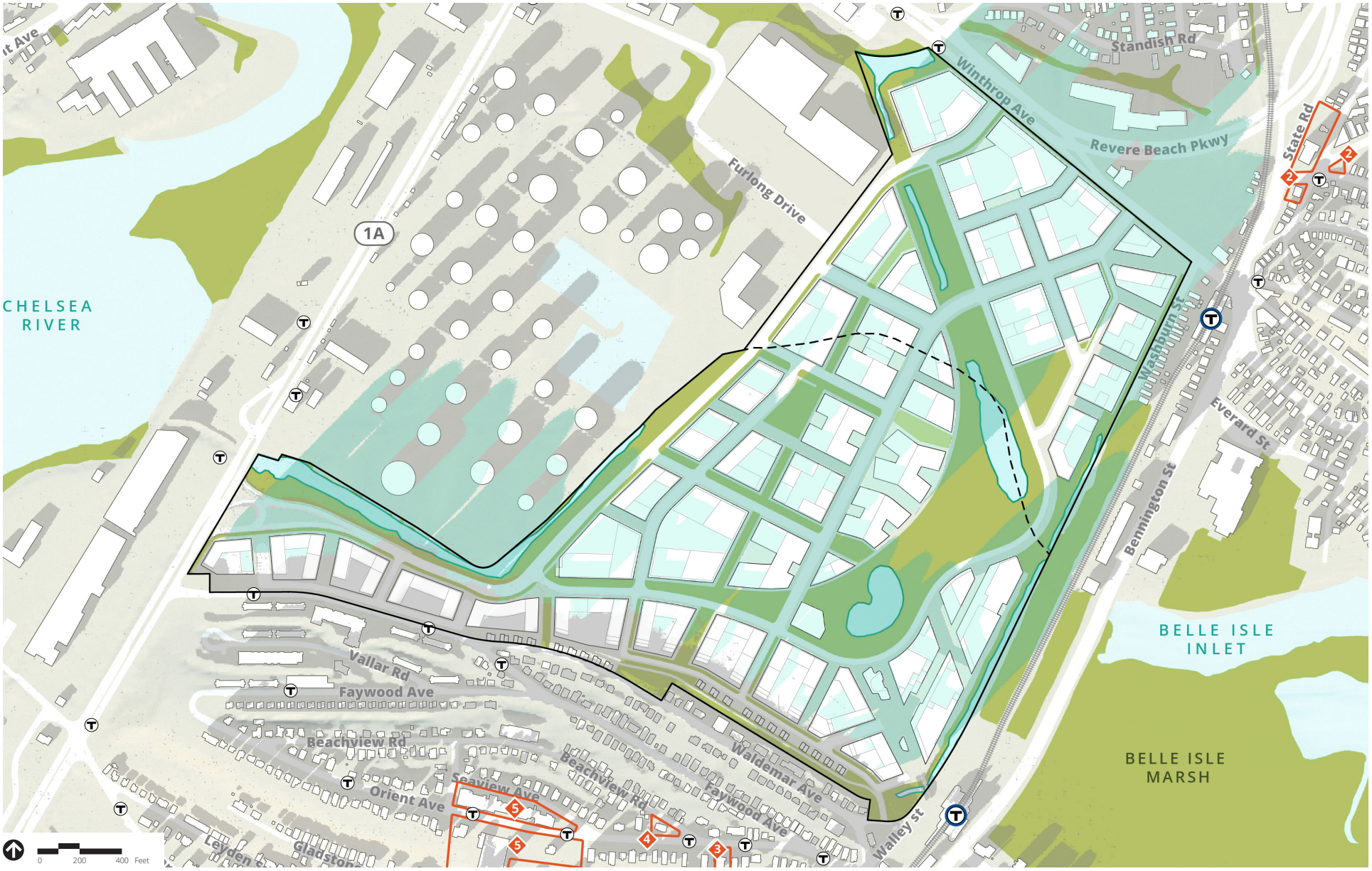
Source: **cbt**

Azimuth = **184.4 °**
Altitude = **24.1 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.4b
December 21 EST | 12:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



Source: **cbt**

Azimuth = **225.0 °**
Altitude = **10.0 °**

- Existing Shadow
- Net New Ground Shadow
- Net New Roof Shadow
- Site Boundary
- City Boundary
- Historic Resource

* Refer to Figure 11.1 for Historic Resources

Figure 9.4c
December 21 EST | 3:00 pm
FULL BUILD
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

10

Infrastructure

This chapter describes the existing and proposed infrastructure systems associated with the Master Plan Project; including stormwater management, sanitary sewage, water, natural gas, electric, and telephone and data communications.

Infrastructure for the Master Plan Project will utilize innovative design techniques including Smart Utility Technologies, incorporate resiliency and adaptability measures, and create ecological improvements as detailed herein.

As requested in the EEA Secretary's Certificate on the EENF and in the BPDA Scoping Determination, this chapter includes information on the following topics:

Drainage/Stormwater Management

- The conceptual drainage plan including information that demonstrates how it will comply with local, state, and federal requirements, including DEP's Stormwater Management Standards;
- Information that demonstrates how the proposed conceptual stormwater management plan will provide adequate protection for wetland resources, improve stormwater quality, manage flows, and integrate the Best Management Practices ("BMPs") into the proposed landscape of the Project Site;
- Information that demonstrates how the Master Plan Project will consider climate change adaptation and resiliency measures as they relate to stormwater management;
- A discussion of how the proposed stormwater infrastructure will respond to the changing nature of precipitation due to climate change including storm events that are shorter in duration with heavier volumes of rain;
- An analysis of how on-site infrastructure will function in coordination with stormwater flows being conveyed by Sales Creek, which serves as a primary flood pathway for a significant urban watershed within Revere;
- Information that outlines the BMPs that will enhance stormwater runoff quality;
- Information that addresses how the Master Plan Project will conform with the draft Pathogen Total Maximum Daily Load ("TMDL") for the Boston Harbor Watershed;
- Information that addresses groundwater recharge; and
- A discussion of drainage considerations associated with discontinuation of the existing CAFO within the Project Site.

Water and Wastewater

- Anticipated water/wastewater infrastructure improvements in and around the Project Site;
- Water conservation efforts to be incorporated into the Master Plan Project;
- Water and wastewater system capacity to accommodate the Master Plan Project; and
- Applicability of water and wastewater-related permits and associated compliance.

Other Utilities

- Ability to incorporate Smart Utility Technologies into the infrastructure design and planning of the Master Plan Project; and
- Information on the approach to telecommunications planning through completion of the City of Boston's Broadband Ready Buildings Questionnaire.

10.1 Summary of Key Findings and Benefits

The key findings related to infrastructure systems include:

Drainage/Stormwater Management

- The Master Plan Project will include new stormwater management treatment systems on-site, which will significantly improve the overall quality of stormwater runoff, and control peak rates of runoff in comparison to the existing conditions.
- The Master Plan stormwater management system has been designed to integrate BMPs into the Project Site landscape to maximize useable open space for the public during dry weather.
- A culverted portion of Sales Creek will be daylighted, providing an ecological benefit and increasing the stormwater storage capacity of the Sales Creek system.
- As an extension of the Boston Complete Streets guidelines, additional stormwater quality enhancement features and opportunities to incorporate low impact development ("LID") techniques, such as rain gardens/biofiltration, tree filters, and green roofs, will be considered in the Master Plan Project design.
- Reuse of stormwater runoff for landscape irrigation, particularly in the Central Common, will be incorporated, and additional opportunities for stormwater runoff reuse will be evaluated as the design progresses.
- Potential increased storm intensity due to climate change will be addressed by:
  - Designing the stormwater management system to convey and mitigate peak runoff rates for increased rainfall depths for the 10-year and 100-year design storms. Rainfall depths of 6.0 and 8.8 inches respectively will be used (as an extension of the BPDA's Climate Resiliency Guidance and BWSC recommendations for increased storm events).

- Designing stormwater management components with additional storage capacity.
- Evaluating how the proposed stormwater BMPs will respond to storm events that are shorter in duration with high volumes of rain.
- Coordinating an on-site stormwater management approach and hydrology model with a regional HEC-RAS model, to address potential on-site and off-site impacts from the extreme case high emissions future storm scenarios.

Water/Wastewater

› Adequate infrastructure facilities and services are available proximate to the Project Site to serve the Master Plan Project.

› To reduce potable water demand, the reuse of stormwater runoff for landscape irrigation will be incorporated into the design where feasible.

› The Master Plan Project will include low-flow plumbing fixtures and other water conservation and reuse techniques to reduce overall water usage and wastewater generation.

› The Master Plan Project at full buildout is anticipated to generate approximately 2.0 to 2.3 million gallons per day ("MGPD") of wastewater and use approximately 2.4 to 2.7 MGPD of water, excluding consideration of existing generation and use and depending on the development program mix of uses. The high-end wastewater and water demand estimates were calculated to reflect that the mix of uses in the final development program could include the maximum allowed portion of residential uses, which would result in the highest estimated water demand and wastewater generation.

› Inflow/Infiltration ("I/I") mitigation, calculated at a ratio of 4:1 in Boston and 10:1 in Revere in terms of gallons of I/I mitigated or removed from the existing sewer system to gallons of wastewater added, will be implemented to mitigate potential capacity issues in the regional wastewater collection system.

› Interim wastewater connections are proposed both in Boston and Revere; however, for the final build-out, the Proponent is proposing a dedicated wastewater bypass line that will connect directly to the MWRA system downstream of the Caruso Pump Station. This will allow Boston and Revere to maintain existing capacities in their local systems for other developments and for the MWRA to maintain existing pumping capacity in the Caruso Pump Station.

Smart Utilities

› Smart Utility Technologies will be incorporated into the Master Plan Project and will continue to be explored throughout the design and implementation of the Master Plan Project as new technologies emerge and existing technologies become more efficient and viable.

› Future-oriented approaches to broadband infrastructure are being explored as part of efforts to develop a broadband system that will serve the current and

future connectivity needs of the Master Plan Project's residents, businesses, and other users.

10.2 Regulatory Context

The infrastructure for the Master Plan Project has been planned in accordance with local, state and federal regulations. The following is a summary of key regulations that influence the design. This summary has been condensed where appropriate from the information provided in the prior EENF/EPNF filing and provides updates as applicable.

10.2.1 Federal Clean Water Act

The Clean Water Act prohibits discharging pollutants through a point source into Waters of the United States unless a permit is obtained under the EPA National Pollutant Discharge Elimination System ("NPDES") program. A NPDES permit contains limits, monitoring and reporting requirements, and other provisions to ensure that a discharge does not degrade water quality or cause harm to public health.

Federal NPDES Stormwater Program

The Federal NPDES stormwater program is limited to discharges associated with municipal separate storm sewer systems ("MS4s"), construction activities, and industrial activities. It does not extend to private, non-industrial stormwater discharges in Massachusetts. The Master Plan Project's stormwater management system will ultimately discharge to Sales Creek and Chelsea Creek; however, except as described below for construction activities, the stormwater drainage system for the Master Plan Project will not need to obtain a NPDES discharge permit since it will be a private, non-industrial stormwater discharge.

Concentrated Animal Feeding Operation NPDES Permit

Pursuant to the Clean Water Act, a CAFO is classified as an industrial activity and requires a NPDES permit. The existing Project Site is currently used for animal feeding associated with its existing horse race track and is classified as a large CAFO. In September of 2015, NPDES Permit No. MA0040228 was issued for the Project Site authorizing primary stormwater discharge from the CAFO to the municipal sewer system with overflow allowed to discharge to Sales Creek. This existing NPDES permit includes effluent limitations, monitoring requirements, and other conditions for the discharge.

The conditions and requirements of the above-described existing NPDES permit will apply until all horse racing operations cease on the Project Site and the permit is closed-out in accordance with its requirements and conditions. The previous owner of the Project Site currently leases portions of the Project Site and pursuant to its lease, has the right to continue horse racing operations for a period of time prior to when construction of the Master Plan Project will commence. The prior owner is responsible for closure of the CAFO.

Upon ceasing all horse racing operations and closing the associated facilities in accordance with the above-described existing NPDES permit, the NPDES permit is expected to be closed-out and terminated by Sterling Suffolk Racecourse, LLC., the prior owner of the Project Site and current operator of the CAFO and related race track use.

NPDES Construction General Permit

The EPA requires that projects that disturb greater than one acre of land obtain a permit for construction-related stormwater discharges through the NPDES Construction General Permit ("CGP") for Stormwater Discharges from Construction Activity (2017, EPA). Compliance with the CGP will be achieved by the following:

- Developing and implementing a Stormwater Pollution Prevention Plan ("SWPPP");
- Completing, certifying, and submitting a Notice of Intent to the EPA; and
- Complying with the requirements contained in the CGP and the Order of Conditions issued under the Massachusetts Wetlands Protection Act as described below.

10.2.2 Massachusetts Clean Water Act

DEP Surface Water Discharge General Permit for Construction General Permits

Development of the Master Plan Project will require a DEP Surface Water Discharge General Permit under NPDES since Sales Creek and the intermittent stream located along the eastern property line of the Project Site (H-series bank flags) are Outstanding Resource Waters ("ORW"). The Master Plan Project will also require submission of a SWPPP to DEP for review in conjunction with a General Permit Notice of Intent for a Construction General Permit under NPDES ("WM 15") with respect to discharging to an ORW, prior to construction.

DEP Multi-Sector General Permit in Outstanding Resource Waters

The Master Plan Project is not currently anticipated to include industrial activities; therefore, it is not anticipated to require a Multi-Sector General Permit for discharges associated with industrial activities to an Outstanding Resource Water.

Should activities be proposed in the future that would result in a stormwater discharge associated with industrial activities to an ORW, the Master Plan Project would obtain a Multi-Sector General Permit.

10.2.3 The Massachusetts Wetlands Protection Act Regulations

Proposed infrastructure related to the Master Plan Project will be designed and installed in accordance with applicable provisions of the WPA, specifically regarding

compliance with performance standards for work within resource areas. Additionally, the stormwater management system will comply with the stormwater requirements of the WPA Regulations, as summarized below.

DEP Stormwater Management Standards

In 1997, DEP published the Massachusetts Stormwater Handbook as guidance on stormwater management policy, which was later revised and updated in February 2008. The Stormwater Management Standards are currently regulated under WPA Regulations 310 CMR 10.05(6)(k) through (q).

The Massachusetts Stormwater Standards are a series of 10 standards with which a project must comply. These standards were designed to promote stormwater recharge, treat runoff from polluting land uses, encourage low impact development techniques, prevent pollution, remove illicit discharges to stormwater management systems and improve operation and maintenance of stormwater BMPs. The Master Plan Project will comply with the applicable stormwater standards. See Section 10.3.3 for a detailed description of how the Master Plan Project will comply with the stormwater standards.

10.2.4 DCR Easements for Sales Creek

Several agreements with the Commonwealth of Massachusetts are in-place for the maintenance of the portion of Sales Creek located on the Project Site. The DCR has an easement giving it rights within portions of Sales Creek that traverse the Project Site, and under the easement DCR is responsible for its maintenance. DCR also owns and maintains the culverts within Sales Creek on the Project Site, as well as the Bennington Street tide gates and pump station located off-site. Discharges from these drainage structures are regulated under DCR's MS4 NPDES Permit MARO43001. DCR will remain the permittee of this permit, which applies to various parks across the Commonwealth.

The existing DCR easements are shown on the 80-scale Schematic Grading, Drainage and Utilities Plan set located in Appendix H, as well as on Figure 10.1.

The Proponent will coordinate with DCR to integrate design improvements within and adjacent to the DCR easement areas. The design is currently at a conceptual master plan conceptual level of detail. As further detail is developed, it is anticipated that DCR will review and provide input regarding the improvements within the DCR easement areas. It is anticipated that although certain portions of the redevelopment are proposed within DCR easements, the overall capacity of the Sales Creek system will be maintained or improved by the proposed Master Plan Project, largely due to daylighting of a culverted portion of Sales Creek on-site.

The Proponent will also develop alternatives to manage common reed and establish native species within the Sales Creek area on the Project Site. DCR has noted that common reed is problematic to the functionality of the Bennington Street Pump Station.

10.2.5 City of Boston Requirements

All infrastructure improvements and connections to the existing BWSC system will be reviewed as part of the BWSC Site Plan Approval process. This approval process includes a comprehensive design review of the proposed service connections, assessment of system demands and capacity, and establishment of service accounts for water and sewer systems.

10.2.6 City of Revere Code of Ordinances

Section 13.10.020 of the City of Revere Ordinances requires that an Erosion and Sediment Control ("ESC") plan be approved by the Revere Department of Public Works ("Revere DPW") prior to any land-disturbing activities. For significant projects, preparation of a SWPPP satisfies this requirement.

Section 13.10.030 of the City of Revere Ordinances requires that a Stormwater Management Plan be approved by the Revere DPW prior to land disturbance activities greater than 2,500 square feet or for activities that would alter or modify an existing drainage system. The preparation of a Stormwater Management Report in compliance with the 2008 DEP Stormwater Management Handbook satisfies this requirement.

The Proponent will prepare ESCs and Stormwater Management Plans for approval by the Revere DPW, as required, as each phase of development moves forward. Additionally, the proposed stormwater management system will be reviewed in the context of the Revere Municipal Wetlands Ordinance as well as in conjunction with a Special Permit application that will be submitted pursuant to the recently amended zoning ordinance establishing the Suffolk Downs Overlay District (Revere Code, Chapter 17.26).

10.3 Stormwater Management

10.3.1 Existing Drainage Conditions

A detailed discussion of the existing hydrology and an associated figure was previously provided in Section 8.4 of Chapter 8, *Infrastructure*, of the EENF/EPNF a summary of which is provided below.

The majority of the on-site existing stormwater infrastructure was constructed prior to the promulgation of the DEP Stormwater Management Standards; therefore, the existing stormwater infrastructure provides limited stormwater quality treatment or peak runoff rate attenuation.

Existing Hydrology

Stormwater on the Project Site currently drains to three primary locations:

1. Stormwater from the westernmost portion of the Project Site drains to a culvert that crosses under Route 1A and discharges to Chelsea Creek.
2. Most of the Project Site drains to the portion of Sales Creek within and northwest of the race track.
3. The southern portion of the Project Site drains to an intermittent stream (H-series bank flags) located along the eastern perimeter of the Project Site, which then discharges to Sales Creek between the race track and Bennington Street.

   Sales Creek flows southeasterly through the Project Site, under the MBTA Blue Line tracks and Bennington Street, and ultimately discharges to Belle Isle Inlet.

Critical Areas

The Massachusetts Surface Water Quality Standards (314 CMR 4.00) list both Sales Creek and the H-series intermittent stream as Class SA ORW. Additionally, Sales Creek ultimately discharges to Belle Isle Marsh, which is designated as a shellfish growing area. Both ORWs and shellfish growing areas are classified as critical areas, which require high levels of stormwater treatment.

Total Maximum Daily Loads

DEP has issued a draft TMDL for the Boston Harbor Watershed (excluding the Neponset River sub-basin). A TMDL is the greatest amount of a pollutant that a waterbody can accept and still meet water quality standards for protecting public health and maintaining the designated beneficial uses of those waters for drinking, swimming, recreating and fishing. A TMDL is implemented by specifying how much of the pollutant can originate from point, non-point and natural sources. Known pollutants include, but are not limited to, fecal coliform, e. coli, and total suspended solids. Refer to Section 10.3.2 for information regarding how the Master Plan Project addresses the TMDL.

Existing CAFO

NPDES Permit No. MA0040282 was issued for the Project Site authorizing discharge associated with the horse racing operations from the process waste holding pond to Sales Creek. The NPDES permit provides for effluent limitations, monitoring requirements, and other requirements. It is anticipated that this NPDES permit will be terminated upon cessation of horse racing activities and the CAFO's operator, Sterling Suffolk Racecourse, LLC, will cause the closure of the process waste holding pond in accordance with the permit's requirements. Refer to Section 10.2.1 for a more detailed discussion of the existing CAFO and permitting requirements.

Bennington Street Pump Station and Tide Gates

Sales Creek is isolated from tidal flows by the Bennington Street tide gates and the Bennington Street pumping station, which are owned and operated by DCR. On April 25, 2018, the project team met with DCR to gain a better understanding of how

the Bennington Street Pump Station, Sales Creek culvert, and tide gates operate. There are two tide gates in Bennington Street: one on the Sales Creek culvert and another on the pump station discharge culvert. Both tide gates are regularly maintained and are in good condition. The pump station is manually operated and on average operates six times per year. The pumps are driven by diesel engines and are maintained regularly. DCR reported that during a storm in January 2018, coastal flooding from Belle Isle Inlet overtopped Bennington Street. This was the highest level ever witnessed. The pump room did not flood, and the pumps were still effectively discharging flow to Belle Isle Inlet, during this storm event. Refer to Section 10.3.2 for a description of the mitigation measures proposed to minimize the Master Plan's impacts on the Bennington Street Pump Station and tide gates.

A more thorough discussion of the condition of and considerations relating to the Bennington Street Pump Station and tide gates is provided in Chapter 8, *Climate Change Resiliency*.

10.3.2 Proposed Stormwater Management Approach

The Master Plan Project has been designed to include a new stormwater management system that will improve stormwater runoff quality and mitigate peak runoff rates in accordance with the DEP 2008 Stormwater Management Handbook using a combination of conventional BMPs and green infrastructure. The design approach also responds to the results of a regional HEC-RAS model to mitigate potential on-site and off-site impacts due to climate change. The main stormwater BMPs have been strategically located and conceptually planned to ensure that the Master Plan Project reserves ample space for stormwater management. As the design progresses, additional decentralized aesthetic stormwater facilities may also be incorporated to enhance the landscape in addition to providing additional stormwater treatment and mitigation.

Overall, the Master Plan Project incorporates an extensive open space system which at full buildout will cover approximately 25 percent (approximately 40 acres) of the Project Site. The conceptual stormwater management system is designed to address the currently-designed amount of proposed impervious area. However, the Proponent and its project team will continue to evaluate ways to reduce the anticipated impervious areas as the design progresses. Should additional landscaped or otherwise pervious areas be incorporated into the design in the future, the resulting stormwater impacts would be less, and the system may be resized or redesigned. For the purposes of the conceptual stormwater management design, the Master Plan Project conservatively assumes that all hardscape surfaces are impervious. The anticipated inclusion of pervious pavements/hardscapes would further reduce the stormwater impacts of the Master Plan Project.

Design Goals

The stormwater management system has been designed to comply with the 2008 DEP Stormwater Handbook and additionally to meet the following design goals:

- Provide a high level of stormwater treatment to protect the sensitive waters of Belle Isle Marsh;
- Do not increase peak runoff rates to Sales Creek to ensure that the Master Plan Project does not impact the functionality of the DCR stormwater pump station;
- Provide adaptability for future climate change and increased precipitation events; and
- Integrate the stormwater management system into the open space of the Master Plan Project.

The stormwater management system has been designed to manage stormwater runoff in accordance with the DEP 2008 Stormwater Management Handbook. Stormwater directed to Sales Creek and the Intermittent Stream (H-Series bank flags) bordering the easterly property line will be mitigated so that peak runoff rates are at or below existing runoff rates. This will ensure that the Master Plan Project will not impact the capacity of the DCR stormwater pumping station. Due to the Project Site's direct connection to Belle Isle Marsh via Sales Creek, the stormwater management system will incorporate a high level of treatment to improve the quality of stormwater runoff that will be discharged. The Proponent will also implement good housekeeping practices to ensure that the stormwater management system is properly maintained and that pesticides, herbicides and fertilizers are properly managed.

Chelsea Creek is a tidally influenced river and is classified as LSCSF. The stormwater runoff directed to Chelsea Creek will be treated for total suspended solids and water quality and will be directed to Chelsea Creek via the existing culvert beneath Route 1A and an existing conveyance channel located on the adjacent Massport property. The DEP 2008 Stormwater Handbook waives the requirement to control of peak discharge rates within LSCSF. Therefore, additional stormwater runoff will be directed to Chelsea Creek, where feasible.

Directing more runoff to Chelsea Creek will help to alleviate flooding concerns for the Sales Creek watershed system, which provides a higher layer of resiliency to the overall Master Plan Project and upstream neighborhoods. It will also enable the Project Site to better adapt to the future effects of climate change. The Central Common has been designed to provide significant flood storage and by directing additional runoff to Chelsea Creek, more of this flood storage can be reserved to serve the overall Sales Creek watershed system, rather than dedicating it to on-site stormwater detention.

To ensure that the increase of peak stormwater runoff rates to Chelsea Creek can be adequately conveyed and will not impact nearby properties, the Proponent intends to conduct an evaluation of both the capacity and integrity of the culvert beneath Route 1A, and, in coordination with Massport, evaluate the existing drainage channel that discharges to Chelsea Creek. Improvements or deferred maintenance will be coordinated as may be warranted.

Reducing the runoff to Sales Creek may also have ecological and environmental benefits to the downstream Belle Isle Marsh. Belle Isle Marsh is the largest remaining

salt-water marsh within the City of Boston and is part of the greater Rumney Marsh ACEC. The Friends of the Belle Isle Marsh have expressed concern that increasing stormwater runoff volumes from the Project Site to Belle Isle Marsh could dilute the salinity of the marsh. The proposed stormwater management approach will substantially mimic the runoff volumes directed to Sales Creek and the Intermittent stream under post developed conditions as compared to existing conditions. This will help maintain the existing chemical composition of the Marsh. Through the incorporation of measures such as stormwater reuse and other green infrastructure techniques it is anticipated that the stormwater volumes ultimately discharging to Belle Isle Marsh will be further reduced.

This reduction in stormwater volumes to Belle Isle Marsh is not a requirement by local or state statutes but given the important nature of the salt water Belle Isle Marsh and the added benefits of further protecting to the site and upstream neighborhoods, it was elected to shift a portion of the runoff volumes to the Chelsea Creek side.

Stormwater Management System Components

To manage stormwater runoff in accordance with the DEP 2008 Stormwater Handbook, the Master Plan Project will utilize a combination of stormwater BMPs. The proposed BMPs include a subsurface infiltration system, a subsurface detention system, an open detention basin, and a combination detention basin/subsurface detention system. These BMPs have been designed to mitigate peak runoff to Sales Creek and the wetland to the south of the racetrack for all events up to the advanced 100-year storm event.

The conceptual stormwater management system is depicted on the Schematic Grading, Drainage and Utilities 80-scale plans contained in Appendix H. An illustrative representation of the Master Plan Project's stormwater management system is depicted on Figure 10.2. As the design progresses, the design of the detention basin will be further developed and may include additional elements such as a wet bottom.

It is important to note that approximately 25 percent of the Project Site will be dedicated to open space, and stormwater management components have been designed so that they do not appear to be stormwater management BMPs but will function as such. They have been integrated into the Master Plan Project landscape to maximize the open space available to the public, provide multiple uses for the open space areas and provide additional flood storage.

The Park Basin (Basin 01), which is located within the Central Common adjacent to Sales Creek, has been sited to take advantage of the existing topography and has been tucked into the low corner of the Central Common.

The Outdoor Theater Basin (Basin 02), which is located within Revere off of Parkway, is intended to act as a gathering place for the public during dry weather and will function as a detention basin during wet weather. Specifically, it consists of two components: a subsurface detention system that has been incorporated into the area beneath the Outdoor Theater seating to maximize the available stormwater storage in this space, as well as a more typical surface detention basin within the

center of the Outdoor Theater. The surface basin will provide a useable open area for the public except during heavier storms when it will function as a detention basin. During storm events, stormwater will fill the Outdoor Theater Basin prior to discharging to Sales Creek.

Stormwater Treatment/Green Infrastructure

In addition to the stormwater BMPs discussed above, green infrastructure, and source control and pollution prevention measures, will be incorporated into the design to enhance treatment and further reduce peak runoff rates. The stormwater management system will be planned to provide treatment of stormwater runoff associated with the proposed impervious surfaces on-site. All stormwater BMPs will be designed to treat a minimum of the first inch of runoff generated by the on-site paved impervious areas.

Where feasible, roof runoff will be directed to cisterns where it can be reused as irrigation water for the proposed landscape elements, particularly in the Central Common, located between Sales Creek and the Horseshoe Pond in the east-central portion of the Project Site. The extensive street tree network will be designed as a filtration system to provide treatment for sidewalk and plaza runoff. Pocket rain gardens/ biofiltration systems will potentially be sited within plaza areas, and/or within the roadway network system. Many of the buildings will incorporate green roofs into a portion of the roof areas, thereby reducing impervious surfaces across the Project Site.

Belle Isle Marsh and Rumney Marsh

Belle Isle Marsh is the last remnant within Boston of the salt marshes that were once prevalent along the Massachusetts shoreline. Belle Isle Marsh is part of the greater Rumney Marsh ACEC. A salt marsh is a coastal ecosystem between land and open salt water (brackish water) that is regularly flooded by the tides causing salt water and fresh water to mix together. The mixing effect of sea water and fresh water creates habitats with high levels of nutrients making salt marshes among the most productive natural ecosystems on earth. For these reasons, it is important to protect the salt marsh as much as feasible.

Salt marshes are dominated by salt tolerant plants that are essential to the stability of the salt marsh in trapping and binding sediments. Marshes are biologically diverse communities adapted for harsh environmental conditions including desiccation, flooding and extreme temperature and salinity fluctuations.

The Marsh is currently threatened by water pollution, air pollution, invasive species and pesticides. A proven way to restore/preserve a salt marsh is to re-establish the native species and manage invasive species. The Proponent will develop a program to manage invasive species and incorporate native species into the landscape design where feasible on the Project Site. In addition to re-establishing native species (where feasible) and managing invasive species, the Master Plan Project will greatly

improve the stormwater quality that is discharged to Sales Creek and develop a program to manage pesticides on-site.

Nitrogen

The Friends of the Belle Isle Marsh have noted that they are concerned about nitrogen levels within the greater Rumney Marsh, of which Belle Isle Marsh is a part. There is no formal listing of nitrogen as a pollutant of concern within Rumney Marsh under existing and draft TMDLs for the Commonwealth of Massachusetts, nor within the 2014 Integrated List of Waters or the 2016 Draft Integrated List of Waters.

Nitrogen is a nutrient that is a natural part of an aquatic ecosystem. It is also the most abundant element in the air we breathe. In unaltered natural processes, most nitrogen is absorbed or retained by natural forest and wetland vegetation. In most marine and coastal waters, the limiting nutrient for plant growth is nitrogen. Nitrogen concentrations beyond those expected naturally contribute to undesirable conditions, including the promotion of excessive growth of plants and algae, and nuisance vegetation. It can also contribute to periodic extreme decreases in dissolved oxygen concentrations that can threaten aquatic life.

Nitrogen enters coastal waters typically from the natural background of the watershed, combined sewer overflows, septic systems, fertilizers, atmospheric deposition, animal feeding operations, and stormwater runoff. Stormwater can pick up nitrogen from fertilizers, pet and yard waste.

The on-site stormwater management system will be designed to reduce nitrogen in stormwater runoff through structural practices, such as a subsurface infiltration system, tree filters, cisterns, and biofiltration, as well as non-structural good housekeeping measures. A manual to govern certain on-site infrastructure ("Site Owner's Manual") will outline source control methods such as fertilizer restrictions, leaf litter and landscape trimming pick-up, and will require pet owners to clean up after their animals to reduce sources of nitrogen. It will also specify regular maintenance of the on-site stormwater BMPs to ensure they are functioning as designed.

The Master Plan Project will also result in the elimination of the existing concentrated animal feeding operation, a potential nitrogen source, and will implement I/I mitigation prior to discharging to the municipal sewer. The I/I mitigation will ensure that adequate capacity is available to convey the sanitary sewage and will reduce the probability of off-site combined sewer overflows, in which untreated sewerage could be discharged into nearby receiving waters.

Resiliency and Adaptability

Adaptability to future climate change and increased precipitation events has been considered in the stormwater management system master plan design. To account for the increased storm intensity projected to occur due to climate change, rainfall depths used in the hydrologic model were based on a presentation entitled "BWSC Climate Change Risk Assessment, Findings and Mitigation/Adaptation Strategies for

Wastewater and Storm Drainage", dated January 28, 2015 and prepared by BWSC, as well as BPDA's Climate Resiliency Guidance. The 10-year and 100-year storm events were modeled using total rainfall depths of 6.00 inches and 8.78 inches respectively.

To further evaluate the future effects of climate change, specifically increased intensity storms at the Project Site, the Northeast Regional Climate Center ("NRCC") six-hour, 100-year storm event of 5.65 inches was evaluated to demonstrate that the stormwater management system will function as intended during heavier volume, shorter duration storm events. During this extreme storm event, puddling and some level of flooding would be expected on the Master Plan Project's roadways as the stormwater conveyance system will not be able to convey the runoff instantaneously. However, the evaluation demonstrated that the stormwater management system will continue to function as intended. Refer to Appendix H for associated documentation.

The stormwater conveyance system will be sized based upon the advanced 6.0-inch 10-year design storm. An evaluation of the 100-year storm through the conveyance system will be performed to ensure that the structure rims and grates will not be surcharged and, if needed, restrictive points in the conveyance system may be upsized to reduce potential puddling in the roadways for these larger extreme storm events.

The Master Plan Project has been designed to accommodate additional flooding from both coastal and significant rainfall events above the advanced 100-year design storm ponding elevation. The Central Common basins include an additional 3.5 acre-feet of storage and the Outdoor Theater Basin has been designed with an additional approximately 0.6 acre-feet of storage. This totals an additional approximately 4.1 acre-feet of potential flood storage.

Tailwater Analysis

Tailwater is the water depth in a stream or water body directly downstream of stormwater system components. During larger storm events, portions of Sales Creek act as a detention basin and the water level within the creek rises. As the water level within Sales Creek rises, some of the proposed stormwater outfalls may become submerged. Submerged stormwater outfalls could impact how the proposed stormwater management components function. Therefore, the Proponent and the project team have conducted a tailwater analysis of Sales Creek to evaluate the potential effects that this may have on the proposed drainage system.

Sales Creek is separated from tidal flows by the Bennington Street tide gates and a stormwater pumping station. During lower tides, Sales Creek flows directly to Belle Isle Inlet via culverts beneath Bennington Street. During higher tides, water from Sales Creek is pumped to Belle Isle Inlet by the Bennington Street Pump Station, which is owned and operated by DCR. During storm events that coincide with high tide, portions of Sales Creek function as a detention basin with a controlled outlet flow via the Bennington Street Pump Station. This means that water levels in Sales Creek can rise during a high-tide storm event, potentially affecting the functionality of the proposed drainage system. As part of the resiliency analysis for the Master

Plan Project, the existing conditions of the Sales Creek watershed were modeled. The modeling results indicated that during the 10-year storm, the water surface in Sales Creek was estimated to reach elevation 7.70 (BCB), and during the 100-year storm the water surface in Sales Creek was estimated to reach elevation 9.81 (BCB).

The Proponent and its project team conducted an additional hydrological analysis for the 10- and 100-year design storms in which the time versus water surface elevation curves for Sales Creek were added to the model so that peak elevations of Sales Creek corresponded to the peak runoff rates from the Project Site to simulate the potential effects on the stormwater management system. The evaluation showed that the stormwater management system functioned as intended (e.g. basins did not overtop), and therefore, there was no increase in peak flow rates observed during these analyses. Refer to Appendix H for associated documentation.

10.3.3 Stormwater Management Regulatory Compliance

The proposed stormwater management system has been planned to comply with applicable regulatory requirements, including those contained within:

- The NPDES Construction General Permit;
- The 2008 DEP Stormwater Management Handbook;
- The Massachusetts WPA Regulations (310 CMR 10.00);
- City of Boston Stormwater Requirements; and
- City of Revere Ordinances.

A Master Plan Stormwater Management Strategy for the Master Plan Project and associated documentation is included in Appendix H.

NPDES Construction General Permit

It is anticipated that individual construction projects will apply for NPDES CGP coverage as the Master Plan Project is developed.

Compliance with DEP Stormwater Management Standards

The proposed stormwater management system for the Master Plan Project has been planned to comply with the ten DEP Stormwater Management Standards. The following summary provides key information related to the proposed stormwater management system in the context of the Standards.

Standard 1

No new stormwater conveyance (e.g. outfalls) may discharge untreated stormwater directly to or cause erosion in wetlands or waters of the Commonwealth.

There will be no direct discharge of untreated stormwater to nearby wetlands or waters of the Commonwealth. Runoff from all impervious areas of the Project Site

will be conveyed to stormwater management facilities for water quality treatment prior to discharge to adjacent streams and wetlands.

Standard 2

Stormwater management systems shall be designed so that post-development peak discharge rates do not exceed pre-development peak discharge rates.

To ensure the Master Plan Project will not adversely impact the surrounding area, the stormwater management system is designed to mitigate peak runoff rates in accordance with the 2008 DEP Stormwater Handbook. The proposed stormwater BMPs will control post-buildout peak discharge rates for the 2-, 10-, and 100-year, 24-hour storms to maintain pre-buildout peak discharge rates to Sales Creek and the Intermittent Stream south of the race track. This ensures that the Master Plan Project will not impact the capacity of the downstream DCR stormwater pumping station. Chelsea Creek is a tidally influenced river and is classified as LSCSF. The DEP 2008 Stormwater Handbook waives the requirement to control of peak discharge rates within LSCSF. To provide a higher level of resiliency and to create more flood storage for the Sales Creek watershed more stormwater will be directed to Chelsea Creek, resulting in a peak runoff rate increase to Chelsea Creek. Measures will be takes to ensure that the conveyance system to Chelsea Creek is adequate and that the increase peak runoff rates will not impact nearby properties.

Table 10-1 below summarizes the Master Plan Project's peak runoff rates for the pre- and post- development conditions.

Table 10-1 Project Runoff Rates (cfs)

	2 Year		10 Year		100 Year	
Storm Event	**Pre**	**Post**	**Pre**	**Post**	**Pre**	**Post**
Design Point 1: Sales Creek	*124*	115	*283*	234	*477*	439
Design Point 2: Wetland South of the Track	*41*	36	*93*	87	*145*	137
Design Point 3: Chelsea Creek	*48*	142	*115*	288	*182*	430

Standard 3

Loss of annual recharge to groundwater shall be eliminated or minimized through the use of environmentally sensitive site design, low impact development techniques, stormwater management practices and good operation and maintenance. At a minimum, the annual recharge from the post-development site shall approximate the annual recharge from pre-development conditions based on soil types. This Standard is met when the stormwater management system is designed to infiltrate the required recharge volume as determined in accordance with the Massachusetts Stormwater Handbook.

DEP recognizes that it may be difficult to recharge the required volume on certain sites because of soil conditions. The Natural Resources Conservation Service ("NRCS") Web Soil Survey indicates that soils within the race track consist of

Udorthents soils with wet substratum. These soils are located in areas that were previously tidal marshes, river flood plains, bays, harbors, and swamps. The fill consists of rubble, refuse, and mixed soil material, typically, sand, gravel, and channel dredging spoils. The Project Site's existing parking area, stables, and grandstand areas are listed as Urban land with wet substratum. These soils consist of developed areas within udorthents, wet substratum. No hydrologic soil class is assigned to these soil types, but permeability is typically low.

Test pits performed on the Project Site in 2012 indicated consistent fill material generally throughout the Project Site. The top 24-inches of soil are classified as either poorly graded sand or silty sand. Below 24-inches, the soil is mostly unclassified fill, poorly graded sand, silty sand, or clayey sand. Groundwater was found on average two to seven-feet below existing grade.

Due to high groundwater and low permeability, opportunities for infiltration are limited. The Master Plan design includes a subsurface infiltration system. As the design advances to a higher-level of detail, incorporating green infrastructure techniques such as bioretention, stormwater reuse for irrigation and tree filters will be evaluated, which may increase on-site infiltration. Additionally, publicly accessible green spaces will include a layer of imported planting soils that will be more permeable and less compacted than what is currently on-site, further helping to increase the potential for on-site infiltration.

Care has been taken in the design to maintain the hydrology of the down-gradient wetlands and waterbodies. Sales Creek appears to be the local groundwater discharge point, as well as the hydrogeologic divide on-site. The stormwater management system will maintain the same hydrologic pattern under proposed conditions as compared to existing conditions, in which the majority of the Project Site discharges to Sales Creek. The post-development stormwater peak runoff will approximate the pre-developed peak runoff rates to Sales Creek, which indicates that adequate stream flow will be maintained.

Standard 4

Stormwater management systems shall be designed to remove 80% of the average annual post-construction load of Total Suspended Solids (TSS).

The Master Plan Project will be designed to meet the water quality requirements of Standard 4 using on-site treatment trains that will achieve 80 percent TSS removal. Structural BMPs designed for stormwater quality treatment, including deep sump hooded catch basins and stormwater quality treatment systems, will be sized to capture and treat the flow rate associated with the first inch of runoff from the proposed impervious surfaces. Proposed stormwater management BMPs will be operated and maintained to ensure continued water quality treatment of stormwater runoff. A Site Owner's Manual will be developed and it will comply with the Long-Term Pollution Prevention Plan (Standard 4) and the Long-Term Operation and Maintenance Plan (Standard 9) requirements of the 2008 DEP Stormwater Management Standards. The Site Owner's Manual will outline the source control and

pollution prevention measures and maintenance requirements of the stormwater BMPs associated with the Master Plan Project.

Additionally, the Master Plan Project stormwater management system will be designed to comply with the draft Pathogen TMDL for the Boston Harbor Watershed. Pathogen concentration in stormwater runoff is anticipated to decrease once horse racing operations cease and the CAFO is closed. The Master Plan Project stormwater management system will follow the recommendations of the document entitled "Mitigation Measures to Address Pathogen Pollution in Surface Water: A TMDL Implementation Guidance Manual for Massachusetts", prepared for US EPA New England Region 1 to address the draft Pathogen TMDL for the Boston Harbor Watershed, and will implement green infrastructure where feasible as well as good housekeeping practices. The Master Plan Project will also contribute a significant amount of funds toward I/I removal programs, which will help reduce the probability of off-site combined sewer overflow discharges to Boston Harbor.

Standard 5

For land uses with higher potential pollutant loads (LUHPPLs), source control and pollution prevention shall be implemented in accordance with the Massachusetts Stormwater Handbook to eliminate or reduce the discharge of stormwater runoff from such land uses to the maximum extent practicable.

The Master Plan Project is not associated with stormwater discharges from land uses with higher potential pollutant loads; therefore, this Standard does not apply.

Standard 6

Stormwater discharges to critical areas must utilize certain stormwater management BMPs approved for critical areas. Critical areas are Outstanding Resource Waters, shellfish beds, swimming beaches, coldwater fisheries and recharge areas for public water supplies.

The proposed BMPs comply with the Stormwater Management Handbook for discharges within critical areas. Specifically, the stormwater management system will be designed to capture and treat the first inch of runoff, through structural BMPs and Green infrastructure. Also refer to earlier discussion regarding other pollutant considerations, such as nitrogen.

Standard 7

Redevelopment of previously developed sites must meet the Stormwater Management Standards to the maximum extent practicable. However, if it is not practicable to meet all the Standards, new (retrofitted or expanded) stormwater management systems must be designed to improve existing conditions.

Although the Project Site largely consists of previously developed areas, the Master Plan Project will result in a net increase in impervious area and, therefore, is classified as new development and will meet the stormwater management standards.

Standard 8

A plan to control construction-related impacts, including erosion, sedimentation and other pollutant sources during construction and land disturbance activities (construction period erosion, sedimentation, and pollution prevention plan) shall be developed and implemented.

SWPPP(s) will be developed and coverage under the NPDES Construction General Permit for Stormwater Discharges will be obtained prior to construction. These plans will address the requirements of Standard 8.

Standard 9

A Long-Term Operation and Maintenance (O&M) Plan shall be developed and implemented to ensure that stormwater management systems function as designed.

A Site Owner's Manual(s) will be developed to comply with the Long-Term Pollution Prevention Plan (Standard 4) and the Long-Term Operation and Maintenance Plan (Standard 9) requirements of the 2008 DEP Stormwater Management Standards as permitting for construction phases is undertaken. The Manual will outline source control and pollution prevention measures and maintenance requirements of the stormwater BMPs associated with the Master Plan Project.

Standard 10

All illicit discharges to the stormwater management system are prohibited.

There will be no illicit discharges to the proposed stormwater management system associated with the Master Plan Project.

Compliance with City of Boston Stormwater Requirements

BWSC requires that all projects that discharge to BWSC infrastructure retain the volume generated by the first one inch of rainfall from the impervious area on-site for infiltration or reuse. Although the Master Plan Project will discharge to its own privately maintained and operated stormwater management system, and BWSC has agreed that this rule does not apply, the Proponent and its project team are targeting re-using or retaining the volume of the first inch of runoff on-site to the maximum extent practicable. This will be accomplished through the on-site infiltration system, rainwater reuse, bio-retention systems, and tree-filters. Since the existing Project Site is not conducive to infiltration due to high groundwater and existing urban fill soils, it may not be feasible to retain or infiltrate the full 1-inch of stormwater runoff.

During the preliminary design of the Project Site's infrastructure, the Proponent has been coordinating with BWSC, MWRA, and the City of Revere. During these coordination meetings BWSC requested that the Proponent connect several catch basins on Waldemar Avenue into the Master Plan Project's private drainage system. These catch basins currently discharge stormwater into BWSC's combined sewer network and BWSC is not currently able separate these catch basins from the

combine sewer system. Redirecting these catch basins from BWSC's combined sewer network will help BWSC in its efforts to decrease the amount of stormwater that enters the combined sewer system and to reduce pollution.

Compliance with City of Revere Ordinances

It is anticipated that the Master Plan Project will meet the City of Revere's requirements by submitting individual ESC and Stormwater Management plans as construction phases advance. Additionally, the proposed stormwater management system will be reviewed in the context of the Revere Municipal Wetlands Ordinance as well as in conjunction with a Special Permit application that will be submitted pursuant to the recently amended zoning ordinance establishing the Suffolk Downs Overlay District.

10.4 Sanitary Sewage

10.4.1 Existing Wastewater System

Figure 10.3 depicts the existing wastewater system that serves the Project Site. Under existing conditions, wastewater from the Project Site flows through the Boston sewer system to the Caruso Pump Station and is then pumped to the MWRA North Metropolitan Trunk Sewer. The MWRA North Metropolitan Trunk Sewer conveys the wastewater by gravity to the Winthrop Terminal Headworks where it is then pumped to the MWRA Deer Island Wastewater Treatment Plant. A more detailed discussion of the existing wastewater system is provided in Chapter 8, *Infrastructure,* of the EENF/EPNF filing.

10.4.2 Proposed Sewer Flow

The projected wastewater demand for the Master Plan Project is summarized in Table 10-2 below. Estimated wastewater flow rates were developed by applying the estimated average daily sewage flow design rates from Title 5, The State Environmental Code Regulating Septic Systems (310 CMR 15.00) to the Master Plan Project program.

The Master Plan Project allows for flexibility respecting the final mix of uses. The development may include a final program weighted toward a greater portion of commercial use (Program A), however the sewage generation projections are provided in ranges to account for the possibility of a development weighted more heavily towards residential uses (Program B). As discussed in the EENF/EPNF, this was done to ensure adequate capacity exists for the maximum potential wastewater flows.

Table 10-2 Estimated Sewage Generation

Use	Proposed Size/Quantity	Sewage Generation Rate[1]	Estimated Sewage Generation (GPD)
Condominium[2]	3,399-5,372 Beds	110 GPD/Bedroom	373,890-590,920
Apartment[3]	5,323-8,443 Beds	110 GPD/Bedroom	585,530-928,730
Senior Housing[4]	703-957 Units	150 GPD/Unit	105,450-143,550
	66-150 Beds	110 GPD/Bedroom	7,260-16,500
Office	4,680,000-7,200,000 SF	75 GPD/1000 SF	351,000-540,000
Research & Development[5]	520,000-800,000 SF	95 GPD/1000 SF	49,400-76,000
Market	20,000 SF	97 GPD/1000 SF	1,940
Entertainment[6]	20,000-100,000 SF	Varies	30,800-98,800
Food[7]	180,000-185,000 SF	Varies	270,000-280,000
Service[8]	200,000-225,000 SF	Varies	11,800-12,769
Hotel[9]	400,000-550,000 SF	110 GPD/Room	88,000-121,000
		Total Proposed	**2,191,820-2,434,209**
		Total Existing	**177,000[10]**
		Net New Total	**2,014,820-2,257,209**

GPD = Gallons per day
SF = Square Feet

1 Based on DEP 310 CMR 15.203 flow calculation factors.
2 Based on the following assumptions regarding bedroom breakdown for the estimated 2,266-3,159 units: 7.5% Studio, 50% 1-Bedroom, 35% 2-Bedrooms and 7.5% 3-Bedrooms for Program A; and 5% Studio, 40% 1-Bedroom, 40% 2-Bedroom and 15% 3-Bedroom for Program B. The number of units and bedroom mix are each subject to change.
3 Based on the following assumptions regarding bedroom breakdown for the estimated 4,209-5,854 units: 5.4% micro-units, 20.4% Studio, 50.8% 1-Bedroom, 20.4% 2-Bedrooms and 3% 3-Bedroomsfor Program A; and 20% Studio, 50% 1-Bedroom, 25% 2-Bedroom, and 5% 3-Bedroom for Program B. The number of units and bedroom mix are each subject to change
4 Based on the following assumptions regarding bedroom breakdown for the estimated 725-1007 units: 10% Studio, 51% 1-Bedroom, 36% 2-Bedrooms and 3% 3-Bedrooms for Program A; and 10% Studio, 45% 1-Bedroom, 40% 2-Bedroom, and 5% 3-Bedroom for Program B. The number of units and bedroom mix are each subject to change.
5 Research and development sewage generation of 95 gpd/1,000 sf is based upon Cambridge Sewer Connection Extension Permit W039205 for R&D-Laboratory sewer flow generation rate.
6 Entertainment breakdown assumed to include: Restaurant (40,000 sf; 25 sf/seat; 35 gpd/seat); Auditorium (40,000 sf; 10 sf/seat; 3 gal/seat); Bowling Alley (10,000 sf w/ 8 lanes; 100 gpd/lane); Bowling Alley Restaurant 100 seats (35 gpd/seat); Bar (5,000 sf; 10 sf/seat; 20 gpd/seat); Comedy Club (5,000 sf; 5 sf/seat; 20 gpd/seat).
7 Food breakdown assumed to include: Restaurant (120,000 sf; 25 sf/seat; 35 gpd/seat); Café (30,000 sf; 25 sf/seat; 35 gpd/seat); QS lunch (35,000 sf; 10 sf/seat; 20 gpd/seat).
8 Service breakdown assumed to include: Bank (18,750 sf; 75 gpd/1,000 sf); Pharmacy (30,000 sf; 50 gpd/1,000 sf); Hair Salon (5,000 sf; with 7 chairs; 100 gpd/chair); Fitness (50,000 sf; with 150 lockers; 20 gpd/locker); Pet Store (15,000 sf; 50 gpd/1,000 sf); Dentist (10,000 sf; with 3 dentist; 200 gpd/dentist); Clothing 96,250 sf (50 gpd/1,000 sf).
9 Assumes 500 sf per hotel room.
10 Existing wastewater flow Includes 27,000 GPD domestic and 150,000 associated with the existing on-site Concentrated Animal Feeding Operation ("CAFO"). Domestic flow calculated based upon 10 percent reduction in metered flow from BWSC. CAFO flow from MWRA Discharge Permit No. 4940368.

As illustrated in Table 10-2 above, the net new maximum anticipated wastewater flow associated with the full development of the Master Plan Project is approximately 2.0 to 2.3 MGD depending on the development program's final mix of uses. The higher wastewater demand is associated with a pro-residential program.

10.4.3 Proposed Sewer Connections

The proposed wastewater system detailed below is the preferred alternative for Master Plan Project due to the following:

- It provides an efficient infrastructure layout;
- It preserves the existing capacity of the Caruso Pump Station which benefits the City of Boston, City of Chelsea, City of Revere, and the general upstream MWRA system; and
- Interim connections allow for a more appropriate phased implementation of the Master Plan Project and the proposed MWRA bypass line (discussed further below).

Sanitary sewerage generated by the Master Plan Project will be collected through a network of sewer mains that will be developed on the Project Site as each parcel or group of parcels are constructed. These sewer mains will be located within the Master Plan Project's roadway network. The street network for the Master Plan Project will be maintained under private ownership. Easements will be created for all new public sewer infrastructure elements required for the Master Plan Project, enabling public agencies to have the necessary rights to maintain and access the sewer components as needed. This process will be coordinated with BWSC and the City of Revere. The layout of the infrastructure and related easements will be further developed as the design progresses.

A conceptual plan of the on-site wastewater system has been developed to comply with applicable design standards of the municipalities and standard engineering practices (see Appendix H for an 80-scale Schematic Grading, Drainage and Utilities Plan). Figure 10.4 depicts the broader wastewater distribution system, including off-site components.

The proposed sewer layout has been designed in an efficient manner by directing all flow through Boston and creating a new direct bypass line to the MWRA system. The majority of the wastewater generated from the Master Plan Project will flow to a new sewer lift station located in the southeast corner of the Project Site. The sewer lift station will elevate the wastewater flow to allow a gravity sewer connection to the MWRA North Metropolitan Trunk Sewer. This connection requires approximately 3,000 linear feet of bypass line to be installed from the Project Site to the intersection of Saratoga and Bennington Streets, to connect into the MWRA North Metropolitan Trunk Sewer, downstream of the Caruso Pump Station (Figure 10.5). The North Metropolitan Sewer Trunk line will convey the wastewater by gravity to the Winthrop Terminal Headworks facility where it will then be pumped to the Deer Island Treatment Plant.

The proposed sewage route will bypass the Caruso Pump Station and will therefore not decrease its available capacity. This will enable the pump station to better serve future developments in Boston, Chelsea, Revere, Everett, and the MWRA system.

The Proponent is in the early stages of coordination and design of the MWRA bypass line. It is anticipated that the process of coordination, design, permitting and construction of the MWRA bypass line will take time. In addition, the Master Plan Project will be developed in phases; therefore, the Proponent is proposing to construct two interim sewage connections to address initial portions of the Master Plan: one to the existing BWSC municipal system, and the other to the Revere municipal system. Figure 10.5 depicts the interim wastewater distribution system.

Under the interim condition, wastewater generated from the initial development phase in Boston will be directed, by gravity, to the BWSC East Boston Low Level Sewer. The East Boston Low Level Sewer is located in Walley Street, adjacent to the Project Site near the Suffolk Downs MBTA Station. Review of recent BWSC reports indicate that the East Boston Low Level Sewer can handle approximately 0.3 million gallons per day of additional sanitary flow, which represents approximately 4 million square feet of development. This excess capacity enables the East Boston Low Level Sewer to be used as an interim connection point for the initial development phase in Boston.

Under the interim condition, wastewater generated from the initial development phase in Revere will be directed to the existing City of Revere 20-inch sewer main located adjacent to the Revere Public Safety Complex (400 Revere Beach Parkway). Connecting to this 20-inch municipal sewer main will require jacking the sewer main under the wetland system in the northwestern portion of the Project Site and extending westerly to the Revere Public Safety Complex. The Proponent will coordinate with the City of Revere to further develop this interim connection as the design progresses.

It is anticipated that both interim sewer connections would be discontinued once the MWRA bypass line is constructed and the connection to the North Metropolitan Sewer Trunk line is established.

Several additional Boston and Revere sewer layouts were also evaluated in the design process; however, for various reasons these routes were not selected as the preferred alternative. If these alternatives become a preferred alternative or interim condition in the future, the associated permitting and impacts will be evaluated at that time. Refer to Appendix H for a memorandum and supporting graphics describing the sewer alternatives that were evaluated.

Agency Coordination

The Proponent and members of its project team have been working closely with MWRA, BWSC, and the City of Revere. The project team has met on several occasions with each agency to discuss the proposed sewer layout and ensure that the Master Plan Project's sewerage system will be designed in accordance with the

applicable standards. The project team has also been coordinating with these agencies to confirm that the receiving utilities are able to accommodate the proposed demand.

The Proponent and its project team met with BWSC on March 28, 2018, April 27, 2018, and June 12, 2018 to discuss the proposed sewer layout. At the most recent coordination meeting, BWSC attendees agreed that it would be possible to connect into the North Metropolitan Sewer Trunk line at the proposed location; however, BWSC would like to meet directly with the MWRA to understand the operation and limitations of the Caruso Pump Station. The East Boston Low Level Sewer does not appear to have the capacity to support the entire Master Plan development without upgrading the existing system, however review of recent BWSC reports indicate that the East Boston Low Level sewer can support the initial phase of development in Boston.

BWSC has completed a sewer distribution system model, however, a wet versus dry weather analysis has not been completed. The Proponent will continue to work with BWSC to expand its existing sewer distribution system model to include wet and dry weather analyses.

The project team met with the City of Revere on November 15, 2017 and May 30, 2018 to discuss the proposed sewer layout. At the most recent coordination meeting, the City of Revere officials were in support of the proposed Master Plan sewer layout and its ultimate connection to the North Metropolitan Sewer Trunk line. The City of Revere has indicated that a connection to the 20-inch sewer main adjacent to the Revere Public Safety Complex may have the capacity to handle the wastewater flow from the initial phase of development in Revere. The Proponent will coordinate with the City of Revere to further evaluate the existing sewer system's capacity.

The project team also met with the MWRA on November 27, 2017 and May 24, 2018. The MWRA indicated that the proposed connection to the MWRA North Metropolitan Sewer Trunk line to serve the Master Plan Project is feasible and that there is adequate capacity within the line to serve the entire development. The MWRA agreed that connecting into the system downstream of the Caruso Pump Station was a preferred alternative, as it would reserve capacity for future development within Revere, East Boston, and nearby communities. MWRA also indicated that the proposed connection points to the MWRA water lines in Winthrop Avenue to serve the Master Plan Project are feasible and that there is adequate capacity and pressure to serve the development.

As the design of the Master Plan Project is further developed, the Proponent and members of its project team will continue to coordinate with BWSC, the City of Revere, and MWRA to refine the water and wastewater system designs.

Inflow and Infiltration Mitigation

To ensure that the sanitary sewage flow generated by the Master Plan Project does not adversely impact the regional wastewater systems, I/I mitigation will be performed. An I/I mitigation ratio of 4:1 gallons removed for every gallon of new wastewater generated in Boston will be implemented. This will be achieved through payments to BWSC of $2.41 per gallon of I/I mitigation performed, which works out to $9.64 per every new gallon of sewage added to the municipal system. BWSC has an established an I/I fee program and each building will pay its associated fees as the Master Plan Project is developed.

An I/I mitigation ratio of 10:1 will be applied in Revere and will be fulfilled through a payment to the City of Revere of approximately $1.30 per gallon at ten times the proposed wastewater flow generated, which works out to $13.00 per every new gallon of sewage added to the municipal system. Each building that is developed in Revere will pay its I/I fee as it is developed.

At the request of BWSC, the discharge of four off-site catch basins currently discharging to the sewer within Waldemar Avenue will be redirected to the dedicated storm drain system that will be constructed for the Master Plan Project. This is expected to result in an I/I mitigation credit calculated in accordance with the DEP Policy BRP 09-01.

Sanitary Sewage Regulatory Compliance

The Proponent and members of the project team will continue to work with the applicable permitting agencies (DEP, MWRA, BWSC, City of Revere, etc.) to permit the wastewater system according to the appropriate regulations.

The proposed wastewater system will comply with applicable local, federal and state requirements and will be constructed in accordance with BWSC and the City of Revere's standards.

The Master Plan Project will not discharge groundwater to the sanitary sewer.

The Master Plan Project will comply with the Board of State Examiners of Plumbers Gas Fitters and install gas/oil separators at the proposed parking garages. The Proponent will obtain the appropriate municipal approval and/or MWRA approval for gas/oil separators. If required, the Proponent will ensure that a MWRA field representative is present during the installation of all gas/oil separators.

The specific future tenants of the buildings proposed as part of the Master Plan Project are unknown at this time. As the design progresses and future tenants are identified, the Proponent will apply for Sewer Discharge permits, as required, based on the anticipated type of wastewater discharge, from the appropriate federal, state and local agencies.

Buildings that will include a restaurant, cafeteria or other food service facilities will include appropriately sized grease traps. The grease trap (including installation) will comply with applicable federal, state and local standards.

The Boston Smart Utilities Standards have been reviewed and the appropriate guidelines of the Standards will be incorporated into the infrastructure layout where feasible. Sewer mains/laterals and other utilities will be installed in a staggered order, approximately 3 feet apart horizontally where feasible. This staggered layout will provide for a more efficient system by reducing roadway disruptions and building point of entry locations to one area, as well as limiting the amount of horizontal and vertical utility conflicts. See Section 10.6 for additional information regarding the Boston Smart Utilities Standards.

In connection with the Master Plan Project, the Proponent will apply for an MWRA 8M Permit whenever the proposed work will require building, constructing, excavating, connecting to, or crossing within or near to an existing MWRA sewer line and/or easement.

The proposed wastewater layout may require a new MWRA sewer meter. The Proponent will coordinate with the MWRA and BWSC, as required, during the design and construction of the sanitary sewer system. If the meter is required, the Proponent will coordinate the permitting of the meter with the MWRA on the behalf of BWSC.

10.5 Domestic Water and Fire Protection

10.5.1 Existing Water Supply System

Figure 10.6 depicts the existing water supply system that serves the Project Site. The MWRA operates transmission mains near the Project Site in both Boston and Revere. The BWSC and the Revere DPW purchase finished water (fluoridated and disinfected) from the MWRA.

BWSC maintains and operates the water distribution system in Boston. The BWSC distribution system is divided into four service zones. East Boston, Charlestown and Allston are serviced by the Northern Low Service ("NLS") zone. An additional small area of the Orient Heights section of East Boston is served by a single connection to the MWRA Northern High Service ("NHS") zone. Based on information provided by the BWSC, the water distribution network near the Project Site appears to be served by the NHS. The existing water service to the Project Site originates from the 10-inch portion of the water main adjacent to 97 Waldemar Avenue.

Five water mains exist in Winthrop Avenue north of the Project Site in Revere. The MWRA has three transmission mains consisting of 30-inch, 24-inch and 16-inch water mains. The City of Revere owns and operates the remaining two mains consisting of 14-inch and 12-inch water mains. Existing water service to the Project Site originates from the 14-inch water main and serves the stable areas from multiple locations. An existing eight-inch City of Revere water main in Tomasello Drive also exists.

A more detailed discussion of the existing water supply system was provided in Chapter 8, *Infrastructure*, of the EENF/EPNF.

10.5.2 Proposed Water Demand

The Master Plan Project's estimated potable water demand has been determined by increasing the projected wastewater demand by a factor of 10 percent to account for consumptive losses. The currently estimated peak water demand has been calculated by applying a peaking factor of 2.5 to the average daily water flow, which accounts for increased summer usage including cooling water makeup and irrigation. The BWSC has indicated that using a peaking factor of 2.5 is conservative for a project of this size and with this mix of uses, which may cause some components of the water distribution system to be overdesigned. The BWSC and project team will continue to work together to determine a more appropriate anticipated peaking factor, as the design progresses.

Depending on the Master Plan Project's final mix of uses, the net new maximum anticipated average daily and peak flow water demands are anticipated to range from approximately 2.4 to 2.7 (average daily) and 6.0 to 6.6 (peak flow) MGD[1]. The higher water demand is associated with a program that includes more residential use.

Water Conservation Measures

The following water conservation techniques will be evaluated and integrated as feasible:

- Stormwater reuse for irrigation or other purposes;
- Use of low flow plumbing fixtures;
- Recycling and/or reuse of water;
- Native, drought tolerant planting species in landscaping design; and
- Rain gauges to determine the volume of natural water provided to landscape areas.

10.5.3 Proposed Water Distribution System

Water service will be provided to the Master Plan Project through a network of water distribution mains that will be developed on the Project Site as each parcel or group of parcels is constructed. The water mains will be located within the Master Plan Project's roadway network. The proposed street network for the Master Plan Project is planned to be maintained under private ownership. Easements will be created for all new public water main infrastructure elements required for the Master Plan Project, enabling public agencies to have the necessary rights to maintain and access the public water components as needed. This process will be coordinated with BWSC and the City of Revere. The layout of the infrastructure and related easements will be further developed as the design progresses.

The water system configuration has been designed to the applicable design standards and standard engineering practice (refer to the Schematic 80-scale

1 Accounts for existing water use associated with the current Off Track Betting use as described in the previously submitted EENF/EPNF (approximately 30,000 gpd).

Schematic Grading, Drainage and Utilities Plan in Appendix H). All water mains will be looped to prevent stagnation in the mains. The water supply will be protected by installing backflow protection devices on the fire protection service connections and on the domestic water systems wherever cross-contamination could potentially occur. The water mains will be sized to ensure that adequate fire flow will be provided to all buildings and water mains will be constructed in compliance with City of Boston and City of Revere standards.

The system was designed to enable the City of Boston to supply drinking water to the portion of the Master Plan Project in Boston, and the City of Revere to supply drinking water to the portion of the Master Plan Project in Revere. The design includes a normally closed gate valve at the city line to ensure each municipality has a stand-alone system. In the event of an emergency, the valve could be opened, and water would be able to flow between the cities. Since the water systems will be completely separate (under normal conditions) and the Boston system may be developed before the Revere system or vice-versa; redundant connections will be incorporated into the design for both sides of the system.

The Master Plan Project's water system will be on the Northern High pressure zone. Primary service for both Revere and Boston will be obtained through two new MWRA meter pits that will be installed off of the existing 30-inch MWRA main in Winthrop Avenue. One-meter pit will serve the Revere parcels and one-meter pit will serve the Boston parcels, for the primary service to the Project Site. Redundant connections will be provided for both the Boston and the Revere systems, as referenced above and described further below.

Refer to Figure 10.7, which depicts the broader water distribution system, including off-site components.

Specifically, the proposed Boston water system will connect to the 30-inch MWRA distribution main within Winthrop Avenue, in Revere. A dedicated BWSC meter pit off the 30-inch MWRA main will be required. A network of new water mains will be installed off the meter to supply the Boston portion of the Project Site with drinking water. Redundancy will be achieved by connecting the proposed water system into the BWSC water system at the existing Suffolk Downs service connections off of Waldemar Avenue. A portion of the existing water main in Waldemar Avenue will be upgraded to new 12-inch ductile iron main to improve the capacity and pressure.

The proposed Revere water system will connect to the 30-inch MWRA ductile iron transmission main in Winthrop Avenue. For redundancy, a second MWRA connection is proposed off the 24-inch MWRA ductile iron transmission main in Winthrop Avenue. A dedicated Revere meter pit off the 30-inch MWRA main and a second dedicated Revere meter pit off the 24-inch MWRA main will be required. A network of new water mains will be installed off the meter to supply the Revere portion of the Master Plan Project.

Since the primary water connection to the BWSC and City of Revere water systems will be connected directly to newly installed MWRA meter pits through dedicated

water mains, the proposed water demands are not anticipated to adversely affect other projects that are approved by or under review from the BPDA or the City of Revere, scheduled infrastructure improvements in the area, or nearby large-scale developments. The proposed new BWSC meter pit off the 30-inch MWRA main in Winthrop Avenue, and upgrades to the BWSC water main on Waldemar Avenue will be beneficial to nearby BWSC customers as it will improve their water service and provide an additional water supply source. The parcels in Revere will be serviced by direct connections to the MWRA water mains and therefore the Master Plan Project is not anticipated to impact the City of Revere's existing customers.

The Proponent has presented the proposed water system design to BWSC, MWRA, and the City of Revere. BWSC, MWRA and the City of Revere have agreed that the proposed design is feasible and that they are able to provide the Master Plan Project with water. As the design progresses the details of the water layout will be further refined.

The Master Plan Project will be developed in phases. When the initial development phase in Boston is constructed, interim water connections to the existing BWSC system will be developed. The interim water connections for this phase will be to the existing BWSC water mains on Waldemar Avenue and the existing BWSC water main on Walley Street (the water mains are on the Northern High pressure zone). Two water connection points are required to provide redundancy to the system. The Proponent will work with BWSC and utilize its water distribution system model to evaluate the capacity and any limitations of this system as the design progresses. Figure 10.8 illustrates the proposed interim water connections for the initial development phase in Boston.

When the initial development phase in Revere is constructed, the water supply for this phase will be provided by connecting to the MWRA water mains in Winthrop Avenue in the same manner as described for the Revere Master Plan water connection points. Interim water connection points are not required for the initial development phase in Revere.

Several different Boston and Revere water connection points were also evaluated in the design process; however, for various reasons these routes were not selected as the preferred alternative. If these alternatives become a preferred alternative or an interim condition in the future, the associated permitting and impacts will be evaluated at that time. Refer to Appendix H for a memorandum and supporting graphics describing the water alternatives that were evaluated.

Agency Coordination

The Proponent and members of its project team have been working closely with BWSC, MWRA, and the City of Revere. They have met on several occasions with each agency to discuss the proposed water distribution system to ensure that the Master Plan Project's infrastructure will be designed in accordance with applicable standards and that the receiving utilities are able to supply the proposed demand.

The Proponent and members of its project team met with BWSC on March 28, 2018, on April 27, 2018, and again on June 12, 2018 to discuss the proposed water system. BWSC indicated that its existing water distribution network could not support the Master Plan Project's domestic water supply requirements without causing pressure problems within the Orient Heights neighborhood. BWSC indicated that it may be able to support a secondary/redundant connection at the existing Waldemar Avenue service connection if the primary water service connection point is off of the MWRA transmission main. They also indicated that the interim condition to support the initial phase in Boston may be able to be accommodated by the City's water network.

On April 20, 2016, BWSC conducted fire flow tests on the municipal water system near the existing Project Site water service connections. The results of the fire flow tests were used to supplement BWSC's existing water distribution system model. The Proponent and members of its project team intend to utilize the BWSC model to further verify that the existing water distribution system can support the proposed water system and usage and to evaluate the proposed interim connection.

The City of Revere has conducted some initial water distribution system modeling in the area of the Master Plan Project. The results of the water distribution system modeling indicated that the City of Revere cannot support all of the Master Plan Project's water supply demands in Revere without causing pressure problems to the City's existing customers. The City of Revere recommended that the Revere portion of the Master Plan Project obtain its water supply from the MWRA mains located within Winthrop Avenue.

The Proponent and members of its project team also met with the MWRA on May 24, 2018. MWRA indicated that the proposed connection points to the MWRA water lines in Winthrop Avenue to serve the Master Plan Project are feasible and that there is adequate capacity and pressure to serve the development.

Domestic Water Regulatory Compliance

The Proponent and members of its project team will work with the applicable permitting agencies (MWRA, BWSC, City of Revere, etc.) to permit the water system for the Master Plan Project according to the applicable regulations.

The proposed water system will comply with applicable local, federal and state requirements and will be constructed in accordance with BWSC and City of Revere standards.

The Master Plan Project will obtain an MWRA 8M Permit whenever the proposed work will require building, constructing, excavating, connecting to or crossing within or near to an existing MWRA water line and/or existing easement.

The proposed water layout will require new MWRA water meters. The Proponent will coordinate the permitting of the new water meters with the MWRA on the behalf of BWSC and the City of Revere.

The Boston Smart Utility Standards have been reviewed and the appropriate guidelines of the Smart Utility Standards will be incorporated into the layout of the infrastructure where feasible. Water mains/laterals and other utilities will be installed in a staggered order, approximately 3 feet apart horizontally where feasible. This staggered layout will provide for a more efficient system by reducing roadway disruptions and building point of entry locations to one area, as well as limiting the amount of horizontal and vertical utility conflicts. See Section 10.6 for a more thorough discussion of the Boston Smart Utilities Standards.

10.6 Smart Utilities

The following sections summarize the approach to addressing the City of Boston's Smart Utilities Policy in connection with the Master Plan Project.

10.6.1 District Energy Microgrid

As described in Section 7.3.6 of Chapter 7, *Greenhouse Gas Assessment*, the Proponent has evaluated the technical and financial feasibility of a district energy/microgrid system.

10.6.2 Telecommunications

Telecommunications infrastructure will be designed in a manner that will promote utilities that are easier to build, maintain and upgrade. A Telecom Utilidor will be incorporated in the Master Plan Project where feasible, to reduce street disruption, provide efficient use of underground space and promote equitable access to telecom infrastructure. A Telecom Utilidor is a consolidated approach to telecommunications utilities, in which all telecommunication conduits are housed in a single duct bank. This consolidates the wiring installed within the right-of-way for cable, internet, and other telecom services, and includes space to add more wiring in the future. Wiring within the Telecom Utilidor will be accessible through manholes, thereby decreasing the surface street disruptions when telecom utility upgrades/changes are required and when subsequent providers want to add assets.

The availability of current and proposed telecommunications in the area, location of roadways, buildings and water table will be assessed during the design of the Telecom Utilidor. The Proponent will coordinate with local telecommunication providers for the design of the Utilidor.

The Proponent has completed the online Article 80 Broadband Ready Buildings Questionnaire for the Master Plan Project.

10.6.3 Green Infrastructure

The Master Plan Project will incorporate green infrastructure where feasible to assist in absorbing, delaying, detaining and treating stormwater to reduce flooding and pollution downstream of the Project Site.

The Master Plan Project will incorporate an extensive street tree network which will be designed with a filtration system to provide treatment for sidewalk and plaza runoff. Where feasible, pocket rain gardens/bioretention components will be installed within plaza areas and the roadway network. Several of the Master Plan Project's buildings will include green roofs, thereby reducing the impervious surfaces across the Project Site. Where feasible, roof runoff will be directed to cisterns so that it can be reused as irrigation water for the proposed landscape elements, particularly in the Central Common.

BWSC requires that all projects that discharge to BWSC infrastructure retain the volume generated by the first one inch of rainfall from the impervious area on-site for infiltration or reuse. Under the City of Boston Smart Utilities Policy, this standard is elevated through a recommendation that projects utilize green infrastructure to retain, on site, a volume of runoff equal to 1.25 inches of rainfall times the total impervious area prior to discharge. Although the Master Plan Project will discharge to its own privately maintained and operated stormwater management system, and BWSC has agreed that this rule does not apply, the Proponent and its project team is targeting re-using or retaining the volume of the first 1-inch of runoff on-site to the maximum extent practicable. This will be accomplished through the on-site infiltration system, rainwater reuse, bio-retention systems, and tree-filters. The existing Project Site is not conducive to infiltration due to high groundwater and existing urban fill soils; therefore, it may not be feasible to retain or infiltrate this volume of stormwater runoff.

Refer to Section 3.9.3 of Chapter 3, *Urban Design*, for additional detail on proposed green infrastructure associated with the Master Plan Project.

10.6.4 Adaptive Traffic Signal Technologies

The Project will include new signals and improvements to existing signals at certain intersections surrounding the Project Site. At intersections where new or fully upgraded signals are proposed as part of the Project, the signal systems will be equipped to be linked together in the future. AST, as defined in the BPDA Smart Utilities Policy, utilizes intelligent signals, traffic cameras, pavement sensors, and visual monitoring equipment to manage traffic flow in real-time of all transportation modes, including buses, pedestrians, and bicycles. The technologies are used to reduce wait time and facilitate throughput and safety at intersections.

10.6.5 Streetlight Installation

All street lights installed as part of the Master Plan Project will be designed with electrical and fiber optics connections. Smart sensors, Wi-Fi, or cameras could be installed on these street lights since they will include electrical and fiber optic connections. As the design progresses the Proponent will evaluate incorporating these features onto the street lights.

Smart sensors on streetlights can detect changes in air quality, noise pollution, gunshots and other important healthy urban environment elements. The smart sensors could optimize the use of City resources to the most appropriate situation.

Public Wi-Fi access points may be installed on the light poles and embedded in building facades. The access points could transmit Wi-Fi services to residents and businesses which would promote equitable access to data services.

Smart street lighting may be incorporated to reduce energy usage while maximizing the safety for pedestrians and drivers.

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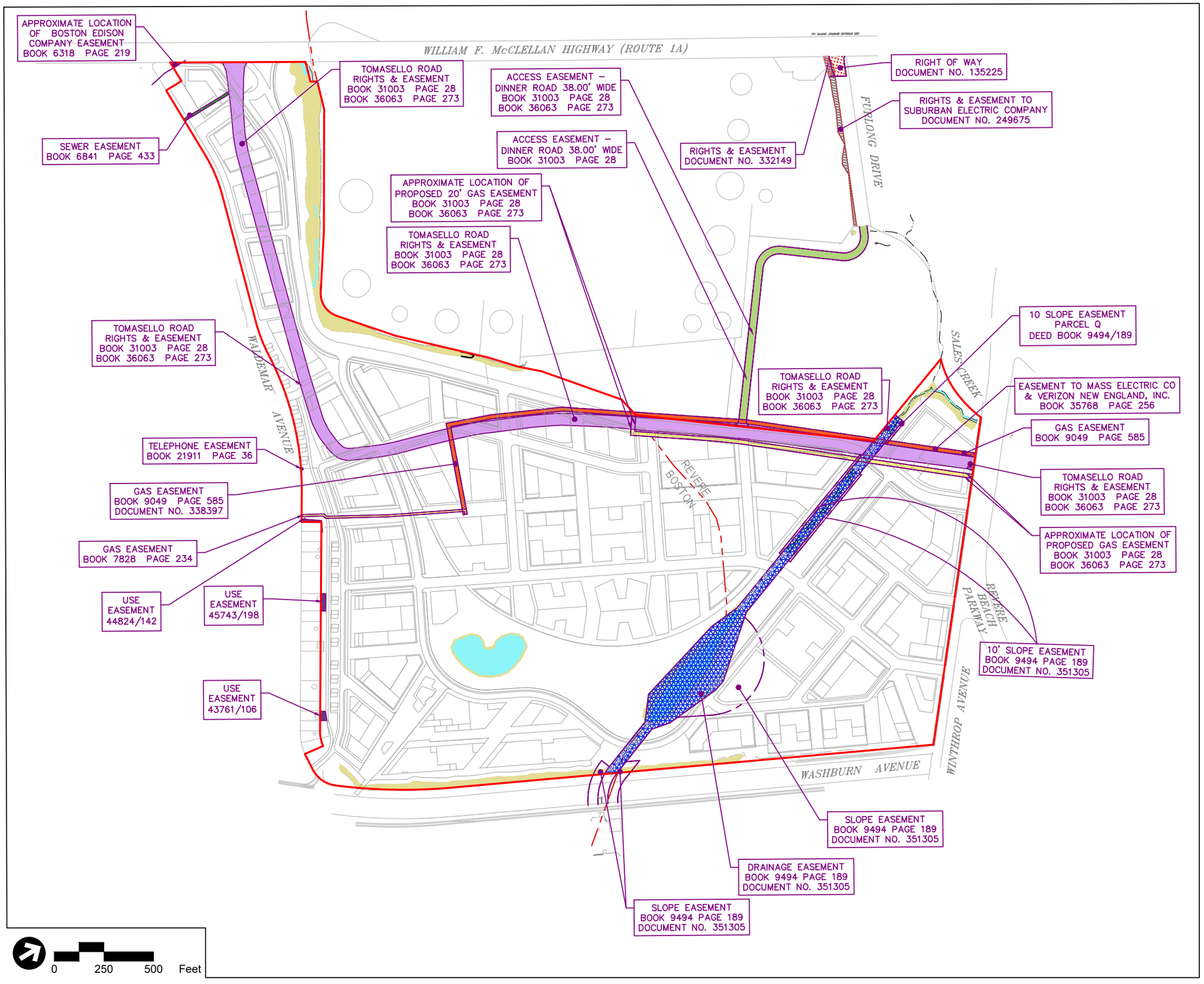


LEGEND

- TOMASELLO ROAD EASEMENTS
- DINER ROAD EASEMENT
- USE EASEMENT
- SLOPE EASEMENT (DCR)
- SALES CREEK DRAINAGE EASEMENT
- GAS EASEMENT
- GAS & ELECTRIC EASEMENT
- ELECTRIC EASEMENT
- TELEPHONE EASEMENT
- SEWER EASEMENT
- WATER
- WETLANDS
- RIGHT OF WAY
- RIGHTS & EASEMENTS
- RIGHTS & EASEMENTS

Source:
ATLA/NSPS Land Title Survey Plans prepared by Beals and Thomas, Inc. and dated May 24, 2017. (file name: 285401P019B.dwg)

Figure 10.1

Easement Exhibit

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

- Project Site
- Municipal Boundary
- Proposed Stormwater Basin/Subsurface System
- Proposed Water Quality Inlet/Basin
- Proposed Drainage System
- Proposed Drainage Discharge Network
- Water Bodies/Waterways
- Bank or Bordering Vegetated Wetland

Source:

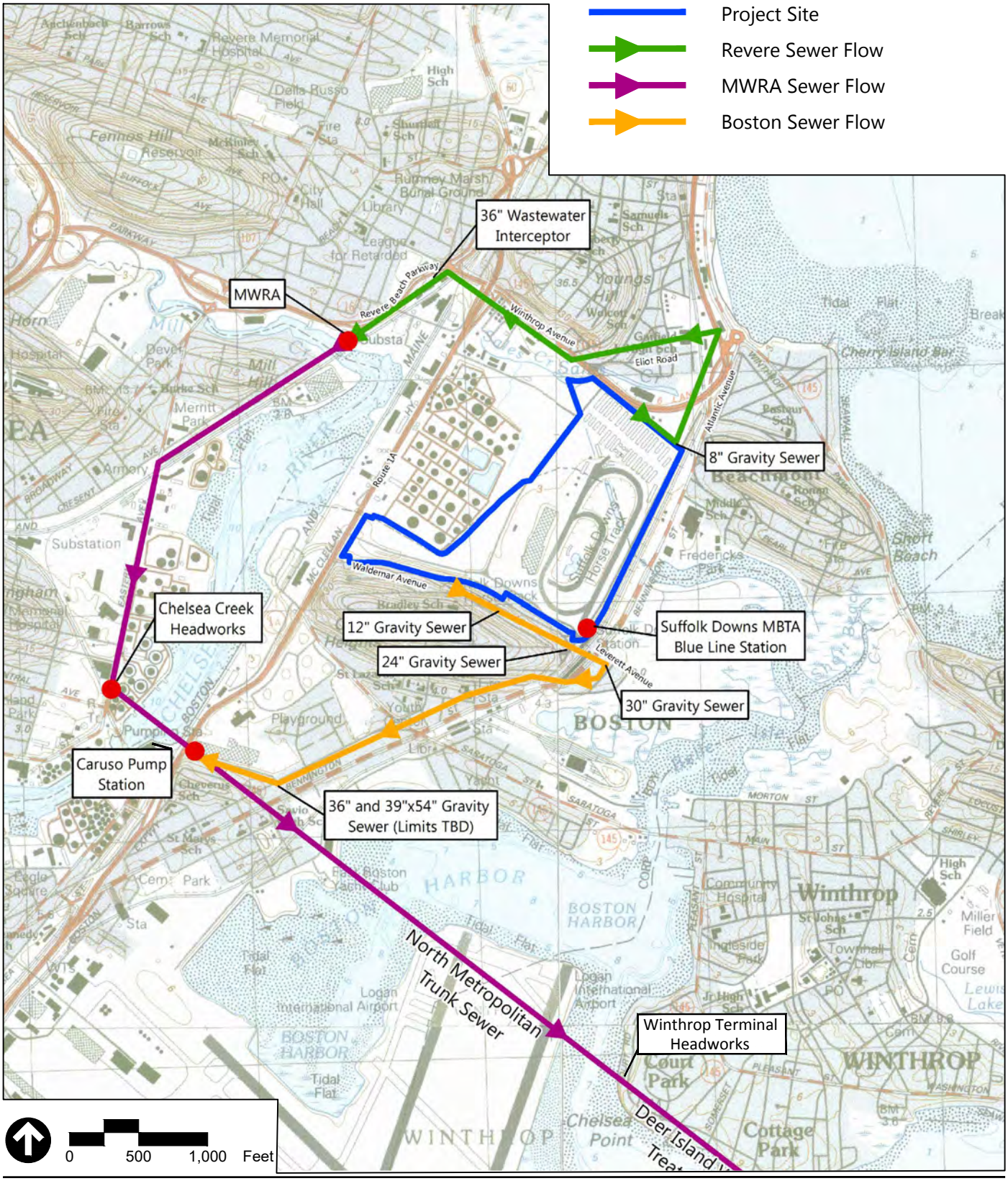
Digital orthophotograph, MassGIS 2014.

Figure 10.2

Stormwater Managment Facilities

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.



Source:
Sewer lines estimated from Environmental Notification Form "Caesars Resort at Suffolk Downs, Boston and Revere, Massachusetts" dated January 31, 2013, EEA No. 15006. Sewer alignments are illustrative and do not necessarily represent actual locations.

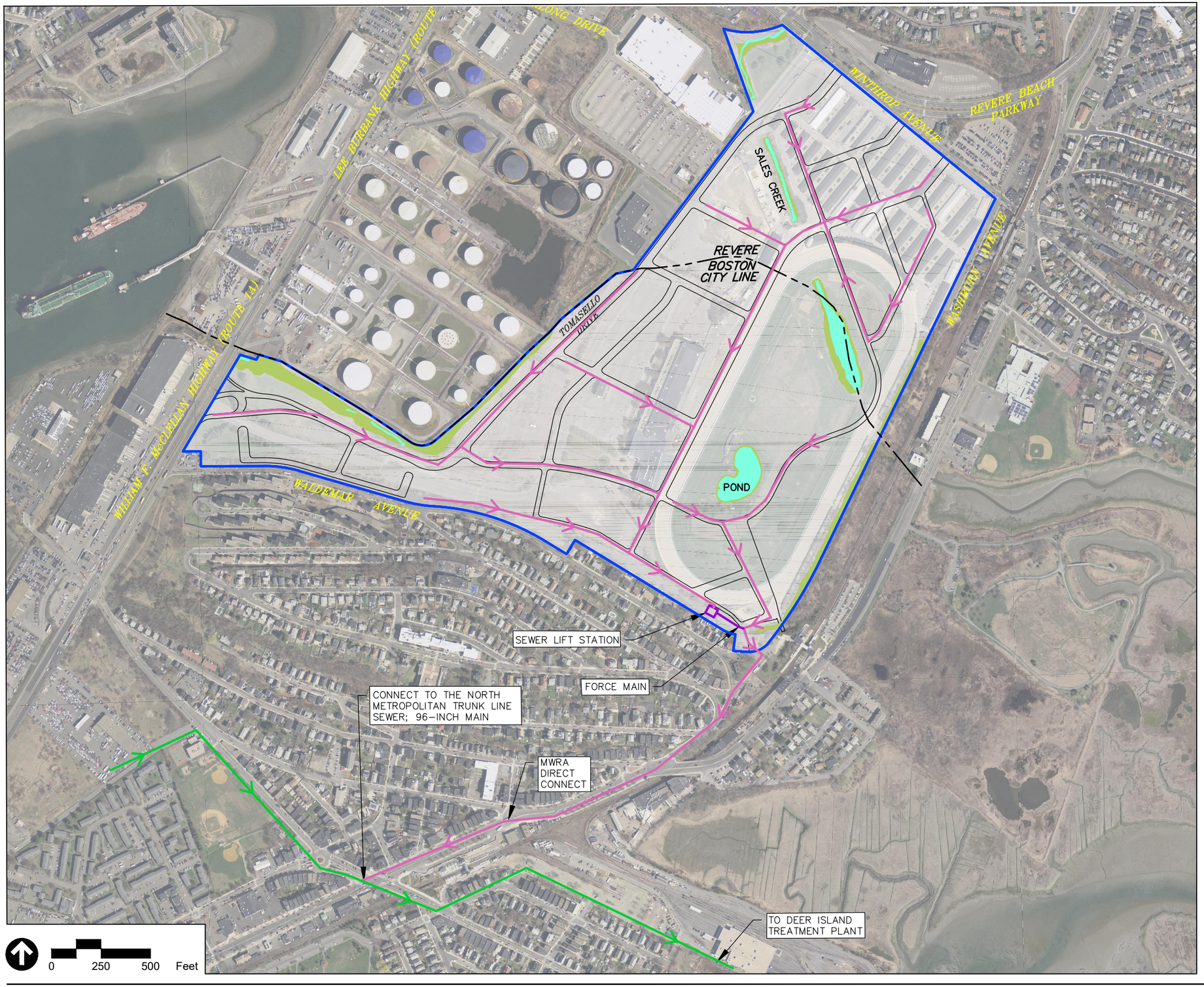
Digital USGS Maps of Boston North and Lynn, MA, dated 1985, provided by MassGIS.

Figure 10.3

Existing Wastewater Infrastructure

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.



- Project Site
- Municipal Boundary
- Proposed Wastewater System
- MWRA Sewer Line
- Proposed Sewer Force Main and Lift Station
- Water Bodies/Waterways
- Bank or Bordering Vegetated Wetland

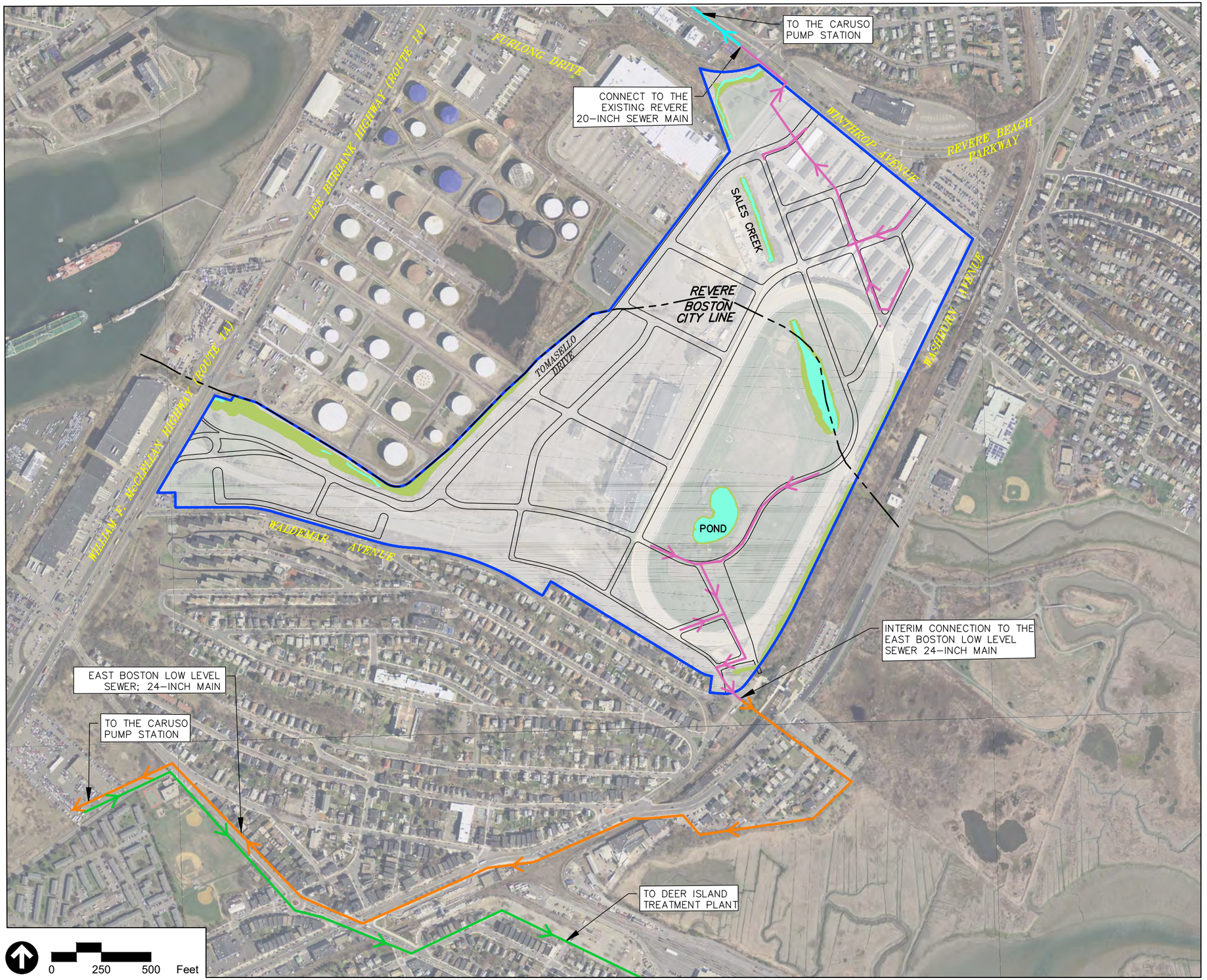
Source:

Digital orthophotograph, MassGIS 2014.

Figure 10.4

Proposed Wastewater System

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



- Project Site
- Municipal Boundary
- Proposed Wastewater System
- MWRA Sewer Line
- East Boston Low Level Sewer Line
- Revere Sewer Main
- Water Bodies/Waterways
- Bank or Bordering Vegetated Wetland

Source:

Digital orthophotograph, MassGIS 2014.

Figure 10.5

Interim Wastewater Connection

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.

Source:
Underground utilities were taken in part from electronic file 9180.1_TOPO1.dwg prepared by Nitsch Engineering dated February 3, 2014, record plans prepared by municipal and public utility providers, as well as surface evidence.

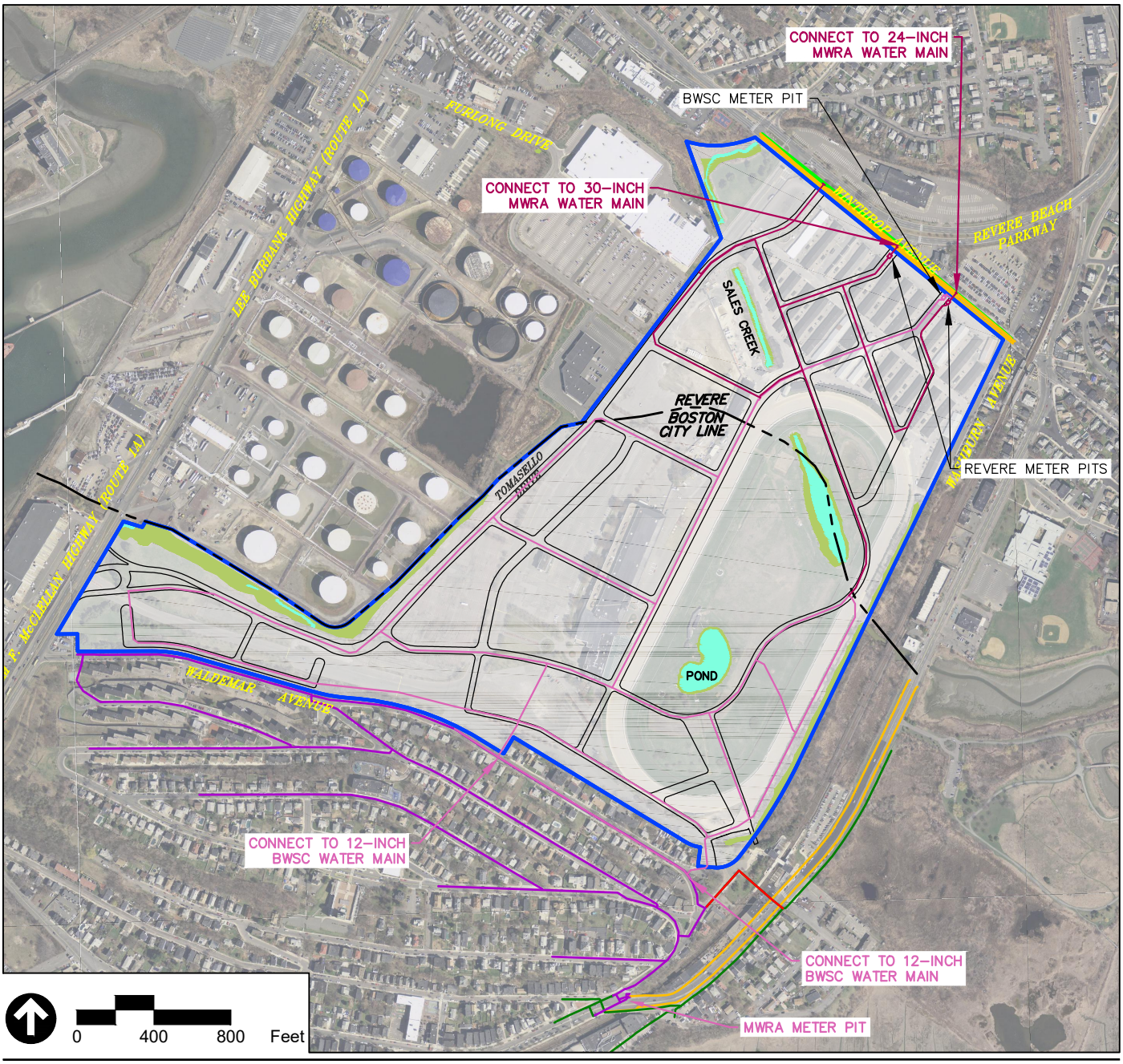
Digital orthophotograph, MassGIS 2014.

Figure 10.6

Existing Water Infrastructure

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.



Source:
Underground utilities were taken in part from electronic file 9180.1_TOPO1.dwg prepared by Nitsch Engineering dated February 3, 2014, record plans prepared by municipal and public utility providers, as well as surface evidence.

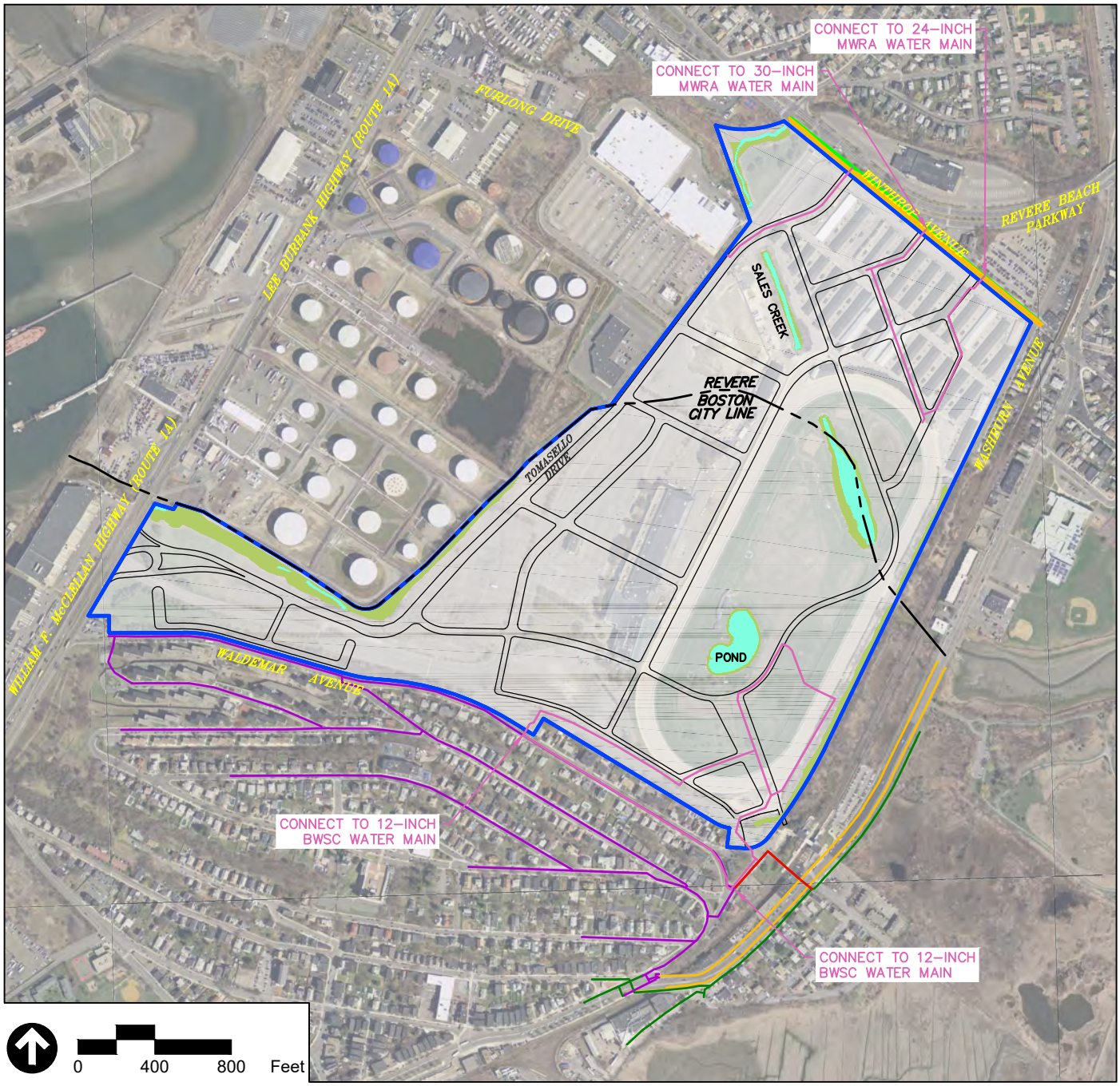
Digital orthophotograph, MassGIS 2014.

Figure 10.7

Proposed Water Infrastructure

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.



Source:
Underground utilities were taken in part from electronic file 9180.1_TOPO1.dwg prepared by Nitsch Engineering dated February 3, 2014, record plans prepared by municipal and public utility providers, as well as surface evidence.

Digital orthophotograph, MassGIS 2014.

Figure 10.8

Interim Water Connection

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Prepared by Beals and Thomas, Inc.

11

Historic Resources

This chapter identifies properties located within and in the vicinity of the Project Site that are listed in the State and National Registers of Historic Places ("State and National Registers"), and/or are included in the Inventory of Historic and Archaeological Assets of the Commonwealth (the "Inventory"). This chapter also describes potential direct and indirect impacts to historic resources associated with the Master Plan Project.

As requested in the EEA Secretary's Certificate on the EENF, this chapter provides information on the following topics:

- An evaluation of alternatives to eliminate or reduce adverse impacts to historic resources, including adaptive reuse of existing on-site buildings;
- Identification of potential alterations of the Revere Beach Parkway, as they relate to traffic improvements/mitigation; and
- Measures proposed as part of the Master Plan Project to mitigate adverse impacts to historic resources.

11.1 Summary of Key Findings and Benefits

The key findings related to historic resources include:

- The Project Site includes the Suffolk Downs property, which is included in the Inventory. Suffolk Downs is not listed in the State and National Registers.
- The Suffolk Downs race track is no longer an economically viable facility and the existing buildings associated with the race track are in poor condition, underutilized, and cannot meet the projected uses or needs of the Master Plan Project.
- There are six historic resources located within a one-quarter-mile radius of the Project Site, consisting of Revere Beach Parkway and five properties included in the Inventory.
- No previously identified archaeological resources are located within the Project Site or immediate vicinity, and no impacts to archaeological resources are anticipated as a result of the Master Plan Project.

11.2 Regulatory Context

11.2.1 Massachusetts Historical Commission

Massachusetts Historical Commission ("MHC") has review authority over projects requiring state or federal funding, licensing, permitting, and/or approvals, in order to evaluate potential direct or indirect impacts to properties listed or eligible for listing in the National and State Registers of Historic Places, in compliance with State Register Review requirements (M.G. L. Chapter 9, Sections 27-27c, as amended by Chapter 254 of the Acts of 1988) and Section 106 of the National Historic Preservation Act of 1966 (if necessary).

In its EENF comment letter dated January 18, 2018, MHC determined that the proposed Master Plan Project demolition and new construction will have an adverse effect on the historic Suffolk Downs complex through the demolition of all or part of the property and the introduction of visual elements that are out of character with and will alter the setting of the property. MHC's comments are addressed in this DEIR, which serves to continue MHC consultation, in accordance with 950 CMR 71.00.

11.2.2 Boston Landmarks Commission

The submission of the EENF/EPNF initiated Boston Landmarks Commission (BLC) review of the Master Plan Project under the BPDA Article 80B, Large Project Review process, in association with the Boston Environment Department.

Buildings on the Project Site (outside of the Phase 1 Project Site) within Boston that are over 50 years old are subject to Article 85 of the Boston Zoning Code (referred to as "Demolition Delay"). A Demolition Delay application will be submitted to the BLC for the Master Plan Project, following the submittal of the DEIR/DPIR and prior to demolition of buildings within Boston that are 50 years or older.

11.3 Historic Resources

A review of the State and National Registers and Inventory was undertaken to identify previously recorded above-ground and archaeological resources on or within a one-quarter-mile radius of the Project Site. The Project Site contains Suffolk Downs, which is included in the Inventory (MHC Area BOS.ABQ). In addition, one National Register District (Revere Beach Parkway), and four inventoried properties are located within a one-quarter-mile radius of the Project Site.

The names and addresses of properties listed in the State and National Registers and included in the Inventory within a one-quarter-mile radius of the Project Site are listed in Table 11-1 and depicted in Figures 11.1. through 11.3 include photographs of the on-site resources. A complete description of the historic resources was provided in Chapter 7, *Historic Resources*, of the EENF/EPNF.

Table 11-1 Historic Resources On-Site and within ¼-Mile of the Project Site*

Map ID	Resource Name	Location	MHC Inventory No.	Designation
A	Revere Beach Parkway	N/A	REV.H	NRDIS
1	Suffolk Downs	111 Waldemar Avenue, Boston	BOS.ABQ / REV.J	INV
2	Our Lady of Lourdes Catholic Church Complex	1, 2, Endicott Avenue, Revere	REV.G	INV
3	Residence	54-56 Orient Avenue, East Boston	BOS.109	INV
4	Residence	75-79 Orient Avenue, East Boston	BOS.112	INV
5	Don Orione Complex	111, 120-150 Orient Avenue, East Boston	BOS.110, 111, 113, 114, 902	INV

* Refer to Figure 11.1 for the location of these resources.
NRDIS National Register of Historic Places, Historic District
INV Listed in the Inventory of Historic and Archaeological Assets of the Commonwealth; no current designation

11.4 Evaluation of Potential Impacts to Historic Resources

11.4.1 On-Site Construction

Suffolk Downs was the first thoroughbred race course in the Commonwealth. Today, given horse racing has been in serious decline, it is also the only remaining race course in Commonwealth. Suffolk Downs opened in July 1935 and at its height in the 1930s and 1940s sponsored 200 days of racing annually. In 1976, the Suffolk Downs MBTA Station inbound platform was destroyed by fire, which exacerbated already drastically reduced track attendance. Attendance continued to decline through the 1980s and 1990s, in which the facility saw changes in ownership and its ultimate closing in 1989 with short-lived re-openings in the early 1990s and early 2000s. Its historic peak of operations is in sharp contrast to current operations at the track, which consisted of only six days of live racing in 2018 due to the great decline of support for the sport.

The current improvements at Suffolk Downs were created for the purpose of thoroughbred horse racing and pari-mutuel betting. Given the particular necessities of this use, the existing buildings and grounds do not lend themselves to be feasibly or economically adapted for other uses. And given the demise of horse racing, this prime development site near the heart of a thriving urban economy with easy access to public transportation is proposed to be developed for other uses. The no-build alternative, in the absence of a viable horse race industry, is not a feasible alternative.

The material demise of the racing industry has left the Project Site and Proponent with no practical alternative that would support the preservation of the existing buildings and grounds in their current configuration. Due to the greatly diminished public interest in horse racing, the racetrack and related improvements at the Project Site are no longer an economically viable facility. The existing buildings associated with the race track are single-purpose built, in very poor condition, extremely underutilized, have not been maintained, and cannot meet the projected needs of the Master Plan Project. As such, the Master Plan Project proposes demolition of the clubhouse, grandstand, race track, and ancillary buildings.

In its EENF comment letter dated January 18, 2018, MHC stated that demolition and new construction will have an adverse effect on the Suffolk Downs complex through the demolition of all or part of the property and the introduction of visual elements that are out of character with and will alter the setting of the property.

As part of project planning and at the request of MHC, the Proponent undertook an analysis of the complex to consider potential alternatives to retain and reuse existing buildings and structures as part of the Master Plan Project. In addition, MHC requested that a description and assessment of potential impacts to Revere Beach Parkway be provided.

The results of the building assessment are summarized below, in addition to a description of proposed Revere Beach Parkway improvements.

Suffolk Downs – Clubhouse, Grandstand, Race Track, Maintenance Facility, Administration Buildings, Stables, and Ancillary Buildings

Clubhouse (BOS.209)

Originally built in 1935 as a two-story concrete and steel structure with open roof deck to observe races, the clubhouse has been extensively altered from the original, including renovations in 1953 and 1962. It was constructed as a free-standing structure, but was later incorporated into the grandstand, had an enclosed third floor added, has had its windows changed, and in its last major construction campaign, an additional tower was added. As a much-altered, single-purpose building, no viable use has been identified for the clubhouse building in the Master Plan Project.

Grandstand (BOS.16592)

The core of this building, built in 1935, is a concrete and steel structure with tiered floors. It was altered in 1947, 1952, 1962, and 1991. Because of the tiered, stepped, and sloped floors, the grandstand has no viable reuse other than to house spectators focused on a single event, for which there is no use in the Master Plan Project.

Administration Building (BOS.16593)

Now referred to as the office building, the administration building, when originally constructed in 1935, was part of a complex including a paddock, small arena, and walking circle. The building now stands alone, surrounded by a paved parking lot. Following severe storm damage in 2012 during which the roof collapsed, administrative functions were relocated into the clubhouse and grandstand and the building was proposed for demolition. While the building is still standing, it is in very poor condition with extensive structural and water damage and deterioration.

Race Track (BOS.9754/REV.968) and Harness Racing Track (BOS.9755)

The track was constructed in 1935 (race track) and 1962 (harness racing track). In the absence of horse racing, the race track has no other feasible or viable use.

Pony Barn (REV.87)

Constructed in 1935, the curved, wood pony barn is in extremely poor condition. It has not been used in over a decade and is in extreme disrepair with areas of collapse. The pony barn has no other reasonable use other than support of thoroughbred racing.

Stables (REV.86)

The stables were constructed in 1935 as purely utilitarian structures to house visiting horses. They were minimally maintained throughout their life and have been left to the elements to deteriorate. When they were in use and required repair, aluminum or vinyl siding was applied to stave off further repair. The artificial cladding has further exacerbated deterioration of the wood elements. If horse racing were a viable industry at the Project Site, the stables would all need to be replaced as they are in poor condition and do not meet International Federation of Horseracing standards. As single-purpose built stables, there is no reasonable or feasible reuse for the stables as part of the Master Plan Project.

Pump House (REV.969)

The sewerage pumping station, constructed ca. 1950, served the complex, but is no longer in use. With the demolition of the clubhouse, administration building, and grandstand there is no further need for its function. Based on the small size of the building, its utilitarian design, the obsolescence of its equipment, and of the buildings it was built to serve, there is no alternative for reuse of the pump house as part of the Master Plan Project.

Maintenance Building (REV.88)

The maintenance building, constructed in 1955, is a one-story steel-framed utilitarian storage building that is in poor condition. It is currently used to house track maintenance equipment. The building has no viable reuse potential in the Master Plan Project.

As an ensemble, the buildings and structures served a single, special use of thoroughbred horse racing. However, preservation of the complex to support this special purpose has proven economically infeasible. Adaptive reuse of any of the individual buildings or structures is infeasible because of the singularity of function, physical constraints of the structures, and with many, because of dereliction and dilapidation.

The Proponent recognizes the history of the Project Site and its significance to Boston, Revere and the region. A mitigation program is being developed to document the complex and celebrate its history as part of the overall site planning. Potential mitigation measures are described below in Section 11.5.

11.4.2 Off-Site Roadway Improvements

As detailed in Section 6.10, of Chapter 6, *Transportatio*n, the Master Plan Project will include improvements at two locations along Revere Beach Parkway to address existing traffic, pedestrian, and safety issues. Transportation improvements are proposed at two intersections:

- Route 1/Revere Beach Parkway (Route 16);
- Revere Beach Parkway (Route 145)/Winthrop Avenue/Route 16/Harris Street; and
- Revere Beach Parkway (Route 145)/Tomasello Drive/North Shore Road.

Revere Beach Parkway is under the jurisdiction of the DCR and MassDOT. Route 1, Route 16 northeast of Revere Beach Parkway (Route 145), and North Shore Road are under the jurisdiction of MassDOT. Tomasello Drive is a private way. Winthrop Avenue and Harris Street are under the jurisdiction of the City of Revere.

In its EENF comment letter, MHC requested the DEIR include a description and assessment of potential impacts to Revere Beach Parkway. The proposed improvements are described in Section 6.10. They are further described below, with emphasis on the potential impacts that these proposed improvements may have on Revere Beach Parkway at the two locations noted above.

Route 1/Revere Beach Parkway (Route 16)

Improvements at the Route 1/Revere Beach Parkway intersection are proposed to improve access between the two heavily traveled roads and finish the interchange by providing three missing turning movements. The proposed improvements have been designed to minimally impact Revere Beach Parkway and will have no impacts to character-defining elements of the parkway at this interchange, including the Alan J. O'Brien Bridge, sidewalks and planted grass strips, cobra head lights, and curvilinear roadway pattern.

The Route 1 intersection and the stretch of Revere Beach Parkway 16 in this area has been heavily altered since the Parkway was originally constructed. The curbing and median at the Route 1 intersection are not original to the Parkway. While the Route

1/Revere Beach Parkway intersection is heavily altered, extant elements identified in the Revere Beach Parkway National Register nomination include:

- Alan J. O'Brien Bridge;
- Sidewalk with planted grass strips;
- Cobra head lights;
- Curvilinear roadway pattern; and
- Paved median with metal guardrail (both replacement).

The proposed roadway improvement design includes:

- Reconfiguration of the Route 1 south ramp to Revere Beach Parkway west;
- Construction of a new traffic signal system on Revere Beach Parkway (southwest of Route 1) to allow Route 1 southbound traffic to travel to Revere Beach Parkway east (something that is now permitted only by executing a U-turn at Webster Avenue in Chelsea);
- Construction of a new traffic signal system (northeast of Route 1) to allow Revere Beach Parkway westbound traffic to travel to Route 1 north;
- Construction of a new ramp connection from Revere Beach Parkway to the Route 1 north ramp, a traffic movement that is not currently possible;
- Construction of a new ramp from Route 1 north providing access to Revere Beach Parkway west, a traffic movement that is not currently possible; and

The existing Revere Beach Parkway median will be removed in limited areas at both new traffic signal locations to accommodate the new turning maneuvers. The travel lanes on Revere Beach Parkway west will be revised from two to three lanes within the existing pavement by reducing the width of the existing paved left shoulder. The reconfiguration includes returning paved areas to landscaped areas.

As described above, proposed improvements at the Route 1 interchange will require two discrete curbs cuts and median cuts to accommodate the new Route 1 south off-ramp and new Route 1 north on-ramp and turning movements. The curbing in this area is replacement bituminous curbing and the median is replacement concrete with modern metal guardrails. In addition, the proposed roadway improvements incorporate new landscaped areas north of the parkway at the reconfigured Route 1 south and Revere Beach Parkway west ramps.

Revere Beach Parkway (Route 145)/Winthrop Avenue/Route 16/Harris Street

Improvements at the Revere Beach Parkway (Route 145)/Winthrop Avenue/Route 16/Harris Street intersection are proposed to improve pedestrian safety and to improve access between the two heavily traveled roads. The proposed improvements have been designed to minimally impact Revere Beach Parkway and will have no impacts to character-defining elements of the parkway at this

intersection, including the road alignment, sidewalks and planted grass strips, the median east of the intersection, cobra head lights, and the MBTA railroad bridge.

The Route 16 intersection and the stretch of Revere Beach Parkway has been altered since the Parkway was originally constructed. The curbing and median are not original to the Parkway. While the intersection is altered, extant elements identified in the Revere Beach Parkway National Register nomination include:

- Roadway alignment
- Sidewalks with planted grass strips
- Grassed median east and west of the intersection;
- Cobra head lights; and
- MBTA Bridge No. 4, immediately east of the intersection.

The proposed roadway improvement design includes:

- Widening the Route 16 northbound approach including construction of one additional lane – maintaining two through lanes accessing Route 16 east and adding a second right turn lane accessing Revere Beach Parkway east
- Pedestrian safety improvements throughout the intersection. The proposed traffic signal system will include pedestrian signals and eliminating conflicts with other vehicles passing through the intersection.
- Two left turn lanes will be added to the Route 16 west approach (MassDOT control) allowing direct movement to Revere Beach Parkway east.
- The Harris Street approach (currently under signal control) will be made one-way northbound, eliminating access from Harris Street (City of Revere jurisdiction) directly to Revere Beach Parkway.

The development of the second Revere Beach Parkway east right turn lane will require shifting the lanes to Route 16 east into and the narrowing of the existing median. The median will be narrowed between 1 and 11 feet then eventually 4′ at Winthrop Avenue extending from 450 feet southwest of Winthrop Avenue to Winthrop Avenue. The widening required to create the new lanes will largely utilize existing paved areas within the narrow breakdown lanes, as well as a reduction in the width of the median in the immediate vicinity west of the intersection. The outside curb line will be maintained, and the median will be landscaped with granite curb provided.

Revere Beach Parkway (Route 145) / Tomasello Drive / North Shore Road

Improvements at the Tomasello Drive and North Shore Road intersection are proposed to improve pedestrian safety, provide safe access to the Project Site, and improve Revere Beach Parkway access for the Revere Fire Department. The proposed improvements have been designed to minimally impact Revere Beach Parkway and will have minimal impact on character-defining elements of the parkway at this

intersection, including the road alignment, sidewalks and planted grass strips, cobra head lights, and granite curbing.

Revere Beach Parkway at Tomasello Drive and North Shore Road has been altered since the parkway was originally constructed; however, extant elements in this area identified in the National Register nomination include:

- Grassed median east of Tomasello Drive;
- Narrow concrete median east of North Shore Drive, which expands to a wider grassed median further to the west of the intersection;
- Cobra head lights;
- Vertical granite curbing; and
- Sidewalks with grass strips.

The proposed design includes (from west to east):

- Removal of a small portion (approximately 25 to30 feet) of the median north of the Revere Fire Department facility to allow fire equipment to access Revere Beach Parkway to the west (something that is now permitted only by executing a U-turn at Tomasello Drive);
- Widening Revere Beach Parkway up to 6 feet between Campbell Avenue and North Shore Road within the ROW to accommodate an extended left turn lane from eastbound Revere Beach Parkway/Winthrop Avenue to North Shore Road;
- Removal of a delta island at the northwest corner of North Shore Road and Revere Beach Parkway to increase sidewalk area and provide a greater buffer between Sales Creek and Revere Beach Parkway;
- Relocation of Tomasello Drive approximately 185 feet to the east;
- Closing the curb and median at the current Tomasello Drive intersection and construction of a new median and curbing that matches adjacent medians and curbing;
- Removal of a smaller portion of the curb and median to provide access from the relocated Tomasello Drive to Revere Beach Parkway west;
- Modification of the intersection of Revere Beach Parkway and Winthrop Avenue, including Winthrop Avenue curb line, increased size of the traffic island modification, and traffic signal improvements; and
- Removal of an existing pedestrian crosswalk and closing the median break near the intersection of Revere Beach Parkway and Winthrop Avenue; the new median will match the adjacent media.

11.4.3 Design and Visual Impacts

Chapter 3, *Urban Design*, describes urban design goals for the Master Plan Project, which are focused on connectivity and accessibility for the currently unconnected site. The conceptual design of the Master Plan Project is arranged around a strong

open space and public realm framework that provides an opportunity to reconnect the East Boston and Revere neighborhoods surrounding the Project Site. The Master Plan Project is not anticipated to have any visual impacts on any historic resources near the Project Site. Given the distance (shown on Figure 11.1) and intervening structures between the Project Site and nearby historic resources, no project-related impacts are anticipated to Our Lady of Lourdes Catholic Church Complex, Don Orione Complex, and Orient Avenue residences.

11.4.4 Shadow

The Proponent conducted a shadow analysis to assess potential project-related impacts that is summarized in Chapter 9, *Environmental Protection*, Section 9.2 and depicted in Figures 9.1 through 9.4. The shadow analysis focused on extant buildings, open spaces, residential areas, major pedestrian areas, and plazas in the Project Site vicinity.

The shadow analysis demonstrates that new shadow impacts from the Master Plan Project will be minimal and will not affect any historic resource or sensitive off-site areas in the vicinity of the Project Site.

11.5 Proposed Mitigation

As previously noted, the Proponent recognizes the historical nature of the racetrack facility at Suffolk Downs and its significance to Boston, Revere, and the region. The Master Plan Project is considering measures to incorporate elements of the history of the thoroughbred racing complex into portions of the proposed open space system, including:

- Inventory, Salvage, and Reuse of Certain Race Track Elements: An inventory will be undertaken to identify certain race track elements that could be reused within the on-site open space system and/or potential donation to local museums. Elements may include:
  - Race track endpoint marker
  - Horsehead flagpole bases and flagpoles
  - Starting gate
  - Portions of the scoreboard
  - Jockey bollards
  - Race track furlong marker
- Archive – Photographs, documents, paintings, and other collected horse racing memorabilia will be inventoried and gathered for potential inclusion on site and/or donated to local museums.
- Interpretive Exhibit – An interpretive exhibit will be developed and incorporated in a select area of the open space system.

The Proponent looks forward to continuing consultation with MHC to develop a mitigation plan to be implemented as part of the Master Plan Project.

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Source: BING

Project Site

1/4-Mile Radius

Town Line

Properties Included in the Inventory of Historic and Archaeological Assets of the Commonwealth

1. Suffolk Downs (INV)
2. Our Lady of Lourdes Catholic Church Complex (INV)
3. 54-56 Orient Avenue (INV)
4. 75-79 Orient Avenue (INV)
5. 111, 120-150 Orient Avenue (INV)

Historic Properties Listed in the State and National Registers

A Revere Beach Parkway (NRDIS)

NRDIS National Register of Historic Places, District
INV Listed in the Inventory of Historic and Archaeological Assets of the Commonwealth; no current designation

Figure 11.1

Historic Resources within 1/4 Mile of Project Site

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Source BING

Project Site

Figure 11.2

Site Photos Key

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

1

2

Figure 11.3a

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

3

4

Figure 11.3b

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

5

6

Figure 11.3c

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

7

8

Figure 11.3d

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

9

10

Figure 11.3e

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

11

12

Figure 11.3f

Site Photos

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

12

Summary of Mitigation/Draft Section 61 Findings

As requested in the EEA Secretary's Certificate on the EENF and the BPDA Scoping Determination on the EPNF, this chapter presents an overview of the Master Plan Project's proposed measures to avoid, minimize, or mitigate environmental impacts associated with its development, and provides clear commitments for implementation of those measures.

12.1 Mitigation Summary

The following sections summarize the mitigation measures taken by the Master Plan Project to avoid, minimize, or mitigate environmental impacts related to:

- Wetlands and Waterways;
- Stormwater Management;
- Water and Wastewater;
- Transportation;
- GHG emissions;
- Air Quality;
- Climate Change Resiliency;
- Historic Resources;
- Solid and Hazardous Materials; and
- Construction.

12.1.1 Wetlands and Waterways

As an overarching goal, the Master Plan Project design has striven to improve the environmental function of on-site resource areas, including restoration of certain currently disturbed or degraded areas. For example, the portion of buffer zones closest to the resource areas (i.e. within 25 feet of BVW and Bank) will be improved as follows:

- Vegetated areas will be increased by approximately 19 percent overall within 25 feet of BVW and Bank (includes an approximately 24 percent increase in Boston and 11 percent increase in Revere)

› Impervious areas will be reduced by approximately 65 percent overall within 25 feet of BVW and Bank (including an approximately 62 percent reduction in Boston and 91 percent reduction in Revere). This calculation accounts for proposed pedestrian pathways; when these pathways are excluded from consideration the decrease in impervious areas is approximately 97 percent (98 percent in Boston and 91 percent in Revere)

Within Riverfront Area, impervious areas are anticipated to be eliminated, and vegetated areas will be expanded.

In addition to these enhancements, conceptual restoration and mitigation measures have been developed and will continue to be refined as the design of each development phase advances. The proposed restoration and mitigation components will be implemented coincident with each development phase and are described further below.

Invasive Species Management

The Proponent conducted an inventory of invasive species on-site, at several of the off-site traffic improvement areas outlined in Section 5.4, *Off-Site Improvements,* and at the DCR Bennington Street pump station in April 2018. Invasive plant species were observed within and/or adjacent to nearly all on-site jurisdictional wetland resource areas and non-jurisdictional channels and stormwater management areas. Common reed (*Phragmites australis*) is the most prevalent invasive plant species identified with large dense stands of the herbaceous grass creating a monoculture within several on-site and off-site wetland areas. Additional invasive plant species identified during reconnaissance include tree of heaven (*Ailanthus altissima*), bittersweet (*Celastrus orbiculatus*), knotweed (*Fallopia japonica*), glossy buckthorn (*Frangula alnus*), invasive honeysuckle (*Lonicera tatarica*), black locust (*Robinia pseudoacacia*), and multiflora rose (*Rosa multiflora*). Subsequently, in May 2018, garlic mustard (*Alliaria petiolata*) was observed just off-site proximate to the DCR Bennington Street pump station and is likely also present on-site. Refer to the complete invasive species inventory in Appendix C.

Regular manual management of the common reed will be conducted in and adjacent to on-site wetland resource areas. The Proponent will review a variety of management methods such as annual mowing, burning, excavating, covering with black plastic, etc., to select the method(s) most appropriate for the Project Site context. Due to their location within an ORW and/or ACEC, it is not anticipated that herbicides will be used to address invasive species in areas associated with Sales Creek and the H-series intermittent stream. In other non-ORWs that are outside of the ACEC, herbicide is anticipated to be utilized as a control method. The Proponent will coordinate with the Boston and Revere Conservation Commissions, as applicable, and other stakeholders to develop an appropriate long-term invasive species management plan. In addition to helping reestablish native vegetation on-site, management of invasive species on the Project Site is anticipated to have some

off-site benefit by reducing one source of invasive species to Belle Isle Marsh. However, the presence of invasive species, particularly common reed, on properties up-gradient of the Project Site will continue to spread invasive species to the Project Site as well as to Belle Isle Marsh.

Off-site traffic improvement areas with invasive species present in the general vicinity include:

- Winthrop Ave. (Route 145) at Tomasello Way & North Shore Road
- Route 1A at Tomasello Way
- Route 1A Southbound U-Turn (South of Boardman)
- Route 1/Route 16 Interchange

Management of invasive species associated with the off-site traffic improvements will be evaluated as the design of these improvements is finalized.

Landscape Plantings

Appropriate native plants will be incorporated into landscape areas within Riverfront Area and portions of the buffer zone closest to BVW and Bank. Such landscape enhancement areas are anticipated to include low meadow areas that will provide pollinator habitat, shrubby areas, and living fences that will provide cover and forage habitat. Species that will be considered include, for example, royal fern (*Osmunda regalis*), sweetscented joe pye weed (*Eupatorium purpureum*), rhodora (*Rhododendron canadense*), and various grasses.

Horseshoe Pond Bank Improvements

The Proponent proposes softening the edge of the Horseshoe Pond Bank by removing select rocks bounding the pond and providing emergent plantings along the shoreline. The ecological function of the Horseshoe Pond will be improved as a result of select removal of stones surrounding the Bank and replacing those stones with native vegetation and aquatic emergent vegetation. This work is anticipated to be conducted in a minimally intrusive manner.

Sales Creek Culverts and Daylighting

The location and diameter of Sales Creek culverts has been surveyed, as shown in detail on the 80-scale Schematic Grading, Drainage and Utilities Plan provided in Appendix H. There are three existing twin 96-inch diameter fiberglass culverts that convey Sales Creek under Tomasello Drive, and under the northwestern and eastern portions of the race track. A structural evaluation of the capacity of these culverts to accommodate the site redevelopment was undertaken. This evaluation specifically included the proposed increase in height of fill over the culverts and construction of roadways that will subject the culverts to vehicular traffic loads. The evaluation found that the existing culverts can support the proposed redevelopment, although

further on-site analysis will be undertaken to ensure that the culverts are in good condition and installed correctly. Additionally, the operation of heavy construction equipment over the culverts will be evaluated as the project proceeds. Any repairs to the existing culverts which are determined necessary will be detailed in the applicable Notice of Intent filed under the Wetlands Protection Act.

Even though the existing culverts can support the proposed development, it is anticipated that a portion of the culvert crossing the northwest side of the race track will be eliminated to daylight a section of Sales Creek and improve the Creek's ecological and flood storage functions.

As Sales Creek is daylighted in this area, additional Riverfront Area will be created on the Project Site. Furthermore, Bank and the associated buffer zone will also be created along the daylighted portion of Sales Creek. Because the ACEC is contiguous with buffer zone in this portion of the ACEC, additional ACEC would also be created on-site.

Since its installation in the early 1980s, the DCR pump station has provided critical flood protection for several Revere neighborhoods. Due to the age of the structure and the increasing impact of sea level rise, upgrades to the pump station will be necessary to continue to reduce flooding in the Sales Creek watershed. Potential modifications may include equipment upgrades to increase capacity, maintenance and operational improvements. Removal and/or major alteration to the physical DCR pump station itself is not proposed. Refer to Chapter 8, *Climate Change Resiliency*, for a discussion regarding the pump station as it relates to potential climate change resiliency measures.

12.1.2 Stormwater Management

The Master Plan Project has been designed to include a new stormwater management system that will improve stormwater runoff quality and mitigate peak runoff rates in accordance with the MassDEP 2008 Stormwater Management Handbook using a combination of conventional BMPs and green infrastructure. The design approach also responds to the results of a regional HEC-RAS model to mitigate potential on-site and off-site impacts due to climate change. The main stormwater BMPs have been strategically located and conceptually planned to ensure that the Master Plan Project reserves ample space for stormwater management. As the design progresses, additional decentralized aesthetic stormwater facilities may also be incorporated to enhance the landscape in addition to providing additional stormwater treatment and mitigation.

Overall, the Master Plan Project incorporates an extensive open space system which at full buildout will cover approximately 25 percent (approximately 40 acres) of the Project Site. The conceptual stormwater management system is designed to address the currently-designed amount of proposed impervious area. However, the Proponent and its project team will continue to evaluate ways to reduce the

anticipated impervious areas as the design progresses. Should additional landscaped or otherwise pervious areas be incorporated into the design in the future, the resulting stormwater impacts would be less, and the system may be resized or redesigned. For the purposes of the conceptual stormwater management design, the Master Plan Project conservatively assumes that all hardscape surfaces are impervious. The anticipated inclusion of pervious pavements/hardscapes would further reduce the stormwater impacts of the Master Plan Project.

As demonstrated in Section 10.3, Stormwater Management, the stormwater management system has been designed to comply with the 2008 DEP Stormwater Handbook and additionally to meet the following design goals:

- Provide a high level of stormwater treatment to protect the sensitive waters of Belle Isle Marsh;
- Do not increase peak runoff rates to Sales Creek to ensure that the Master Plan Project does not impact the functionality of the DCR stormwater pump station;
- Provide adaptability for future climate change and increased precipitation events; and
- Integrate the stormwater management system into the open space of the Master Plan Project.

The stormwater management system has been designed to manage stormwater runoff in accordance with the MassDEP 2008 Stormwater Management Handbook. Stormwater directed to Sales Creek and the Intermittent Stream (H-Series bank flags) bordering the easterly property line will be mitigated so that peak runoff rates are at or below existing runoff rates. This will ensure that the Project will not impact the capacity of the DCR stormwater pumping station. Due to the Project Site's direct connection to Belle Isle Marsh via Sales Creek, the stormwater management system will incorporate a high level of treatment to improve the quality of stormwater runoff that will be discharged. The Proponent will also implement good housekeeping practices to ensure that the stormwater management system is properly maintained and that pesticides, herbicides and fertilizers are properly managed.

Chelsea Creek is a tidally influenced river and is classified as LSCSF. The stormwater runoff directed to Chelsea Creek will be treated for total suspended solids and water quality and will be directed to Chelsea Creek via the existing culvert beneath Route 1A and an existing conveyance channel located on the adjacent Massport property. The MassDEP 2008 Stormwater Handbook waives the requirement to control of peak discharge rates within LSCSF. Therefore, additional stormwater runoff will be directed to Chelsea Creek, where feasible.

Directing more runoff to Chelsea Creek will help to alleviate flooding concerns for the Sales Creek watershed system, which provides a higher layer of resiliency to the overall Project and upstream neighborhoods. It will also enable the Project Site to better adapt to the future effects of climate change. The Central Common has been

designed to provide significant flood storage and by directing additional runoff to Chelsea Creek, more of this flood storage can be reserved to serve the overall Sales Creek watershed system, rather than dedicating it to on-site stormwater detention.

To ensure that the increase of peak stormwater runoff rates to Chelsea Creek can be adequately conveyed and will not impact nearby properties, the Proponent intends to conduct an evaluation of both the capacity and integrity of the culvert beneath Route 1A, and, in coordination with Massport, evaluate the existing drainage channel that discharges to Chelsea Creek. Improvements or deferred maintenance will be coordinated as may be warranted.

Reducing the runoff to Sales Creek may also have ecological and environmental benefits to the downstream Belle Isle Marsh. Belle Isle Marsh is the largest remaining salt-water marsh within the City of Boston and is part of the greater Rumney Marsh ACEC. The Friends of the Belle Isle Marsh have expressed concern that increasing stormwater runoff volumes from the Project Site to Belle Isle Marsh could dilute the salinity of the marsh. The proposed stormwater management approach will substantially mimic the runoff volumes directed to Sales Creek and the Intermittent stream under post developed conditions as compared to existing conditions. This will help maintain the existing chemical composition of the Marsh. Through the incorporation of measures such as stormwater reuse and other green infrastructure techniques it is anticipated that the stormwater volumes ultimately discharging to Belle Isle Marsh will be further reduced.

This reduction in stormwater volumes to Belle Isle Marsh is not a requirement by local or state statutes but given the important nature of the salt water Belle Isle Marsh and the added benefits of further protecting to the site and upstream neighborhoods, it was elected to shift a portion of the runoff volumes to the Chelsea Creek side.

Stormwater Treatment/Green Infrastructure

In addition to the stormwater BMPs discussed above, green infrastructure, and source control and pollution prevention measures, will be incorporated into the design to enhance treatment and further reduce peak runoff rates. The stormwater management system will be planned to provide treatment of stormwater runoff associated with the proposed impervious surfaces on-site. All stormwater BMPs will be designed to treat a minimum of the first inch of runoff generated by the on-site paved impervious areas.

Where feasible, roof runoff will be directed to cisterns where it can be reused as irrigation water for the proposed landscape elements, particularly in the Central Common, located between Sales Creek and the Horseshoe Pond in the east-central portion of the Project Site. The extensive street tree network will be designed as a filtration system to provide treatment for sidewalk and plaza runoff. Pocket rain gardens/ biofiltration systems will potentially be sited within plaza areas, and/or within the roadway network system. Many of the buildings will incorporate green

roofs into a portion of the roof areas, thereby reducing impervious surfaces across the Project Site.

Belle Isle Marsh and Rumney Marsh

Belle Isle Marsh is the last remnant within Boston of the salt marshes that were once prevalent along the Massachusetts shoreline. Belle Isle Marsh is part of the greater Rumney Marsh ACEC. A salt marsh is a coastal ecosystem between land and open salt water (brackish water) that is regularly flooded by the tides causing salt water and fresh water to mix together. The mixing effect of sea water and fresh water creates habitats with high levels of nutrients making salt marshes among the most productive natural ecosystems on earth. For these reasons, it is important to protect the salt marsh as much as feasible.

Salt marshes are dominated by salt tolerant plants that are essential to the stability of the salt marsh in trapping and binding sediments. Marshes are biologically diverse communities adapted for harsh environmental conditions including desiccation, flooding and extreme temperature and salinity fluctuations.

The Marsh is currently threatened by water pollution, air pollution, invasive species and pesticides. A proven way to restore/preserve a salt marsh is to re-establish the native species and manage invasive species. The Proponent will develop a program to manage invasive species and incorporate native species into the landscape design where feasible on the Project Site. In addition to re-establishing native species (where feasible) and managing invasive species, the Master Plan Project will greatly improve the stormwater quality that is discharged to Sales Creek and develop a program to manage pesticides on-site.

12.1.3 Water and Wastewater

To ensure that the sanitary sewage flow generated by the Master Plan Project does not adversely impact the regional wastewater systems, Inflow and Infiltration (I/I) mitigation will be performed. An I/I mitigation ratio of 4:1 gallons removed for every gallon of new wastewater generated in Boston will be implemented. This will be achieved through payments to BWSC of $2.41 per gallon of I/I mitigation performed, which works out to $9.64 per every new gallon of sewage added to the municipal system. BWSC has an established an I/I fee program and each building will pay its associated fees as the Master Plan Project is developed.

An I/I mitigation ratio of 10:1 will be applied in Revere and will be fulfilled through a payment to the City of Revere of approximately $1.30 per gallon at ten times the proposed wastewater flow generated, which works out to $13.00 per every new gallon of sewage added to the municipal system. Each building that is developed in Revere will pay its I/I fee as it is developed.

At the request of BWSC, the discharge of four off-site catch basins currently discharging to the sewer within Waldemar Avenue will be redirected to the dedicated storm drain system that will be constructed for the Master Plan Project. This is expected to result in an I/I mitigation credit calculated in accordance with the DEP Policy BRP 09-01.

12.1.4 Transportation

As part of the Master Plan Project, extensive, major off-site roadway, traffic, and safety improvements are proposed throughout the study area. The following section discusses the details of all conceptual mitigation plans within the study area. These improvements will be implemented in phases related to the build out of the Master Plan Project and are all assumed to be complete by 2028. The Proponent will work with MassDOT, DCR, BTD, and the City of Revere to develop the details of the mitigation phasing. Further details will be provided in the FEIR. The mitigation program includes following locations:

12.1.5 Roadway Improvements

Winthrop Avenue at Revere Beach Parkway/Harris Street

This intersection was recently reconstructed by MassDOT in 2015-2016, which included replacement of the bridge over the MBTA tracks and several other improvements that had been previously proposed as part of the other projects under consideration at the time. As part of the Master Plan Project mitigation, the Proponent is proposing additional measures that will provide a benefit for local and regional traffic in this area:

- Install two southbound left-turn lanes on the Route 16 from Route 1A south and Bell Circle to allow vehicles to access Winthrop Avenue eastbound.
- Install a second exclusive right turn lane on Route 16 on the northbound approach.
- Change two-way Harris Street to one-way away from Winthrop Avenue to Sewall Street. This is intended to protect the neighborhood area from cut-through traffic now bypassing Bell Circle that will be served by the above left turn addition.
- Optimize traffic signal timing and phasing plan.

The provision of a southbound left-turn lanes on Route 16 will allow traffic from the north to exit Bell Circle sooner and access Winthrop Avenue/Revere Beach Parkway without having to travel through the neighborhoods. Providing this alternate route should reduce congestion at several locations in this area.

Revere Beach Parkway/Winthrop Avenue Corridor from Campbell Avenue to Northeast of the Winthrop Avenue Split.

This corridor work extends from the Revere Fire Station through North Shore Road, Tomasello Drive and the Winthrop Avenue Split at 205 Revere Beach Parkway. Beginning at the westerly end of the corridor, a short distance of the existing median in front of the Revere Fire Station will be removed at the request of the City. The break and associated traffic signal control (considering options for hybrid control of the eastbound movement only versus a full fire pre-empt signal in order to protect the Campbell Avenue approach to westbound Revere Beach Parkway) will allow direct access from the Station to Revere Beach Parkway westbound. The current access to Revere Beach Parkway westbound is via a right turn from the Station and a U-turn at North Shore Road.

The eastbound left-turn lane from Revere Beach Parkway to North Shore Road will also be lengthened given observed and calculated left turn storage issues that impact capacity and operation of the left most through lane resulting in a lane imbalance on the approach to North Shore Road. Note that the widening to accommodate the lengthening will be completed on the westbound side of the Parkway between North Shore Road and Campbell Avenue within the existing right-of-way.

At **North Shore Road**, in addition to the eastbound left turn lane, proposed improvements include the relocation of the existing North Shore Road median and elimination of a delta island in the northeast quadrant to provide a second left-turn lane from North Shore Road to Revere Beach Parkway eastbound. The right-turn lane will continue to operate under yield sign control, and the pedestrian crossing on the west side of the intersection will be maintained. With the elimination of the Northeast quadrant delta island a proposed reduction in the corner radius is also proposed.

Tomasello Drive will be relocated easterly approximately 185 feet and serve as the primary exit point from the site to Revere Beach Parkway. The relocation is seen as critical to operation of the corridor given vehicle storage requirements and intersection spacing. Tomasello Drive will continue as a five-lane corridor with two entering (southbound) lanes and three exiting lanes (a left, a left/right a single right). The existing median break serving Tomasello Drive will be closed and replaced by a reduced width median break at the new location. Note that the driveway opposite Tomasello Drive serving 205 Revere Beach Parkway will be modified to a right-in/right-out only alignment. With the relocation of the corridor closer to the Winthrop Avenue intersection, comes the need for replacement of vehicle storage in the left turn lane. Two left turn lanes will be provided westbound on Revere Beach Parkway from the Winthrop Avenue Split to Tomasello Drive. This results in a five-lane westbound cross section in the current design (three through lanes and the double left) that are not necessarily needed for capacity but for lane balance. We will work with the DCR to look at opportunities to reduce this section to four lanes and

provide a wider median as the design progresses. Eastbound the corridor is maintained at the existing three lane width with two through lanes and an exclusive right turn lane to Tomasello. As site volumes increase with development we have also identified the potential need for a second right turn lane to the Tomasello Drive. This turn lane would begin at the current curb cut for Tomasello Drive and extend to the new corridor. The pedestrian crossing of Revere Beach Parkway would be on the east side of the intersection and operate concurrently with the Tomasello left turn exit.

Modifications are proposed to the on-going construction at **Revere Beach Parkway and Winthrop Avenue.** The modifications will build off of the plans proposed to provide access to 205 Revere Beach Parkway. However, given the timing of approvals and the needs associated with 205 RBP access and egress, the modifications will follow completion of the current project by approximately one year. The basic modifications will include changes in the proposed pedestrian crossing points (move from west side of the 205 RBP driveway to the east side) and extend the left turn storage lane to the 205 RBP driveway to allow maximization of the westbound storage to Tomasello Drive. The plan also includes median modifications but maintains the curb bump-out on the eastbound approach to an exclusive right turn lane to Winthrop Avenue. (two through lanes will be maintained continuing on Revere Beach Parkway eastbound to northeastbound. The two left turn lanes from Winthrop Avenue westbound will be maintained as will the three westbound lanes on Revere Beach Parkway. In addition, as discussed in Chapter 3, included within the SDOD zoning are building setback areas on Winthrop Avenue (20-foot building setback/zero height). Winthrop Avenue utilizes this space to provide a planting strip, two-way cycle track and a sidewalk from Washburn Avenue to North Shore Road.

Winthrop Avenue Corridor - Revere Beach Parkway to Bennington Street including a Site Driveway and MBTA Beachmont Parking Lot

As mentioned previously, the proposed site access plan includes a restriping of the Winthrop Avenue corridor to three lanes (generally one through lane per direction with dedicated left and right turn lanes at various points). The three-lane section is dictated by conditions at the easterly end of the corridor - the MBTA Blue Line overpass at Beachmont Station and at the westerly end at the intersection of Winthrop Avenue at Revere Beach Parkway. A new signalized intersection is proposed at a site driveway approximately 400 feet west of Washburn Avenue. As part of this plan, the existing MBTA Parking Lot Driveway would be relocated approximately 150 feet to the west to form the southbound leg of the new intersection. Winthrop Avenue would be restriped within the existing pavement width to provide an exclusive left-turn lane and a through/right-turn lane on the eastbound and westbound approaches. The northbound and southbound approaches would also provide an exclusive left-turn lane and a shared through/right-turn lane. Pedestrian crossings will also be provided.

Donnelly Square (Bennington Street/State Road at Winthrop Avenue and Bennington Street at Crescent Avenue)

This signal-controlled intersection is adjacent to the MBTA Beachmont Station. The base improvement assumed for this site includes a signal upgrade using concurrent or overlapping pedestrian crossings where possible, extension of the Bennington Street median to the south to better control the prohibited left turn movement to a retail parking lot, and realignment of the Crescent Street approach to better manage the Bennington Street approach to Winthrop Avenue. Currently movement out of Crescent Street approaches the Bennington Street left turn lane to Winthrop Avenue in a manner that restricts movement in the through lane and has a tendency to focus more on traffic coming from the left (Bennington Street northbound) rather than potential pedestrian movement along the sidewalk to the right. The design of the northbound corridor recognizes the potential for the Constitution Beach to Revere Beach connection as a community path with approximately 20 feet reserved for the sidewalk and path area. Specific components include the following:

- Design and implementation of an optimal traffic signal timing and phasing plan, including split phasing, for the weekday morning, weekday evening, and Saturday midday peak periods.
- Redesign of the intersection to channelize traffic flow on the intersection approaches.
- At Winthrop Avenue, eastbound approach to Bennington Street provide a two-lane approach (exclusive right and through/left. Also, provide a new bus turn-out just west of Washburn Avenue.
- Provide a bus turnout westbound at the southeast corner of the MBTA parking lot.
- Construction of permanent pedestrian crosswalks with new ADA accessible ramps at all crosswalks within the Donnelly Square area.
- Installation new pavement markings within the Donnelly Square area.
- Installation of an emergency vehicle preemption system.

Route 1A Corridor (“Super Street Option”)

- Route 1A at Boardman Street
- Route 1A at Suffolk Downs/Tomasello Drive
- Route 1A at Jughandle
- Route 1A at Furlong Drive

The “Super Street Option”, splits movements among various controlled points with two-phase signal control. This design recognizes the efficiency of two-phase signal operation (that is, addressing all traffic movements at the intersection in only two signal phases) and the ability to move more vehicles through a corridor. It is based on a design approach advocated by the Federal Highway Administration (FHWA)

several years ago in its Every Day Counts program, as well as promoting safer, more context-sensitive roadway design. It carries several names including “displaced left turns” and “Michigan Lefts”.

Selection of this design concept was done in concert with MassDOT. A long-standing design option for the area dates back to the mid-1990s when the North Shore Transportation Study developed a series of concept designs for multiple locations in the area, carrying forward with the concept of an urban expressway. The super street alternative, initially developed for the corridor several years ago, treats the corridor as an urban arterial, limiting land impacts associated with the construction of an overpass alternative, and simply not shifting an operational problem from Boardman Street to the next signal-controlled intersection to the north.

The concept has undergone changes as the design has been developed with the introduction of a new north to south U-turn opportunity, the exploration of concepts allowing for direct left turns from the east side of Boardman Street, enhanced pedestrian crossing opportunities, provisions of bus turnouts near Tomasello Drive, consideration of other two-phase operation alternatives and designs for all users. The latter review included a series of alternatives for a community path, a separated bicycle facility, and an on-road bicycle area/partial width shoulder. The selected alternative in this case was the on-road provision allowing a five-foot shoulder through the 8,000-foot length of the super street alignment where the project limits would meet shoulders varying between 6 and 8 feet in width, which meets MassDOT’s requirements for on-road bicycle accommodations. Primary restrictions in pursuing the other alternatives were severe right-of-way limitations along the entire corridor, right of way/existing conditions limitations north of the Boston/Revere Line require the shoulder use as the only option, and connectivity issues to the south prevented carrying the Community Path and separated bike facility as far as Curtis Street. In addition, MassDOT noted the importance of providing shoulders on an arterial like Route 1A to allow for of servicing disabled vehicles, accommodating emergency vehicles, and to facilitate evacuations. It is also important to note that there could be future opportunity for expanded bicycle facilities in the north/south direction along Route 1A through either the redevelopment of the industrial and warehouse properties on the west side of Route 1A or potentially along the existing railway right of way that runs along Chelsea Creek. Separately the Proponent and the consultant team have explored the feasibility of extending the East Boston Greenway from Constitution Beach to Revere Beach which would be a more important north/south bicycle connection.

The basic design provides three lanes in each direction on Route 1A with the majority of improvements confined to within the existing State Highway Layout and most within the existing outside curb lines. From south to north, the overall plan begins in the area of the Marriott Courtyard. Northbound, the first signal-controlled

point is at a U-turn lane developed for southbound (SB) to northbound (NB) U-turns. There is no southbound signal for through movement, only for the U-turn movement. The next controlled point is at Boardman Street where both northbound and southbound traffic on Route 1A will be stopped to allow movements from Boardman Street westbound (lefts and rights) and from Boardman Street eastbound (rights only). The next controlled point will be on Route 1A NB at a new U-turn lane for SB to NB reversal between Boardman Street and Waldemar Avenue. Here, southbound through traffic on Route 1A will not be stopped. Only the northbound through movement and the southbound to northbound U-turn will be subject to signal control. The next controlled point will be the Tomasello Drive intersection. Direct left turn from Route 1A SB to Tomasello Drive will not be permitted. Only left and right turns from Tomasello Drive will be allowed. The existing Jug Handle signal just north of Tomasello will be retained but its signal will be interconnected with the upgraded and new signals along the corridor. The final controlled point will be the Furlong Drive intersection where left and right turn movement out Furlong will be permitted with no left turns from Route 1A SB permitted. This will be accomplished with a proposed break in the existing median on Route 1A and the addition of a new traffic signal. The super street concept will end at the existing Route 1A overpass entrance and exit ramps. The third lane northbound will become an exit only to Revere Beach Parkway/Winthrop Avenue (Route 145) The entrance from Route 145 to Route 1A SB will become an add-lane condition eliminating the current merge near Railroad Avenue.

At Boardman Street, three lanes would be provided both northbound and southbound. Direct left turns from Route 1A southbound to Boardman Street would be prohibited and that traffic instead would proceed further south on Route 1A to a signal-controlled left exit into a signal-controlled U-turn to access the northbound lanes of Route 1A and Boardman Street. Only right turns are provided from Boardman Street eastbound. The demand to the east side of Boardman Street and that to Route 1A northbound will be permitted to reverse direction via the signal-controlled U-turn lane south of Boardman Street. Direct left turns from Route 1A NB to Boardman Street west would also be prohibited. Those vehicles would be rerouted to Tomasello Drive where the NB to SB reversal will be permitted. The permitted movement across Route 1A flow will be the movement from Boardman Street westbound lanes. These lanes will be realigned in order to create a separation between the Boardman Street movement from the west allowing vehicles to be stored during the eastbound green phase. A pedestrian crossing of Route 1A will be maintained.

The U-turn lane between Waldemar Avenue and Boardman Street is intended to serve the left turn demand southbound on Route 1A to Tomasello Drive and also will serve as a direct access point for the Waldemar Avenue neighborhood, a movement now provided via a U-turn at Boardman Street.

At Tomasello Drive, a signal would be installed to allow vehicles traveling on Route 1A northbound to reverse direction by means of a jughandle-style layout, providing for the replacement movement for the northbound left turn and U-turn currently permitted at Boardman Street, and for the movement from Waldemar Avenue. This signal would also allow vehicles exiting Tomasello Drive from Suffolk Downs to make a left-turn onto Route 1A southbound. Three through lanes would be provided on Route 1A in the northbound direction together with a fourth northbound right-turn lane is also provided that will serve as access to a bus-pull-off and bus queue jump lane). Three through lanes will be provided southbound. The Tomasello Drive approach would consist of two left-turn lanes and two right-turn lanes. The two-phase operation at this location would include Route 1A northbound and southbound during phase 1 and Tomasello Drive as phase 2. A new pedestrian crossing would be incorporated on the northerly side of the exiting corridor intersection which will also allow for a future connection to Chelsea Creek.

The Route 1A/Jughandle intersection will continue to operate as a two-phase signal, but three lanes on the northbound and southbound Route 1A approaches would be provided.

Furlong Drive would be modified to provide three northbound and three southbound through lanes. No left-turns into Furlong Drive would be allowed at this location. The Route 1A southbound traffic would proceed to the Jughandle signal where they can reverse direction and access Furlong Drive via the right-turn lane. Two lanes (a right turn lane and a shared left/right-turn lane) will be provided on the Furlong Drive approach.

Route 1A Corridor Land Needs

Based on the proposed layout of the super street option summarized above, certain land beyond the existing State Highway Layout will be required to construct the improvements. The extent and nature of these land impacts (i.e. sidewalk easements, slope easements, acquisitions, etc.) will be identified when an updated survey of the corridor has been completed. In addition, discussions will need to be held with MassDOT Highway Division Layout Section regarding rights of way and further refinements will need to be made to the plans in coordination with MassDOT Highway Design engineers. Further details on land needs will be provided in the FEIR.

Bell Circle (a.k.a Mahoney Circle)

Significant improvements are proposed for Bell Circle. These include widening approaches and departures, realignment of the State Road movement from the Route 16 corridor, recognition of operational improvements that have proven effective, recognition of pedestrian crossing needs, input from City of Revere officials and capacity needs associated with the project. The intent is to minimize use of the "outer circle roadways" to serve turning traffic that is completing what would be a

left turn maneuver or entering from lower volume roadways such as Beach Street. The overall plan, includes:

- Providing a three-lane approach on the northbound Route 1A to the Circle.
- Realigning the connecting corridor between Route 16 EB and WB to the Circle to allow direct access to Route 60 NB, eliminating the current movement through the Circle and the associated right turn to Route 60 NB at VFW Highway (Route 1A NB and SB).
- Provide direct access from the connecting corridor from Route 16 EB and WB to Route 1A NB (currently posted as the right turn on red after stop movement and Route 1A NB approach movement. This movement will be physically separated from other movements through the Circle with pedestrian crossing control indicated with a hybrid signal or rectangular flashing beacon.
- Introduction of a direct left turn from Route 1A SB, (VFW Parkway) to the three lane Route 60/Route 1A SB movement, eliminating the need for that traffic to circulate around the Circle.
- Widen Route 60 to a three-lane cross section between Harris Street (north of the Circle) through the Circle to the ramps to Route 16 and 145. The third lane will become an exit only to at the ramp with two southbound through lanes continuing on Route 1A.
- Add signal control to the Beach Street (eastbound approach) to the Circle.
- Control/channelize the movement from Everett Street to the Circle. While allowing full access in to Everett Street, all movement from Everett Street will leave the corridor in a channelized lane forcing a right turn to Route 60 NB only. Vehicles will be permitted to complete a NB to SB U-turn at a new signal-controlled U-turn lane at Harris Street.
- Provide a new signalized pedestrian crossing at the Harris Street U-turn signal. The crossing location is consistent with the northerly boundary of the Rumney Marsh Academy, affording the opportunity to cross Route 60 without travelling directly to Bell Circle.
- Modify pedestrian crossing routes throughout the area, including elimination of the crossing within the Circle.

Route 1A Southbound at Curtis Street

Improvements at this location include realigning Route 1A southbound to formalize an exit to the Bennington Street and Curtis Street areas. Improvements consist of providing two continuous lanes for the southbound through movement, creating an island within the current paved area and providing stop control at the ramp/Curtis Street intersection. Movement from Curtis Street to Route 1A south will continue to be in an add-lane condition.

Route 1/Route 16 Interchange and Route 16 at Garfield/Webster Street

The proposed improvements at the Route 1/Route 16 interchange are intended to provide key missing movements to an important regional highway access point. Under existing conditions, access from Route 1 southbound to Route 16 eastbound, from Route 16 westbound to Route 1 northbound, and from Route 1 NB to Route 16 EB are not provided. A redundant ramp access from Route 16 westbound to Route 1 southbound is provided less than 1,500 feet from the existing interchange, or approximately 600 feet west of Webster Avenue, (a braided ramp system) from a left lane exit from Route 16WB.

We view the most critical ramp addition to be the Route 1A SB to Route 16 EB movement. Currently the movement is completed via the right exit from Route 1 South to a U-turn at Garfield/Webster. The left turn lane is short and represents a capacity issue not only manifested in green time issues but also through material lane blockages on Route 16EB.

The proposed improvements maintain the existing Route 16 WB to Route 1 SB loop ramp. The existing median between the ramps would be replaced with a concrete barrier and the loop ramp slightly narrowed to allow the development of a two-lane off-ramp extending approximately 600 feet from the intersection without relocating the outside curb lines and resulting in no slope of wetland impacts. No additional through traffic is added to the Garfield/Webster intersection. Left turn access from the ramp is signal controlled at Route 16 where a short median break will be provided. The total lane storage provided for the left turn movement is approximately 750 feet including the two-lane left turn movement at the intersection. This storage is more than sufficient for the projected turn volume that is not expected to exceed 500 vehicles per hour. The right turn movement is not signal controlled and is treated as the existing add-lane (but realigned) at its intersection with Route 16WB.

The on-ramp from Route 16 westbound to Route 1 northbound would be developed with a second Route 16 median break on the easterly side of Route 1 supported by a 300- to 400-foot left turn lane. The left turn movement to Route 1 northbound would be signal-controlled and would tie into the existing eastbound to northbound loop ramp through an open infield area.

The interchange work would also include optimization of the Route 16/Webster Avenue/Garfield Avenue intersection signal timing, and pavement area reduction where acceleration lanes are no longer required. The plan would provide an important safety improvement by virtue of the significant reduction in the existing dangerous weave and U-turn movements at this location. All work would be confined to the current right of way limits.

Day Square

Day Square includes the following five intersections:

- Neptune Road at Saratoga Street
- Neptune Road at Bremen Street
- Bennington Street at Neptune Road
- Bennington Street at Vienna Street
- Neptune Road at Route 1A NB off-ramp

Several improvements are proposed with this area including:

- Closure of westbound Neptune Road between the Route 1A northbound off-ramp and Bennington Street.
- Rerouting the demand associated with this closed movement to Vienna Street where a new signal, extending to a modified pedestrian crossing to Wood Island Station, would be installed. From Vienna Street, the replacement movement from Neptune Road to Route 1A SB would be via an existing left turn lane and the movements to Bennington Street south and Neptune Road west would become a through movement and right turn respectively.
- Establish Bremen Street north of Neptune Road as one-way northbound (currently two-way).
- Restrict direct access from Saratoga Street to Neptune Road westbound.
- Provide a "mini-roundabout" (20' diameter and mountable) for yield control on all approaches to the Chelsea Street/Neptune Road/Saratoga Street intersection allowing direction reversal for movements on Neptune Road.

The proposed improvements address MassDOT concerns about overhead clearances and eliminate a signal phase, allowing additional time to be allocated for the left turn movements from Bennington Street to Route 1A. It should also be noted that the Project is not expected to send a high percentage of traffic down Bennington Street. As such, these are more regional improvements that are not driven by site-generated traffic.

Revere Street at Route 60

Improvements at this location include restriping the eastbound and westbound approaches on Revere Street to provide an exclusive left-turn lane and a shared through/right-turn lane. Given the proximity of Tuttle Street to the traffic signal, "Do Not Block Intersection" signage and striping is proposed on this approach. Improvements also include designing and implementing and optimal traffic signal timing and phasing plan, corner radius reductions where possible, and constructing pedestrian improvements including new crosswalks and ADA accessible ramps.

The existing EB bicycle lane will be modified to a "share lane" with the stripping area that will extend approximately 150 feet per direction on Revere Street. Parking will also be prohibited within this zone.

The major improvement to intersection operations is associated with what is expected to be a 90% reduction in the left turn demand from Route 60 SB to Revere Street. Part of this intersection improvement includes the restoration of a closed median break at the Breed Street intersection and introduction of a signal controlled left turn movement to Breed Street. Note that movement from Breed Street will be limited to the current right turn only. The primary benefits are anticipated during the evening peak period. (See following.)

Breed Street at Route 60

In conjunction with the improvements at Revere Street at Route 60, a break in the median is proposed and a new traffic signal would be installed to accommodate southbound left turns onto Breed Street. The Route 60 southbound approach would provide two through lanes and an exclusive left-turn lane. The Route 60 northbound approach would provide two through lanes. The Breed Street westbound approach would provide a channelized right-turn lane and left turns would be restricted. This new traffic signal and left-turn lane would result in a substantial reduction in southbound left turns at the intersection of Route 60 and Revere Street which will improve operations.

Brown Circle

Improvements at this location include designing and implementing a comprehensive upgrade of the signs and pavement markings approaching and within Brown Circle, designing and implementing channelization and signalization improvements including new pavement and directional markings and channelization islands at the Route 107 northbound approach, extending islands and installing new islands to facilitate safer traffic flow, and installing ADA accessible ramps and associated sidewalk and median improvements. Plans for sign and markings will be developed in a manner consistent with the soon to be released MassDOT guidance document for roundabouts and traffic circles.

Route 1A (North Shore Road) at Revere Street

Improvements at this location include designing and implementing and optimal traffic signal timing and phasing plan, constructing pedestrian improvements including new crosswalks and ADA accessible ramps, and installing an emergency vehicle preemption system. In addition, the exclusive southbound left-turn lane lengthened through a combination of shoulder width reduction, replacement of the existing guardrail median with a concrete barrier median and minor widening (one to two feet per side). The lengthening will limit blockage of the existing left most through lane, improving lane balance on the southbound approach.

Bennington Street at Saratoga Street

Improvements at this location include installing a traffic island in the southwest quadrant, redirecting crosswalks for the Bennington Street and Saratoga Street crossings, providing a compliant curb ramp for the Bennington Street cross in the southeast quadrant, changing lane uses on the northbound Bennington Street approach (one right only and one through left), removing/relocating the median on the northerly leg of Bennington Street to allow a three lane southbound approach (two through and one left) and one through lane northbound, and modifying signal phasing.

Route 60 at Sigourney Street and Charger Street

At the request of MassDOT District 4, the Proponent will review/restore the time-based coordination system with GPS time clock backup and update the signal coordination plans for the two-intersection system.

Bicycle and Pedestrian Improvements

In addition to the extensive offsite traffic mitigation program, the Master Plan Project also includes substantial enhancements for bicycles and pedestrians both onsite and offsite to improve local and regional connections.

- Development of an extensive on-site bicycle network that includes over 17,000 linear feet of on-street bike accommodations and over 13,000 linear feet of cycle tracks.
- Extensive pedestrian network that includes several community paths which extend through the 40-acre open space system.
- Development of a two-way cycle track along Winthrop Avenue from Washburn Avenue to North Shore Road.
- Exploration and design of East Boston Greenway extension from Constitution Beach to Revere Beach.
- New at-grade community path crossing of Route 1A at Tomasello Drive to Chelsea Creek side.
- New at-grade pedestrian crossing of Route 1A at Furlong Drive to Chelsea Creek side.
- Community path connection to potential Walley Street bicycle facilities which lead back to Bonito Square and East Boston Greenway.
- Addition of new Bluebikes Stations (formerly Hubway) at the Project site and the Proponent will work with dockless bike companies to allow access to the site.

In addition, Go Boston 2030 is planning for a bikeshare network expansion to increase the number of bikes and stations to reach more Bostonians. According to Go Boston 2030, "by the end of 2022, Boston aims to grow its part of the system by 137 new stations, for a total of 268 stations in the city. The growth includes

additional stations within the busiest areas of the system and broader access in all densely-populated neighborhoods." The Proponent will continue to work with the City of Boston, City of Revere, MassDOT and DCR to refine infrastructure plans and plans for external pedestrian and bicycle connections.

12.1.6 Traffic Monitoring Program

As requested in the Secretary's Certificate and in MassDOT's comment letter, the Proponent will commit to conducting a detailed transportation monitoring program for the site as it is built out. The primary goal of this monitoring program is to evaluate assumptions made in the DEIR, specifically related to trip generation, trip distribution, and mode shares. In addition, the monitoring program will allow the Proponent to evaluate the adequacy of the proposed mitigation measures as well as the participation rate and effectiveness of the TDM program. The Proponent will work with MassDOT regarding the timeframe and frequency of the monitoring program as well as the study area intersections that need to be included.

12.1.7 Transportation Demand Management

The Master Plan Project will benefit from excellent access to MBTA subway (Blue Line) and bus service as well as strong pedestrian and bicycle networks. This will provide a firm foundation for the implementation of TDM strategies to maximize use of non-auto modes and reduce single occupant vehicle (SOV) travel. The TDM Plan for the Master Plan Project will be fully explored and documented in the next DEIR/DPIR filing.

In addition to MassRIDES, it is anticipated that the TDM Plan for the Master Plan Project will take advantage of membership in a local Transportation Management Association (TMA) which already facilitates proactive and comprehensive TDM initiatives in the area.

Consistent with the City of Boston's goals to reduce auto-dependency, the Proponent will proactively incorporate TDM measures to encourage alternative modes of transportation. TDM measures are most often directed at commuter travel, which is the purpose of the majority of the trips destined to the Project Site. The following discusses an array of TDM measures that will be implemented as part of the Master Plan Project.

- Provide secure bicycle storage for building tenants and their employees and visitors in accordance with the City of Boston Bicycle Guidelines.
- Bike racks will be provided at select, highly-visible locations within the Project Site. The racks will be securely mounted and feature current designs to properly secure bikes of all kinds.
- Addition of Bluebikes Stations on site. Demand for Bluebikes will be monitored over time and the number of stations/bikes will be adjusted accordingly;

- Multiple parking spaces for a car-sharing service will be provided, such as ZipCar®, within the new garages.
- Parking spaces on-site will be equipped to support EV charging stations and will be provided within the new garage.
- Preferential parking for alternative-fueled vehicles will be provided.
- Office and retail tenants will be encouraged to provide employer subsidies to employees who purchase monthly or multiple trip transit passes.
- Office and retail tenants will be encouraged to provide a guaranteed ride home program, in conjunction with MassRIDES, to eliminate an often-cited deterrent to carpool and vanpool participation.
- Potential office and retail tenants will be encouraged to offer direct deposit payment for monthly transit passes to employees.
- An on-site Transportation Coordinator will be designated to oversee parking and loading operations as well as to promote alternative transportation measures. The person assigned to this role will coordinate with office and retail tenants to help promote a reduced reliance on single-occupant motor-vehicle travel to the Project Site. To that end, the TDM measures identified in the following sections will be implemented under the direction and supervision of this person. The duties of the transportation coordinator may include, but not be limited to:
  - Acting as a liaison with office and retail employers and MassRIDES.
  - Assisting office and retail employees and residents with ride matching and transportation planning.
  - Disseminating information on alternate modes of transportation and developing transportation related marketing and education materials, including a website. This includes posting relevant public transit information potentially at an outdoor kiosk. This would include, but is not limited to, providing transit information such as maps and schedules to new residents and tenants in an orientation package.
  - Developing and maintaining information pertaining to pedestrian and cycling access to and from the Project Site.
  - Encouraging tenants to provide on-site transit pass sales to employees.

12.1.8 Greenhouse Gas Emissions

The GHG emissions assessment provided in Chapter 7, *Greenhouse Gas Emissions Assessment*, demonstrates that the assessment satisfies the current MEPA GHG Policy because it estimates potential Master Plan Project-related GHG emissions, and incorporates reasonable and feasible mitigation measures to reduce such emissions for the Design Case.

Stationary Source GHG Emissions

The Master Plan Project has been designed to meet the current Stretch Energy Code using guidance issued by DOER for MEPA GHG assessments to address the recent Stretch Energy Code updates (i.e., least 10 percent more efficient than the base requirements of ASHRAE 90.1-2013). The energy reduction measures for the Master Plan Project demonstrate the Proponent's commitment to constructing a sustainable energy-efficient project by exceeding the Stretch Energy Code requirement of 10 percent energy reduction with an aggregate energy reduction of approximately 19 percent (without structured parking areas included) resulting in an approximately 21 percent overall reduction in stationary source CO_2 emissions when compared to the Base Case.

The key energy conservation measures being evaluated for the Project include:

- Efficient building envelope that exceeds minimum code values for glazing [i.e. both U-value and solar heat gain coefficient (SHGC)] and insulation value of the roof, R-40 and exposed slab, R-35.
- High efficiency condensing natural gas fired boilers to meet heating demands.
- Dedicated outside air system with energy recovery.
- Floor-by-floor VAV reheat units serving active chilled beams.
- High efficiency air-cooled chiller plant with variable frequency drives.
- Low lighting power densities to be achieved from LED lighting and lighting control systems.

Chapter 7, *Greenhouse Gas Assessment*, provides a comprehensive summary of the energy conservation measures assumed as part of the energy model. As the Project's design develops, the design team will consider further load reduction where possible through additional strategies.

As discussed in Chapter 4, *Sustainability/Green Building*, the Proponent has committed to having 50 percent of the buildings developed as part of the Master Plan Project satisfy requirements for a minimum LEED Gold rating and 50 percent of the buildings satisfy requirements for a minimum LEED Silver rating. Building design that meets LEEDv4 criteria to such levels better ensures energy usage reduction and, therefore, stationary source GHG emissions reductions compared to a conventional, non-LEED building.

The Proponent will submit a self-certification, signed by an appropriate professional, to the MEPA Office that identifies the as-built energy conservation measures and documents the stationary source GHG emissions reductions from the baseline case for the Project post-construction, as required by the MEPA GHG Policy (see Section 12.13 below).

Mobile Source GHG Emissions

The mobile source GHG assessment calculated the GHG emissions for Master Plan Project-related mobile sources. A comprehensive transportation mitigation program has been developed to mitigate impacts of Project-related vehicle traffic. Specifically, as discussed in Section 6.13 of Chapter 6, *Transportation*, the traffic mitigation measures include roadway improvements and TDM measures.

The physical roadway improvements result in delay savings and consequentially 36,128 tons per year reduction of mobile source GHG emissions. Previous estimates of similar TDM programs in an urban area have ranged on the order of a two to five percent reduction in vehicles miles traveled ("VMT"), which is assumed to result in comparable air emission reductions. Assuming a two percent reduction, the TDM plan is expected to provide 2,560 tons per year reduction of mobile source GHG emissions resulting in a total of approximately 89,327 tons per year of mobile source GHG emissions associated with the Master Plan Project. Table 7-24 in Chapter 7, *Greenhouse Gas Assessment*, presents the Master Plan Project-related mobile source CO2 emissions and estimated reductions associated with the proposed TDM measures.

Additionally, the Proponent will provide preferred parking spaces for alternative-fuel vehicles. A portion of parking spaces on-site will be equipped to support EV charging stations and will be provided. Fully electric vehicles do not have any tailpipe emissions (such as NOx or particulates-both of which contribute to respiratory illness) and emit next to no engine heat reducing the high temperatures in congested corridors.

12.1.9 Air Quality

For localized air quality impacts, as demonstrated in Section 9.4.1 of Chapter 9, *Environmental Protection*, the air quality evaluation demonstrated that the development of the Master Plan Project would not result in adverse localized air quality impacts. The microscale analysis evaluated Master Plan Project-related vehicles traveling through congested intersections in the study area. This analysis demonstrates that all existing and future carbon monoxide concentrations are below the NAAQS.

For regional air quality impacts, as demonstrated in Section 9.4.2 of Chapter 9, *Environmental Protection*, A comprehensive transportation mitigation program has been developed to mitigate impacts of Master Plan Project-related traffic, including various roadway and intersection improvements. In addition to the intersection improvements the Proponent anticipates implementing a TDM program. Implementation of the TDM program is expected to improve air quality in the study area by promoting the use of alternative forms of transportation over the use of single-occupant motor vehicle trips. A full description of roadway and intersection improvements, and TDM measures is provided in Chapter 6*, Transportation*.

The physical roadway improvements result in delay savings and consequentially a 41.0 kg/day reduction of VOCs and a 15.4 kg/day reduction of NOx. Previous estimates of similar TDM programs have ranged on the order of a two to five percent reduction in vehicles miles traveled ("VMT"), which is assumed to result in comparable pollutant emission savings. Assuming a two percent reduction, the TDM plan is expected to provide 1.7 kg/day reduction of VOCs and a 0.7 kg/day reduction of NOx. This results in Master Plan Project-related emissions of 42.9 kg/day of VOCs and 16.6 kg/day of NOx. A summary of the mitigation emissions reduction is provided in Table 9-7 of Chapter 9, *Environmental Protection*.

12.1.10 Climate Change Resiliency

Without the Master Plan Project, the Project Site and adjacent areas would be subject to flooding due to the projected increases in precipitation and sea level rise that are expected to result from climate change. For this reason, the Master Plan Project has been developed with a key focus on resiliency. Site-specific flood models were developed to evaluate various site design and mitigation options with the goal of reducing the impacts of increased precipitation and coastal storm flooding both on- and off-site.

The Master Plan Project's grading and drainage design raises key portions of the Project Site for flood protection while optimizing flood storage capacity. Large areas of the Project Site's over 40 acres of open space can be utilized as flood storage for the Sales Creek watershed system, and a robust tree canopy within the Central Common and within the streetscapes provide increased stormwater absorption. In addition, some of the lower levels of parking garages have been designed to be utilized for flood storage under extreme flooding conditions. The stormwater management system has been designed to address potential increases in storm intensity due to climate change in accordance with recent BWSC guidance (i.e., the forecasted 10-year and 100-year events). The Project Site has been modeled with an upgraded and optimized Bennington Street Pump Station and an additional tide gate on the culvert at the eastern limits of the property

The risk of flooding to buildings on-site will be reduced by targeting at-grade first floor elevations of 20.5 feet BCB for non-critical buildings and 21.5 feet BCB for critical buildings, infrastructure and ground floor residential space, per BPDA guidance, to provide one to two feet of freeboard above the projected 2070 BFE. In areas where setting building grades at the recommended FFEs is not achieved due to site constraints, alternative flood protection measures will be implemented, such as using dry floodproofing materials; maintaining emergency access where practicable; designing adaptable ground-floor space; designing with the ability to add temporary flood barriers to building openings, such as flood logs and flood gates, should they become necessary; and moving critical components of buildings to upper stories when necessary.

Proposed strategies to reduce the impacts of increased heat, or heat island effect, include:

› Designing the tree canopy to serve the dual purpose of mitigating high temperatures through provision of shade and transpiration; and
› Selecting paving materials with less heat absorbing capacity and a high Solar Reflective Index to offset the effects of increasingly hot summers.

Strategies to mitigate the impacts of increased average temperatures and extreme heat on future buildings include:

› Designing efficient building envelopes that exceed minimum code values for glazing and roof insulation;
› Specifying operable windows for residential buildings and considering them for hotel and office buildings;
› Using a 95°F peak day for sizing of building mechanical systems; and
› Using the open/green space and tree canopy to help mitigate heat island impacts and make the Project Site more resilient to increasing temperatures.

12.1.11 Historic Resources

The Proponent recognizes the historical nature of the racetrack facility at Suffolk Downs and its significance to Boston, Revere, and the region. The Master Plan Project is considering measures to incorporate elements of the history of the thoroughbred racing complex into portions of the proposed open space system, including:

› Inventory, Salvage, and Reuse of Certain Race Track Elements: An inventory will be undertaken to identify certain race track elements that could be reused within the on-site open space system and/or potential donation to local museums. Elements may include:
  - Race track endpoint marker
  - Horsehead flagpole bases and flagpoles
  - Starting gate
  - Portions of the scoreboard
  - Jockey bollards
  - Race track furlong marker
› Archive – Photographs, documents, paintings, and other collected horse racing memorabilia will be inventoried and gathered for potential inclusion on site and/or donated to local museums.
› Interpretive Exhibit – An interpretive exhibit will be developed and incorporated in a select area of the open space system.

The Proponent looks forward to continuing consultation with MHC to develop a mitigation plan to be implemented as part of the Master Plan Project.

12.1.12 Solid and Hazardous Waste

Building Demolition

Prior to demolition, a comprehensive asbestos survey will be conducted in accordance with Massachusetts regulations 310 CMR 715 and 453 CMR 6.00 and asbestos containing materials will be properly abated prior to demolition, by a Massachusetts-licensed abatement contractor and will be inspected by a Massachusetts-licensed Project Monitor. Asbestos abatement will be conducted under the DEP Bureau of Waste Prevention Asbestos Notification Form AQ004. Prior to demolition a Demolition Notification form AQ06 will be submitted.

A comprehensive survey for PCBs will be conducted prior to demolition. Any PCB-containing materials will be abated and disposed of in accordance with state and federal.

Site Excavation

Where feasible, soils excavated during redevelopment are planned to be reused within the Project Site, initially for geotechnical surcharge and potentially as fill material. Fill material will be required to raise portions of the Project Site to higher elevations, including to raise certain areas above floodplain elevations. If soil from the Project Site were to be removed off-site, it will be handled in accordance with the provisions of applicable law, including MGL c.21E (and potentially c.21C), as applicable, and under the supervision of a Licensed Site Professional ("LSP").

As discussed in Section 6.2.5 of Chapter 6, *Environmental Protection*, of the EENF/EPNF, RTN 3-34499 is currently at the Initial Site Investigation Phase I of MCP and has not been Tier Classified. Based on the information obtained through a phase I environmental site assessment report, a very limited area of the Project Site was found to have trace elements of arsenic in soil which area is estimated to be less than 100 cubic yards. Prior to or during construction of relevant portions of the Project Site, a Release Abatement Measure ("RAM") Plan will be submitted to the DEP and this limited area of arsenic impacted soil will be excavated and disposed of off-site in accordance with applicable law, including the MCP. A Permanent Solution Statement ("PSS") will be prepared for this limited area of arsenic condition and it is anticipated that this will document that the condition poses No Significant Risk to human health, public safety welfare, or the environment. An Activity and Use Limitation ("AUL") is not anticipated to be needed to address the arsenic in soil. Arsenic remediation will be overseen by a LSP.

12.1.13 Construction

Construction impacts are temporary in nature and are typically related to air (dust), noise, and stormwater runoff. Temporary construction-period impacts will be managed to minimize disruption to the surrounding neighborhoods. Construction Management Plans ("CMPs") will be prepared for each phase of the Master Plan Project to address temporary construction-related impacts. As requested in the MEPA EENF Certificate, the Proponent has developed a draft CMP for the Master Plan Project based on conceptual construction logistics scenario for each phase, which is presented in Appendix G. As each phase of development progresses through design and into the construction phase, the respective construction managers will refine and expand the respective CMPs in order to address sub-phases and reflect the input of the regulatory authorities having jurisdiction over CMPs.

The purpose of the draft CMP is to develop a proactive approach to identify and address the potential impacts on the community that may arise during construction and to minimize these impacts where possible. The Proponent will meet with local elected officials, as needed, during the development and implementation of the CMPs to address specific local concerns. The draft CMP aims to address impacts of the Master Plan Project construction activities. The CMPs to be developed for each phase of development will detail overall construction schedule, work hours, number of construction workers, worker transportation and parking, and number of construction vehicles and routes.

12.2 Draft Section 61 Findings

As required by 301 CMR 11.07(6)(k) of MEPA, this chapter provides draft Section 61 Findings for each state agency action to be undertaken on the Project.

MGL Chapter 30, Section 61, requires that "[a]ll authorities of the Commonwealth … review, evaluate, and determine the impact on the natural environment of all works, projects or activities conducted by them and … use all practicable means and measures to minimize [their] damage to the Environment. … Any determination made by an agency of the commonwealth shall include a finding describing the environmental impact, if any, of the project and a finding that all feasible measures have been taken to avoid or minimize said impact." The finding required by Section 61 "shall be limited to those matters which are within the scope of the environmental impact report, if any, required … [on a project]." MGL Chapter 30, Section 62A.

State agency actions for the Project include permits from MassDOT, DCR, DEP and MWRA. Section 61 findings for these actions are provided below to assist the agencies in meeting their obligations. The Proponents will be responsible for implementing all of the mitigation measures. Individual costs have not yet been determined because most are considered to be part of the overall Project design.

12.2.1 MassDOT Permit to Access State Highway

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

PROJECT NAME:	Suffolk Downs Redevelopment
PROJECT LOCATION:	Boston and Revere
PROJECT PROPONENT:	The McClellan Highway Development Company, LLC
	c/o The HYM Investment Group, LLC
EEA NUMBER:	15783

Each agency of the Commonwealth that is taking an Agency Action (e.g., issuing a permit) must make a finding, pursuant to MGL Chapter 30, Section 61, that all feasible measures have been taken by the Proponent to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. These Section 61 Findings specify the entity responsible for funding and implementing any such mitigation measures, and the anticipated mitigation implementation schedule.

The proposed mitigation measures for the Suffolk Downs Redevelopment Master Plan Project are described in the Draft Environmental Impact Report (DEIR), which was filed in October 2018. The following sections provide a summary of possible impacts to intersections and roadway under MassDOT jurisdiction. The proposed impact avoidance, minimization and mitigation measures are the basis upon which Section 61 Findings may be made by the Massachusetts Department of Transportation (MassDOT). All impact minimization measures and mitigation measures outlined herein will be funded or implemented by the McClellan Highway Development Company, LLC (the Proponent), its Agents, Representatives and/or Contractors.

Project Description

The Project consists of the redevelopment of the 161-acre Suffolk Downs site in Boston and Revere from a vacant and underutilized horse racing facility into approximately 16.2 million square feet (sf) of a mix of uses as described in the DEIR

(including retail, residential, commercial/office, lab, and hotel), connected and supported by new publicly-accessible open space, neighborhood retail, and civic spaces. The redevelopment of Suffolk Downs provides a unique opportunity to create an engaging open space system, create additional housing, spur economic development, and improve connections between several adjoining neighborhoods as well as the surrounding waterfront, open space and other natural amenities.

History of MEPA Review

The Proponent prepared and submitted, pursuant to M.G.L. c. 30, § 61 and 62A-H of MEPA and its implementing regulations (301 CMR 11.00), an Expanded Environmental Notification Form and Phase 1 Waiver Request (the Expanded ENF) on November 30, 2017. On January 26, 2018, the Secretary of Energy and Environmental Affairs (the "Secretary") issued a Certificate on the Expanded ENF and a Draft Record of Decision ("DROD") concerning the Phase 1 Waiver Request for Phase 1 of the Project. A Final Record of Decision ("FROD") for Phase 1 was issued on February 28, 2018.

Permit Requirements

A Permit to Access State Highway will be required by MassDOT. This permit will be a Category III Complex Vehicular Permit.

Project Impacts

Based on CTPS/MassDOT Parameters, the Project is anticipated to generate approximately 76,810 (38,405 entering and 38,405 existing) average daily new vehicle trips, with 4,939 (3,853 entering and 1,086 exiting) new vehicle trips during the weekday morning peak hour and 5,990 (2,015 entering and 3,975 exiting) during the weekday evening peak hour. Using the Expected TOD Parameters, the Project is expected to generate 3,612 vehicle trips (2,810 entering/802 exiting) during the weekday morning peak hour and 4,442 vehicle trips (1,505 entering/2,937 exiting) during the weekday evening peak hour. The Project is expected to generate 3,853 transit trips (2,582 entering/1,271 exiting) during the weekday morning peak hour and 4,164 transit trips (1,583 entering/2,581 exiting) during the weekday evening peak hour. Refer to the table below for a comparison of adjusted Project trips based on these parameters.

Master Plan Adjusted Project Trips

		CTPS/MassDOT Parameters			Expected TOD Parameters		
		Vehicle	**Transit**	**Walk/Bike**	**Vehicle**	**Transit**	**Walk/Bike**
Daily	In	38,405	12,500	7,298	32,638	15,270	6,766
	Out	38,405	12,500	7,297	32,638	15,270	6,766
	Total	76,810	25,000	14,595	65,276	30,540	13,532
AM	In	3,853	1,832	540	2,810	2,582	501
	Out	1,086	902	152	802	1,271	143
	Total	4,939	2,734	692	3,612	3,853	644
PM	In	2,015	1,053	393	1,505	1,583	367
	Out	3,975	1,717	775	2,937	2,581	716
	Total	5,990	2,770	1,168	4,442	4,164	1,083

Mitigation Measures

The following recommendations summarize the roadway improvements within the study area necessary to provide safe and efficient access. Detailed traffic analyses indicate that some of the locations under MassDOT jurisdiction currently experience delays during the peak periods. Without the implementation of any improvement measures at these locations, delays and congestion would worsen with or without the proposed development in place. Improvements are proposed as part of this Project to mitigate the Project's traffic impacts, as well as to accommodate future background growth, and alleviate existing deficiencies. The mitigation measures described herein will be built in phases to address impacts associated with the phased build out of the Master Plan. The Proponent will work with MassDOT regarding specific timing for each improvement. The Proponent will design and construct the following improvements as described below:

Winthrop Avenue at Revere Beach Parkway/Harris Street

This intersection was recently reconstructed by MassDOT in 2015-2016, which included replacement of the bridge over the MBTA tracks and several other improvements that had been previously proposed as part of the other projects under consideration at the time. As part of the Master Plan Project mitigation, the Proponent is proposing additional measures that will provide a benefit for local and regional traffic in this area:

- Install two southbound left-turn lanes on the Route 16 from Route 1A south and Bell Circle to allow vehicles to access Winthrop Avenue eastbound.
- Install a second exclusive right turn lane on Route 16 on the northbound approach.
- Change two-way Harris Street to one-way away from Winthrop Avenue to Sewall Street. This is intended to protect the neighborhood area from cut-through

traffic now bypassing Bell Circle that will be served by the above left turn addition.

› Optimize traffic signal timing and phasing plan.

The provision of a southbound left-turn lanes on Route 16 will allow traffic from the north to exit Bell Circle sooner and access Winthrop Avenue/Revere Beach Parkway without having to travel through the neighborhoods. Providing this alternate route should reduce congestion at several locations in this area.

Revere Beach Parkway/Winthrop Avenue Corridor from Campbell Avenue to Northeast of the Winthrop Avenue Split.

This corridor work extends from the Revere Fire Station through North Shore Road, Tomasello Drive and the Winthrop Avenue Split at 205 Revere Beach Parkway. Beginning at the westerly end of the corridor, a short distance of the existing median in front of the Revere Fire Station will be removed at the request of the City. The break and associated traffic signal control (considering options for hybrid control of the eastbound movement only versus a full fire pre-empt signal in order to protect the Campbell Avenue approach to westbound Revere Beach Parkway) will allow direct access from the Station to Revere Beach Parkway westbound. The current access to Revere Beach Parkway westbound is via a right turn from the Station and a U-turn at North Shore Road.

The eastbound left-turn lane from Revere Beach Parkway to North Shore Road will also be lengthened given observed and calculated left turn storage issues that impact capacity and operation of the left most through lane resulting in a lane imbalance on the approach to North Shore Road. Note that the widening to accommodate the lengthening will be completed on the westbound side of the Parkway between North Shore Road and Campbell Avenue within the existing right-of-way.

At **North Shore Road**, in addition to the eastbound left turn lane, proposed improvements include the relocation of the existing North Shore Road median and elimination of a delta island in the northeast quadrant to provide a second left-turn lane from North Shore Road to Revere Beach Parkway eastbound. The right-turn lane will continue to operate under yield sign control, and the pedestrian crossing on the west side of the intersection will be maintained. With the elimination of the Northeast quadrant delta island a proposed reduction in the corner radius is also proposed.

Tomasello Drive will be relocated easterly approximately 185 feet and serve as the primary exit point from the site to Revere Beach Parkway. The relocation is seen as critical to operation of the corridor given vehicle storage requirements and intersection spacing. Tomasello Drive will continue as a five-lane corridor with two entering (southbound) lanes and three exiting lanes (a left, a left/right, and a right). The existing median break serving Tomasello Drive will be closed and replaced by a

reduced width median break at the new location. Note that the driveway opposite Tomasello Drive serving 205 Revere Beach Parkway will be modified to a right-in/right-out only alignment. With the relocation of the corridor closer to the Winthrop Avenue intersection, comes the need for replacement of vehicle storage in the left turn lane. Two left turn lanes will be provided westbound on Revere Beach Parkway from the Winthrop Avenue Split to Tomasello Drive. This results in a five-lane westbound cross section in the current design (three through lanes and the double left) that are not necessarily needed for capacity but for lane balance. We will work with the DCR to look at opportunities to reduce this section to four lanes and provide a wider median as the design progresses. Eastbound the corridor is maintained at the existing three lane width with two through lanes and an exclusive right turn lane to Tomasello. As site volumes increase with development we have also identified the potential need for a second right turn lane to the Tomasello Drive. This turn lane would begin at the current curb cut for Tomasello Drive and extend to the new corridor. The pedestrian crossing of Revere Beach Parkway would be on the east side of the intersection and operate concurrently with the Tomasello left turn exit.

Modifications are proposed to the on-going construction at **Revere Beach Parkway and Winthrop Avenue.** The modifications will build off of the plans proposed to provide access to 205 Revere Beach Parkway. However, given the timing of approvals and the needs associated with 205 RBP access and egress, the modifications will follow completion of the current project by approximately one year. The basic modifications will include changes in the proposed pedestrian crossing points (move from west side of the 205 RBP driveway to the east side) and extend the left turn storage lane to the 205 RBP driveway to allow maximization of the westbound storage to Tomasello Drive. The plan also includes median modifications but maintains the curb bump-out on the eastbound approach to an exclusive right turn lane to Winthrop Avenue. (two through lanes will be maintained continuing on Revere Beach Parkway eastbound to northeastbound. The two left turn lanes from Winthrop Avenue westbound will be maintained as will the three westbound lanes on Revere Beach Parkway. In addition, as discussed in Chapter 3, included within the SDOD zoning are building setback areas on Winthrop Avenue (20-foot building setback/zero height). Winthrop Avenue utilizes this space to provide a planting strip, two-way cycle track and a sidewalk from Washburn Avenue to North Shore Road.

Winthrop Avenue Corridor - Revere Beach Parkway to Bennington Street including a Site Driveway and MBTA Beachmont Parking Lot

As mentioned previously, the proposed site access plan includes a restriping of the Winthrop Avenue corridor to three lanes (generally one through lane per direction with dedicated left and right turn lanes at various points). The three-lane section is dictated by conditions at the easterly end of the corridor - the MBTA Blue Line overpass at Beachmont Station and at the westerly end at the intersection of

Winthrop Avenue at Revere Beach Parkway. A new signalized intersection is proposed at a site driveway approximately 400 feet west of Washburn Avenue. As part of this plan, the existing MBTA Parking Lot Driveway would be relocated approximately 150 feet to the west to form the southbound leg of the new intersection. Winthrop Avenue would be restriped within the existing pavement width to provide an exclusive left-turn lane and a through/right-turn lane on the eastbound and westbound approaches. The northbound and southbound approaches would also provide an exclusive left-turn lane and a shared through/right-turn lane. Pedestrian crossings will also be provided.

Donnelly Square (Bennington Street/State Road at Winthrop Avenue and Bennington Street at Crescent Avenue)

This signal-controlled intersection is adjacent to the MBTA Beachmont Station. The base improvement assumed for this site includes a signal upgrade using concurrent or overlapping pedestrian crossings where possible, extension of the Bennington Street median to the south to better control the prohibited left turn movement to a retail parking lot, and realignment of the Crescent Street approach to better manage the Bennington Street approach to Winthrop Avenue. Currently movement out of Crescent Street approaches the Bennington Street left turn lane to Winthrop Avenue in a manner that restricts movement in the through lane and has a tendency to focus more on traffic coming from the left (Bennington Street northbound) rather than potential pedestrian movement along the sidewalk to the right. The design of the northbound corridor recognizes the potential for the Constitution Beach to Revere Beach connection as a community path with approximately 20 feet reserved for the sidewalk and path area. Specific components include the following:

- Design and implementation of an optimal traffic signal timing and phasing plan, including split phasing, for the weekday morning, weekday evening, and Saturday midday peak periods.
- Redesign of the intersection to channelize traffic flow on the intersection approaches.
- At Winthrop Avenue, eastbound approach to Bennington Street provide a two-lane approach (exclusive right and through/left. Also, provide a new bus turn-out just west of Washburn Avenue.
- Provide a bus turnout westbound at the southeast corner of the MBTA parking lot.
- Construction of permanent pedestrian crosswalks with new ADA accessible ramps at all crosswalks within the Donnelly Square area.
- Installation new pavement markings within the Donnelly Square area.
- Installation of an emergency vehicle preemption system.

Route 1A Corridor ("Super Street Option")

- Route 1A at Boardman Street
- Route 1A at Suffolk Downs/Tomasello Drive
- Route 1A at Jughandle
- Route 1A at Furlong Drive

The "Super Street Option", splits movements among various controlled points with two-phase signal control. This design recognizes the efficiency of two-phase signal operation (that is, addressing all traffic movements at the intersection in only two signal phases) and the ability to move more vehicles through a corridor. It is based on a design approach advocated by the Federal Highway Administration (FHWA) several years ago in its Every Day Counts program, as well as promoting safer, more context-sensitive roadway design. It carries several names including "displaced left turns" and "Michigan Lefts".

Selection of this design concept was done in concert with MassDOT. A long-standing design option for the area dates back to the mid-1990s when the North Shore Transportation Study developed a series of concept designs for multiple locations in the area, carrying forward with the concept of an urban expressway. The super street alternative, initially developed for the corridor several years ago, treats the corridor as an urban arterial, limiting land impacts associated with the construction of an overpass alternative, and simply not shifting an operational problem from Boardman Street to the next signal-controlled intersection to the north.

The concept has undergone changes as the design has been developed with the introduction of a new north to south U-turn opportunity, the exploration of concepts allowing for direct left turns from the east side of Boardman Street, enhanced pedestrian crossing opportunities, provisions of bus turnouts near Tomasello Drive, consideration of other two-phase operation alternatives and designs for all users. The latter review included a series of alternatives for a community path, a separated bicycle facility, and an on-road bicycle area/partial width shoulder. The selected alternative in this case was the on-road provision allowing a five-foot shoulder through the 8,000-foot length of the super street alignment where the project limits would meet shoulders varying between 6 and 8 feet in width, which meets MassDOT's requirements for on-road bicycle accommodations. Primary restrictions in pursuing the other alternatives were severe right-of-way limitations along the entire corridor, right of way/existing conditions limitations north of the Boston/Revere Line require the shoulder use as the only option, and connectivity issues to the south prevented carrying the Community Path and separated bike facility as far as Curtis Street. In addition, MassDOT noted the importance of providing shoulders on an arterial like Route 1A to allow for of servicing disabled vehicles, accommodating emergency vehicles, and to facilitate evacuations. It is also important to note that there could be future opportunity for

expanded bicycle facilities in the north/south direction along Route 1A through either the redevelopment of the industrial and warehouse properties on the west side of Route 1A or potentially along the existing railway right of way that runs along Chelsea Creek. Separately the Proponent and the consultant team have explored the feasibility of extending the East Boston Greenway from Constitution Beach to Revere Beach which would be a more important north/south bicycle connection.

The basic design provides three lanes in each direction on Route 1A with the majority of improvements confined to within the existing State Highway Layout and most within the existing outside curb lines. From south to north, the overall plan begins in the area of the Marriott Courtyard. Northbound, the first signal-controlled point is at a U-turn lane developed for southbound (SB) to northbound (NB) U-turns. There is no southbound signal for through movement, only for the U-turn movement. The next controlled point is at Boardman Street where both northbound and southbound traffic on Route 1A will be stopped to allow movements from Boardman Street westbound (lefts and rights) and from Boardman Street eastbound (rights only). The next controlled point will be on Route 1A NB at a new U-turn lane for SB to NB reversal between Boardman Street and Waldemar Avenue. Here, southbound through traffic on Route 1A will not be stopped. Only the northbound through movement and the southbound to northbound U-turn will be subject to signal control. The next controlled point will be the Tomasello Drive intersection. Direct left turn from Route 1A SB to Tomasello Drive will not be permitted. Only left and right turns from Tomasello Drive will be allowed. The existing Jug Handle signal just north of Tomasello will be retained but its signal will be interconnected with the upgraded and new signals along the corridor. The final controlled point will be the Furlong Drive intersection where left and right turn movement out Furlong will be permitted with no left turns from Route 1A SB permitted. This will be accomplished with a proposed break in the existing median on Route 1A and the addition of a new traffic signal. The super street concept will end at the existing Route 1A overpass entrance and exit ramps. The third lane northbound will become an exit only to Revere Beach Parkway/Winthrop Avenue (Route 145) The entrance from Route 145 to Route 1A SB will become an add-lane condition eliminating the current merge near Railroad Avenue.

At Boardman Street, three lanes would be provided both northbound and southbound. Direct left turns from Route 1A southbound to Boardman Street would be prohibited and that traffic instead would proceed further south on Route 1A to a signal-controlled left exit into a signal-controlled U-turn to access the northbound lanes of Route 1A and Boardman Street. Only right turns are provided from Boardman Street eastbound. The demand to the east side of Boardman Street and that to Route 1A northbound will be permitted to reverse direction via the signal-controlled U-turn lane south of Boardman Street. Direct left turns from Route 1A NB to Boardman Street west would also be prohibited. Those vehicles would be rerouted to Tomasello Drive where the NB to SB reversal will be permitted. The

permitted movement across Route 1A flow will be the movement from Boardman Street westbound lanes. These lanes will be realigned in order to create a separation between the Boardman Street movement from the west allowing vehicles to be stored during the eastbound green phase. A pedestrian crossing of Route 1A will be maintained.

The U-turn lane between Waldemar Avenue and Boardman Street is intended to serve the left turn demand southbound on Route 1A to Tomasello Drive and also will serve as a direct access point for the Waldemar Avenue neighborhood, a movement now provided via a U-turn at Boardman Street.

At Tomasello Drive, a signal would be installed to allow vehicles traveling on Route 1A northbound to reverse direction by means of a jughandle-style layout, providing for the replacement movement for the northbound left turn and U-turn currently permitted at Boardman Street, and for the movement from Waldemar Avenue. This signal would also allow vehicles exiting Tomasello Drive from Suffolk Downs to make a left-turn onto Route 1A southbound. Three through lanes would be provided on Route 1A in the northbound direction together with a fourth northbound right-turn lane is also provided that will serve as access to a bus-pull-off and bus queue jump lane). Three through lanes will be provided southbound. The Tomasello Drive approach would consist of two left-turn lanes and two right-turn lanes. The two-phase operation at this location would include Route 1A northbound and southbound during phase 1 and Tomasello Drive as phase 2. A new pedestrian crossing would be incorporated on the northerly side of the exiting corridor intersection which will also allow for a future connection to Chelsea Creek.

The Route 1A/Jughandle intersection will continue to operate as a two-phase signal, but three lanes on the northbound and southbound Route 1A approaches would be provided.

Furlong Drive would be modified to provide three northbound and three southbound through lanes. No left-turns into Furlong Drive would be allowed at this location. The Route 1A southbound traffic would proceed to the Jughandle signal where they can reverse direction and access Furlong Drive via the right-turn lane. Two lanes (a right turn lane and a shared left/right-turn lane) will be provided on the Furlong Drive approach.

Route 1A Corridor Land Needs

Based on the proposed layout of the super street option summarized above, certain land beyond the existing State Highway Layout will be required to construct the improvements. The extent and nature of these land impacts (i.e. sidewalk easements, slope easements, acquisitions, etc.) will be identified when an updated survey of the corridor has been completed. In addition, discussions will need to be held with MassDOT Highway Division Layout Section regarding rights of way and further refinements will need to be made to the plans in coordination with MassDOT

Highway Design engineers. Further details on land needs will be provided in the FEIR.

Bell Circle (a.k.a Mahoney Circle)

Significant improvements are proposed for Bell Circle. These include widening approaches and departures, realignment of the State Road movement from the Route 16 corridor, recognition of operational improvements that have proven effective, recognition of pedestrian crossing needs, input from City of Revere officials and capacity needs associated with the project. The intent is to minimize use of the "outer circle roadways" to serve turning traffic that is completing what would be a left turn maneuver or entering from lower volume roadways such as Beach Street. The overall plan, includes:

- Providing a three-lane approach on the northbound Route 1A to the Circle.
- Realigning the connecting corridor between Route 16 EB and WB to the Circle to allow direct access to Route 60 NB, eliminating the current movement through the Circle and the associated right turn to Route 60 NB at VFW Highway (Route 1A NB and SB).
- Provide direct access from the connecting corridor from Route 16 EB and WB to Route 1A NB (currently posted as the right turn on red after stop movement and Route 1A NB approach movement. This movement will be physically separated from other movements through the Circle with pedestrian crossing control indicated with a hybrid signal or rectangular flashing beacon.
- Introduction of a direct left turn from Route 1A SB, (VFW Parkway) to the three lane Route 60/Route 1A SB movement, eliminating the need for that traffic to circulate around the Circle.
- Widen Route 60 to a three-lane cross section between Harris Street (north of the Circle) through the Circle to the ramps to Route 16 and 145. The third lane will become an exit only to at the ramp with two southbound through lanes continuing on Route 1A.
- Add signal control to the Beach Street (eastbound approach) to the Circle.
- Control/channelize the movement from Everett Street to the Circle. While allowing full access in to Everett Street, all movement from Everett Street will leave the corridor in a channelized lane forcing a right turn to Route 60 NB only. Vehicles will be permitted to complete a NB to SB U-turn at a new signal-controlled U-turn lane at Harris Street.
- Provide a new signalized pedestrian crossing at the Harris Street U-turn signal. The crossing location is consistent with the northerly boundary of the Rumney Marsh Academy, affording the opportunity to cross Route 60 without travelling directly to Bell Circle.
- Modify pedestrian crossing routes throughout the area, including elimination of the crossing within the Circle.

Route 1A Southbound at Curtis Street

Improvements at this location include realigning Route 1A southbound to formalize an exit to the Bennington Street and Curtis Street areas. Improvements consist of providing two continuous lanes for the southbound through movement, creating an island within the current paved area and providing stop control at the ramp/Curtis Street intersection. Movement from Curtis Street to Route 1A south will continue to be in an add-lane condition.

Route 1/Route 16 Interchange and Route 16 at Garfield/Webster Street

The proposed improvements at the Route 1/Route 16 interchange are intended to provide key missing movements to an important regional highway access point. Under existing conditions, access from Route 1 southbound to Route 16 eastbound, from Route 16 westbound to Route 1 northbound, and from Route 1 NB to Route 16 EB are not provided. A redundant ramp access from Route 16 westbound to Route 1 southbound is provided less than 1,500 feet from the existing interchange, or approximately 600 feet west of Webster Avenue, (a braided ramp system) from a left lane exit from Route 16WB.

We view the most critical ramp addition to be the Route 1A SB to Route 16 EB movement. Currently the movement is completed via the right exit from Route 1 South to a U-turn at Garfield/Webster. The left turn lane is short and represents a capacity issue not only manifested in green time issues but also through material lane blockages on Route 16EB.

The proposed improvements maintain the existing Route 16 WB to Route 1 SB loop ramp. The existing median between the ramps would be replaced with a concrete barrier and the loop ramp slightly narrowed to allow the development of a two-lane off-ramp extending approximately 600 feet from the intersection without relocating the outside curb lines and resulting in no slope of wetland impacts. No additional through traffic is added to the Garfield/Webster intersection. Left turn access from the ramp is signal controlled at Route 16 where a short median break will be provided. The total lane storage provided for the left turn movement is approximately 750 feet including the two-lane left turn movement at the intersection. This storage is more than sufficient for the projected turn volume that is not expected to exceed 500 vehicles per hour. The right turn movement is not signal controlled and is treated as the existing add-lane (but realigned) at its intersection with Route 16WB.

The on-ramp from Route 16 westbound to Route 1 northbound would be developed with a second Route 16 median break on the easterly side of Route 1 supported by a 300- to 400-foot left turn lane. The left turn movement to Route 1 northbound would be signal-controlled and would tie into the existing eastbound to northbound loop ramp through an open infield area.

The interchange work would also include optimization of the Route 16/Webster Avenue/Garfield Avenue intersection signal timing, and pavement area reduction where acceleration lanes are no longer required. The plan would provide an important safety improvement by virtue of the significant reduction in the existing dangerous weave and U-turn movements at this location. All work would be confined to the current right of way limits.

Day Square

Day Square includes the following five intersections:

- Neptune Road at Saratoga Street
- Neptune Road at Bremen Street
- Bennington Street at Neptune Road
- Bennington Street at Vienna Street
- Neptune Road at Route 1A NB off-ramp

Several improvements are proposed with this area including:

- Closure of westbound Neptune Road between the Route 1A northbound off-ramp and Bennington Street.
- Rerouting the demand associated with this closed movement to Vienna Street where a new signal, extending to a modified pedestrian crossing to Wood Island Station, would be installed. From Vienna Street, the replacement movement from Neptune Road to Route 1A SB would be via an existing left turn lane and the movements to Bennington Street south and Neptune Road west would become a through movement and right turn respectively.
- Establish Bremen Street north of Neptune Road as one-way northbound (currently two-way).
- Restrict direct access from Saratoga Street to Neptune Road westbound.
- Provide a "mini-roundabout" (20' diameter and mountable) for yield control on all approaches to the Chelsea Street/Neptune Road/Saratoga Street intersection allowing direction reversal for movements on Neptune Road.

The proposed improvements address MassDOT concerns about overhead clearances and eliminate a signal phase, allowing additional time to be allocated for the left turn movements from Bennington Street to Route 1A. It should also be noted that the Project is not expected to send a high percentage of traffic down Bennington Street. As such, these are more regional improvements that are not driven by site-generated traffic.

Revere Street at Route 60

Improvements at this location include restriping the eastbound and westbound approaches on Revere Street to provide an exclusive left-turn lane and a shared

through/right-turn lane. Given the proximity of Tuttle Street to the traffic signal, "Do Not Block Intersection" signage and striping is proposed on this approach. Improvements also include designing and implementing and optimal traffic signal timing and phasing plan, corner radius reductions where possible, and constructing pedestrian improvements including new crosswalks and ADA accessible ramps.

The existing EB bicycle lane will be modified to a "share lane" with the stripping area that will extend approximately 150 feet per direction on Revere Street. Parking will also be prohibited within this zone.

The major improvement to intersection operations is associated with what is expected to be a 90% reduction in the left turn demand from Route 60 SB to Revere Street. Part of this intersection improvement includes the restoration of a closed median break at the Breed Street intersection and introduction of a signal controlled left turn movement to Breed Street. Note that movement from Breed Street will be limited to the current right turn only. The primary benefits are anticipated during the evening peak period. (See following.)

Breed Street at Route 60

In conjunction with the improvements at Revere Street at Route 60, a break in the median is proposed and a new traffic signal would be installed to accommodate southbound left turns onto Breed Street. The Route 60 southbound approach would provide two through lanes and an exclusive left-turn lane. The Route 60 northbound approach would provide two through lanes. The Breed Street westbound approach would provide a channelized right-turn lane and left turns would be restricted. This new traffic signal and left-turn lane would result in a substantial reduction in southbound left turns at the intersection of Route 60 and Revere Street which will improve operations.

Brown Circle

Improvements at this location include designing and implementing a comprehensive upgrade of the signs and pavement markings approaching and within Brown Circle, designing and implementing channelization and signalization improvements including new pavement and directional markings and channelization islands at the Route 107 northbound approach, extending islands and installing new islands to facilitate safer traffic flow, and installing ADA accessible ramps and associated sidewalk and median improvements. Plans for sign and markings will be developed in a manner consistent with the soon to be released MassDOT guidance document for roundabouts and traffic circles.

Route 1A (North Shore Road) at Revere Street

Improvements at this location include designing and implementing and optimal traffic signal timing and phasing plan, constructing pedestrian improvements

including new crosswalks and ADA accessible ramps, and installing an emergency vehicle preemption system. In addition, the exclusive southbound left-turn lane lengthened through a combination of shoulder width reduction, replacement of the existing guardrail median with a concrete barrier median and minor widening (one to two feet per side). The lengthening will limit blockage of the existing left most through lane, improving lane balance on the southbound approach.

Bennington Street at Saratoga Street

Improvements at this location include installing a traffic island in the southwest quadrant, redirecting crosswalks for the Bennington Street and Saratoga Street crossings, providing a compliant curb ramp for the Bennington Street cross in the southeast quadrant, changing lane uses on the northbound Bennington Street approach (one right only and one through left), removing/relocating the median on the northerly leg of Bennington Street to allow a three lane southbound approach (two through and one left) and one through lane northbound, and modifying signal phasing.

Route 60 at Sigourney Street and Charger Street

At the request of MassDOT District 4, the Proponent will review/restore the time-based coordination system with GPS time clock backup and update the signal coordination plans for the two-intersection system.

Bicycle and Pedestrian Improvements

In addition to the extensive offsite traffic mitigation program, the Master Plan Project also includes substantial enhancements for bicycles and pedestrians both onsite and offsite to improve local and regional connections.

- Development of an extensive on-site bicycle network that includes over 17,000 linear feet of on-street bike accommodations and over 13,000 linear feet of cycle tracks.
- Extensive pedestrian network that includes several community paths which extend through the 40-acre open space system.
- Development of a two-way cycle track along Winthrop Avenue from Washburn Avenue to North Shore Road.
- Exploration and design of East Boston Greenway extension from Constitution Beach to Revere Beach.
- New at-grade community path crossing of Route 1A at Tomasello Drive to Chelsea Creek side.
- New at-grade pedestrian crossing of Route 1A at Furlong Drive to Chelsea Creek side.
- Community path connection to potential Walley Street bicycle facilities which lead back to Bonito Square and East Boston Greenway.

› Addition of new Bluebikes Stations (formerly Hubway) at the Project site and the Proponent will work with dockless bike companies to allow access to the site.

In addition, Go Boston 2030 is planning for a bikeshare network expansion to increase the number of bikes and stations to reach more Bostonians. According to Go Boston 2030, "by the end of 2022, Boston aims to grow its part of the system by 137 new stations, for a total of 268 stations in the city. The growth includes additional stations within the busiest areas of the system and broader access in all densely-populated neighborhoods." The Proponent will continue to work with the City of Boston, City of Revere, MassDOT and DCR to refine infrastructure plans and plans for external pedestrian and bicycle connections.

Transportation Demand Management (TDM) Program

The Master Plan Project will benefit from excellent access to MBTA subway (Blue Line) and bus service as well as strong pedestrian and bicycle networks. This will provide a firm foundation for the implementation of TDM strategies to maximize use of non-auto modes and reduce single occupant vehicle (SOV) travel. The TDM Plan for the Master Plan Project will be fully explored and documented in the next DEIR/DPIR filing.

In addition to MassRIDES, it is anticipated that the TDM Plan for the Master Plan Project will take advantage of membership in a local Transportation Management Association (TMA) which already facilitates proactive and comprehensive TDM initiatives in the area.

Consistent with the City of Boston's goals to reduce auto-dependency, the Proponent will proactively incorporate TDM measures to encourage alternative modes of transportation. TDM measures are most often directed at commuter travel, which is the purpose of the majority of the trips destined to the Project Site. The following discusses an array of TDM measures that will be implemented as part of the Master Plan Project.

› Provide secure bicycle storage for building tenants and their employees and visitors in accordance with the City of Boston Bicycle Guidelines.
› Bike racks will be provided at select, highly-visible locations within the Project Site. The racks will be securely mounted and feature current designs to properly secure bikes of all kinds.
› Addition of Bluebikes Stations on site. Demand for Bluebikes will be monitored over time and the number of stations/bikes will be adjusted accordingly;
› Multiple parking spaces for a car-sharing service will be provided, such as ZipCar®, within the new garages.
› Parking spaces on-site will be equipped to support EV charging stations and will be provided within the new garage.
› Preferential parking for alternative-fueled vehicles will be provided.

- Office and retail tenants will be encouraged to provide employer subsidies to employees who purchase monthly or multiple trip transit passes.
- Office and retail tenants will be encouraged to provide a guaranteed ride home program, in conjunction with MassRIDES, to eliminate an often-cited deterrent to carpool and vanpool participation.
- Potential office and retail tenants will be encouraged to offer direct deposit payment for monthly transit passes to employees.
- An on-site Transportation Coordinator will be designated to oversee parking and loading operations as well as to promote alternative transportation measures. The person assigned to this role will coordinate with office and retail tenants to help promote a reduced reliance on single-occupant motor-vehicle travel to the Project Site. To that end, the TDM measures identified in the following sections will be implemented under the direction and supervision of this person. The duties of the transportation coordinator may include, but not be limited to:
  - Acting as a liaison with office and retail employers and MassRIDES.
  - Assisting office and retail employees and residents with ride matching and transportation planning.
  - Disseminating information on alternate modes of transportation and developing transportation related marketing and education materials, including a website. This includes posting relevant public transit information potentially at an outdoor kiosk. This would include, but is not limited to, providing transit information such as maps and schedules to new residents and tenants in an orientation package.
  - Developing and maintaining information pertaining to pedestrian and cycling access to and from the Project Site.
  - Encouraging tenants to provide on-site transit pass sales to employees.

Section 61 Findings

MassDOT Highway Division finds that with the implementation of the mitigation measures described herein, all feasible means and measures will have been taken to avoid or minimize adverse impacts to the environment relating to construction and operation of the proposed transportation improvement project. Appropriate conditions will be included in the permits issued for the project to ensure implementation of the mitigation measures.

Agency:_____

Commissioner:_____

Date:_____

12.2.2 DCR Access Permit

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

PROJECT NAME:	Suffolk Downs Redevelopment
PROJECT LOCATION:	Boston and Revere
PROJECT PROPONENT:	The McClellan Highway Development Company, LLC
	c/o The HYM Investment Group, LLC
EEA NUMBER:	15783

Each agency of the Commonwealth that is taking an Agency Action (e.g., issuing a permit) must make a finding, pursuant to MGL Chapter 30, Section 61, that all feasible measures have been taken by the Proponent to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. These Section 61 Findings specify the entity responsible for funding and implementing any such mitigation measures, and the anticipated mitigation implementation schedule.

The proposed mitigation measures for the Suffolk Downs Redevelopment Project are described in the Draft Environmental Impact Report ("DEIR"), which was filed October 1, 2018. The following sections provide a summary of possible impacts to intersections and roadways under DCR jurisdiction as part of the Project. The proposed impact avoidance, minimization and mitigation measures are the basis upon which Section 61 Findings may be made by the Massachusetts Department of Transportation ("MassDOT"). All impact minimization measures and mitigation

measures outlined herein will be funded or implemented by the McClellan Highway Development Company, LLC (the "Proponent"), its Agents, Representatives and/or Contractors.

Project Description

The Project consists of the redevelopment of the 161-acre Suffolk Downs site in Boston and Revere from a vacant and underutilized horse racing facility into approximately 16.2 million square feet (sf) of a mix of uses as described in the DEIR (including retail, residential, commercial/office, lab, and hotel), connected and supported by new publicly-accessible open space, neighborhood retail, and civic spaces. The redevelopment of Suffolk Downs provides a unique opportunity to create an engaging open space system, create additional housing, spur economic development, and improve connections between several adjoining neighborhoods as well as the surrounding waterfront, open space and other natural amenities.

History of MEPA Review

The Proponent prepared and submitted, pursuant to M.G.L. c. 30, § 61 and 62A-H of MEPA and its implementing regulations (301 CMR 11.00), an Expanded Environmental Notification Form and Phase 1 Waiver Request (the Expanded ENF) on November 30, 2017. On January 26, 2018, the Secretary of Energy and Environmental Affairs (the "Secretary") issued a Certificate on the Expanded ENF and a Draft Record of Decision ("DROD") concerning the Phase 1 Waiver Request for Phase 1 of the Project. A Final Record of Decision ("FROD") for Phase 1 was issued on February 28, 2018.

Permit Requirements

Permit for construction and/or associated access to DCR park lands and roadways.

Project Impacts

Based on CTPS/MassDOT Parameters, the Project is anticipated to generate approximately 76,810 (38,405 entering and 38,405 existing) average daily new vehicle trips, with 4,939 (3,853 entering and 1,086 exiting) new vehicle trips during the weekday morning peak hour and 5,990 (2,015 entering and 3,975 exiting) during the weekday evening peak hour.

Using the Expected TOD Parameters, the Project is expected to generate 3,612 vehicle trips (2,810 entering/802 exiting) during the weekday morning peak hour and 4,442 vehicle trips (1,505 entering/2,937 exiting) during the weekday evening peak hour. The Project is expected to generate 3,853 transit trips (2,582 entering/1,271 exiting) during the weekday morning peak hour and 4,164 transit trips (1,583 entering/2,581 exiting) during the weekday evening peak hour. Refer to the table below for a comparison of adjusted Project trips based on these parameters.

Master Plan Adjusted Project Trips

		CTPS/MassDOT Parameters			Expected TOD Parameters		
		Vehicle	**Transit**	**Walk/Bike**	**Vehicle**	**Transit**	**Walk/Bike**
Daily	In	38,405	12,500	7,298	32,638	15,270	6,766
	Out	38,405	12,500	7,297	32,638	15,270	6,766
	Total	76,810	25,000	14,595	65,276	30,540	13,532
AM	In	3,853	1,832	540	2,810	2,582	501
	Out	1,086	902	152	802	1,271	143
	Total	4,939	2,734	692	3,612	3,853	644
PM	In	2,015	1,053	393	1,505	1,583	367
	Out	3,975	1,717	775	2,937	2,581	716
	Total	5,990	2,770	1,168	4,442	4,164	1,083

Mitigation Measures

The following recommendations summarize the roadway improvements within the study area necessary to provide safe and efficient access. Detailed traffic analyses indicate that some of the locations under DCR jurisdiction currently experience delays during the peak periods. Without the implementation of any improvement measures at these locations, delays and congestion would worsen with or without the proposed development in place. Improvements are proposed as part of this Project to mitigate the Project's traffic impacts, as well as to accommodate future background growth, and alleviate existing deficiencies. The mitigation measures described herein will be built in phases to address impacts associated with the phased build out of the Master Plan. The Proponent will work with DCR regarding specific timing for each improvement. The Proponent will design and construct the following improvements as described below:

Revere Beach Parkway/Winthrop Avenue Corridor from Campbell Avenue to Northeast of the Winthrop Avenue Split.

This corridor work extends from the Revere Fire Station through North Shore Road, Tomasello Drive and the Winthrop Avenue Split at 205 Revere Beach Parkway. Beginning at the westerly end of the corridor, a short distance of the existing median in front of the Revere Fire Station will be removed at the request of the City. The break and associated traffic signal control (considering options for hybrid control of the eastbound movement only versus a full fire pre-empt signal in order to protect the Campbell Avenue approach to westbound Revere Beach Parkway) will allow direct access from the Station to Revere Beach Parkway westbound. The current access to Revere Beach Parkway westbound is via a right turn from the Station and a U-turn at North Shore Road.

The eastbound left-turn lane from Revere Beach Parkway to North Shore Road will also be lengthened given observed and calculated left turn storage issues that

impact capacity and operation of the left most through lane resulting in a lane imbalance on the approach to North Shore Road. Note that the widening to accommodate the lengthening will be completed on the westbound side of the Parkway between North Shore Road and Campbell Avenue within the existing right-of-way.

At **North Shore Road**, in addition to the eastbound left turn lane, proposed improvements include the relocation of the existing North Shore Road median and elimination of a delta island in the northeast quadrant to provide a second left-turn lane from North Shore Road to Revere Beach Parkway eastbound. The right-turn lane will continue to operate under yield sign control, and the pedestrian crossing on the west side of the intersection will be maintained. With the elimination of the Northeast quadrant delta island a proposed reduction in the corner radius is also proposed.

Tomasello Drive will be relocated easterly approximately 185 feet and serve as the primary exit point from the site to Revere Beach Parkway. The relocation is seen as critical to operation of the corridor given vehicle storage requirements and intersection spacing. Tomasello Drive will continue as a five-lane corridor with two entering (southbound) lanes and three exiting lanes (a left, a left/right, and a right). The existing median break serving Tomasello Drive will be closed and replaced by a reduced width median break at the new location. Note that the driveway opposite Tomasello Drive serving 205 Revere Beach Parkway will be modified to a right-in/right-out only alignment. With the relocation of the corridor closer to the Winthrop Avenue intersection, comes the need for replacement of vehicle storage in the left turn lane. Two left turn lanes will be provided westbound on Revere Beach Parkway from the Winthrop Avenue Split to Tomasello Drive. This results in a five-lane westbound cross section in the current design (three through lanes and the double left) that are not necessarily needed for capacity but for lane balance. We will work with the DCR to look at opportunities to reduce this section to four lanes and provide a wider median as the design progresses. Eastbound the corridor is maintained at the existing three lane width with two through lanes and an exclusive right turn lane to Tomasello. As site volumes increase with development we have also identified the potential need for a second right turn lane to the Tomasello Drive. This turn lane would begin at the current curb cut for Tomasello Drive and extend to the new corridor. The pedestrian crossing of Revere Beach Parkway would be on the east side of the intersection and operate concurrently with the Tomasello left turn exit.

Modifications are proposed to the on-going construction at **Revere Beach Parkway and Winthrop Avenue.** The modifications will build off of the plans proposed to provide access to 205 Revere Beach Parkway. However, given the timing of approvals and the needs associated with 205 RBP access and egress, the modifications will follow completion of the current project by approximately one year. The basic modifications will include changes in the proposed pedestrian

crossing points (move from west side of the 205 RBP driveway to the east side) and extend the left turn storage lane to the 205 RBP driveway to allow maximization of the westbound storage to Tomasello Drive. The plan also includes median modifications but maintains the curb bump-out on the eastbound approach to an exclusive right turn lane to Winthrop Avenue. (two through lanes will be maintained continuing on Revere Beach Parkway eastbound to northeastbound. The two left turn lanes from Winthrop Avenue westbound will be maintained as will the three westbound lanes on Revere Beach Parkway. In addition, as discussed in Chapter 3, included within the SDOD zoning are building setback areas on Winthrop Avenue (20-foot building setback/zero height). Winthrop Avenue utilizes this space to provide a planting strip, two-way cycle track and a sidewalk from Washburn Avenue to North Shore Road.

Transportation Demand Management (TDM) Program

The Project will benefit from excellent access to MBTA subway (Blue Line) and bus service as well as strong pedestrian and bicycle networks. This will provide a firm foundation for the implementation of TDM strategies to maximize use of non-auto modes and reduce single occupant vehicle ("SOV") travel. The TDM Plan for the Master Plan Project will be fully explored and documented in the next DEIR/DPIR filing.

In addition to MassRIDES, it is anticipated that the TDM Plan for the Project will take advantage of membership in a local Transportation Management Association ("TMA") which already facilitates proactive and comprehensive TDM initiatives in the area.

Consistent with the City of Boston's goals to reduce auto-dependency, the Proponent will proactively incorporate TDM measures to encourage alternative modes of transportation. TDM measures are most often directed at commuter travel, which is the purpose of the majority of the trips destined to the Project Site. The following discusses an array of TDM measures that will be implemented as part of the Project.

- Provide secure bicycle storage for building tenants and their employees and visitors in accordance with the City of Boston Bicycle Guidelines.
- Bike racks will be provided at select, highly-visible locations within the Project Site. The racks will be securely mounted and feature current designs to properly secure bikes of all kinds.
- Addition of Bluebikes Stations on site. Demand for Bluebikes will be monitored over time and the number of stations/bikes will be adjusted accordingly;
- Multiple parking spaces for a car-sharing service will be provided, such as ZipCar®, within the new garages.
- Parking spaces on-site will be equipped to support EV charging stations and will be provided within the new garage.

- Preferential parking for alternative-fueled vehicles will be provided.
- Office and retail tenants will be encouraged to provide employer subsidies to employees who purchase monthly or multiple trip transit passes.
- Office and retail tenants will be encouraged to provide a guaranteed ride home program, in conjunction with MassRIDES, to eliminate an often-cited deterrent to carpool and vanpool participation.
- Potential office and retail tenants will be encouraged to offer direct deposit payment for monthly transit passes to employees.
- An on-site Transportation Coordinator will be designated to oversee parking and loading operations as well as to promote alternative transportation measures. The person assigned to this role will coordinate with office and retail tenants to help promote a reduced reliance on single-occupant motor-vehicle travel to the Project Site. To that end, the TDM measures identified in the following sections will be implemented under the direction and supervision of this person. The duties of the transportation coordinator may include, but not be limited to:
  - Acting as a liaison with office and retail employers and MassRIDES.
  - Assisting office and retail employees and residents with ride matching and transportation planning.
  - Disseminating information on alternate modes of transportation and developing transportation related marketing and education materials, including a website. This includes posting relevant public transit information potentially at an outdoor kiosk. This would include, but is not limited to, providing transit information such as maps and schedules to new residents and tenants in an orientation package.
  - Developing and maintaining information pertaining to pedestrian and cycling access to and from the Project Site.
  - Encouraging tenants to provide on-site transit pass sales to employees.

Section 61 Findings

DCR finds that with the implementation of the mitigation measures described herein, all feasible means and measures will have been taken to avoid or minimize adverse impacts to the environment relating to construction and operation of the proposed transportation improvement project. Appropriate conditions will be included in the permits issued for the Project to ensure implementation of the mitigation measures.

Agency:_____

Commissioner:_____

Date:_____

12.2.3 MWRA 8m Permit

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

PROJECT NAME:	Suffolk Downs Redevelopment
PROJECT LOCATION:	Boston and Revere
PROJECT PROPONENT:	The McClellan Highway Development Company, LLC
	c/o The HYM Investment Group, LLC
EEA NUMBER:	15783

Each agency of the Commonwealth that is taking an Agency Action (e.g., issuing a permit) must make a finding, pursuant to MGL Chapter 30, Section 61, that all feasible measures have been taken by the Proponent to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. These Section 61 Findings specify the entity responsible for funding and implementing any such mitigation measures, and the anticipated mitigation implementation schedule.

The proposed mitigation measures for the Suffolk Downs Redevelopment Project are described in the Draft Environmental Impact Report ("DEIR"), which was filed in October 2018. The following sections provide a summary of possible impacts to the MWRA water and sewer systems resulting from construction of the Project and supporting infrastructure. The proposed impact avoidance, minimization and mitigation measures are the basis upon which Section 61 Findings may be made by the Massachusetts Water Resources Authority ("MWRA"). All impact minimization

measures and mitigation measures outlined herein will be funded or implemented by the McClellan Highway Development Company, LLC (the "Proponent"), its Agents, Representatives and/or Contractors.

Project Description

The Project consists of the redevelopment of the 161-acre Suffolk Downs site in Boston and Revere from a vacant and underutilized horse racing facility into approximately 16.2 million square feet (sf) of a mix of uses as described in the DEIR (including retail, residential, commercial/office, lab, and hotel), connected and supported by new publicly-accessible open space, neighborhood retail, and civic spaces. The redevelopment of Suffolk Downs provides a unique opportunity to create an engaging open space system, create additional housing, spur economic development, and improve connections between several adjoining neighborhoods as well as the surrounding waterfront, open space and other natural amenities.

History of MEPA Review

The Proponent prepared and submitted, pursuant to M.G.L. c. 30, § 61 and 62A-H of MEPA and its implementing regulations (301 CMR 11.00), an Expanded Environmental Notification Form and Phase 1 Waiver Request (the Expanded ENF) on November 30, 2017. On January 26, 2018, the Secretary of Energy and Environmental Affairs (the "Secretary") issued a Certificate on the Expanded ENF and a Draft Record of Decision ("DROD") concerning the Phase 1 Waiver Request for Phase 1 of the Project. A Final Record of Decision ("FROD") for Phase 1 was issued on February 28, 2018.

Permit Requirements

It is anticipated that an 8M permit(s) will be required from MWRA pursuant to Section 8(m) of chapter 372 of the Acts of 1984. Specifically, off-site improvements including water and sewer as well as other utilities are proposed in the vicinity of the MWRA sewer and water systems.

Project Impacts

During the design phase of the Project, consideration was given to avoiding and minimizing impacts from the Project to the extent practicable. The following components of the Project may take place in sufficient proximity to the MWRA systems so as to require an 8M permit:

- A sewer line is anticipated to be installed off-site in the vicinity of and connecting to the MWRA's North Metropolitan Trunk sewer line, near the intersection of Bennington Street and Saratoga Street.
- Water and sewer lines are anticipated to be installed proximate to the MWRA water transmission lines within Winthrop Avenue adjacent to the Project Site, with two water connections within Winthrop Avenue.

Mitigation Measures

Proposed work will comply with MWRA standard and special permit terms and conditions, including:

- Coordination with the Agency to ensure no interference with the MWRA's activities or operations on the applicable land.
- Opportunity for MWRA review and approval of proposed work as MWRA deems necessary.
- Written approval by MWRA for changes in work scope.
- No blasting, drilling or other activity that could affect the integrity or operability of MWRA's property without prior written approval.
- Removal at Proponent's expense, of conduits and/or appurtenances installed pursuant to the 8M permit, if necessary for the operation, maintenance or replacement of MWRA infrastructure.
- Conducting of design, construction and excavation in accordance with all federal, state and local safety regulations including but not limited to federal OSHA regulations (29 CFR 1926) and Massachusetts Department of Public Safety regulations (520 CMR 14.00).
- Incorporation of appropriate sheeting and shoring measures during construction to protect the integrity of MWRA's water and sewer mains, with the associated design, stamped by a Massachusetts licensed Professional Engineer, submitted to MWRA prior to the start of construction.
- Adjust MWRA frames and covers to grade within limits of work.

It is anticipated that construction of the Project will commence in 2019 and extend for 15 – 20 years. The development, including off-site infrastructure components, is anticipated to be executed in phases. 8M permit(s) will be submitted as applicable phases advance.

Section 61 Findings

The potential environmental impacts of the Project and associated off-site improvements of the Suffolk Downs Redevelopment quantified in the DEIR are incorporated by reference into this Section 61 Finding. Throughout the planning and environmental review processes, which have included coordination with MWRA, the Proponent has developed measures to mitigate impacts of the Project. With the mitigation proposed and carried out in cooperation with state agencies, MWRA finds that there are no significant unmitigated impacts.

For the reasons stated above, MWRA hereby finds that pursuant to MGL c. 30, § 61, the construction of the Project as described above, and with the implementation by the Proponent of the noted mitigation measures, all practicable means and measures will be taken to avoid or minimize adverse environmental impacts related to the Project.

Agency:_____

Commissioner:_____

Date:_____

12.2.4 MWRA Direct Connect Permit

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

PROJECT NAME:	Suffolk Downs Redevelopment
PROJECT LOCATION:	Boston and Revere
PROJECT PROPONENT:	The McClellan Highway Development Company, LLC
	c/o The HYM Investment Group, LLC
EEA NUMBER:	15783

Each agency of the Commonwealth that is taking an Agency Action (e.g., issuing a permit) must make a finding, pursuant to MGL Chapter 30, Section 61, that all feasible measures have been taken by the Proponent to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent practicable. These Section 61 Findings specify the entity responsible for funding and implementing any such mitigation measures, and the anticipated mitigation implementation schedule.

The proposed mitigation measures for the Suffolk Downs Redevelopment Project are described in the Draft Environmental Impact Report (DEIR), which was filed in October 2018. The following sections provide a summary of possible impacts to the MWRA water and sewer systems resulting from sewer and water connections

proposed as part of the Project. The proposed impact avoidance, minimization and mitigation measures are the basis upon which Section 61 Findings may be made by the Massachusetts Water Resources Authority ("MWRA"). All impact minimization measures and mitigation measures outlined herein will be funded or implemented by the McClellan Highway Development Company, LLC (the "Proponent"), its Agents, Representatives and/or Contractors.

Project Description

The Project consists of the redevelopment of the 161-acre Suffolk Downs site in Boston and Revere from a vacant and underutilized horse racing facility into approximately 16.2 million square feet (sf) of a mix of uses as described in the DEIR (including retail, residential, commercial/office, lab, and hotel), connected and supported by new publicly-accessible open space, neighborhood retail, and civic spaces. The redevelopment of Suffolk Downs provides a unique opportunity to create an engaging open space system, create additional housing, spur economic development, and improve connections between several adjoining neighborhoods as well as the surrounding waterfront, open space and other natural amenities.

History of MEPA Review

The Proponent prepared and submitted, pursuant to M.G.L. c. 30, § 61 and 62A-H of MEPA and its implementing regulations (301 CMR 11.00), an Expanded Environmental Notification Form and Phase 1 Waiver Request (the Expanded ENF) on November 30, 2017. On January 26, 2018, the Secretary of Energy and Environmental Affairs (the "Secretary") issued a Certificate on the Expanded ENF and a Draft Record of Decision ("DROD") concerning the Phase 1 Waiver Request for Phase 1 of the Project. A Final Record of Decision ("FROD") for Phase 1 was issued on February 28, 2018.

Permit Requirements

It is anticipated that a Direct Connect Permit(s) will be required from MWRA. Specifically, water and sewer connections to the MWRA systems are proposed.

Project Impacts

During the design phase of the Project, consideration was given to avoiding and minimizing impacts from the Project to the extent practicable.

As described in the DEIR/DPIR, the full buildout is estimated to generate approximately 2.0 to 2.3 million gallons per day ("MGPD") of wastewater and use approximately 2.4 to 2.7 MGPD of water, excluding consideration of existing generation and use and depending on the development program mix of uses.

The following direct connections are anticipated as part of the Project:

- A new 48-inch sewer main is anticipated to connect to the existing 102-inch x 110.5-inch MWRA North Metropolitan Trunk Sewer at the intersection of Bennington Street and Saratoga Street, in the City of Boston.
- A new 16-inch water main is anticipated to connect to the existing 36-inch MWRA water transmission main in Winthrop Avenue, in the City of Revere.
- A new 16-inch water line is anticipated to connect to the existing 24-inch MWRA water transmission main in Winthrop Avenue, in the City of Revere.

Mitigation Measures

The Proponent will coordinate with MWRA to install all water and sewer direct connections in accordance with MWRA construction standards and standard engineering practice.

- For sewer connections:
  - Monitoring devices will be installed to measure sewer flow.
  - Inflow and infiltration mitigation will be provided for upstream contributing areas.
- For water connections: MWRA meter pits will be installed at each connection point to monitor water flow rates.

In addition, to reduce water use and associated wastewater generation, the following water conservation techniques will be evaluated and integrated as feasible:

- Stormwater reuse for irrigation or other purposes;
- Use of low flow plumbing fixtures;
- Recycling and/or reuse of water;
- Native, drought tolerant planting species in landscaping design; and
- Rain gauges to determine the volume of natural water provided to landscape areas.

It is anticipated that construction of the Project will commence in 2019 and extend for 15 – 20 years. The development, including off-site infrastructure components, is anticipated to be executed in phases. Applications for a Direct Connect permit will be submitted as applicable phases advance.

Section 61 Findings

The potential environmental impacts of the Project and associated off-site improvements of the Suffolk Downs Redevelopment quantified in the DEIR are incorporated by reference into this Section 61 Finding. Throughout the planning and environmental review processes, which have included coordination/consultation with MWRA, the Proponent has developed measures to mitigate impacts of the Project. With the mitigation proposed and carried out in cooperation with state agencies, MWRA finds that there are no significant unmitigated impacts.

For the reasons stated above, MWRA hereby finds that pursuant to MGL c. 30, § 61, the construction of the Project as described above, and with the implementation by the Proponent of the noted mitigation measures, all practicable means and measures will be taken to avoid or minimize adverse environmental impacts related to the Project.

Agency:_____

Commissioner:_____

Date:_____

12.2.5 DEP Water Quality Certification

D R A F T O N L Y

Findings Pursuant to

MGL Chapter 30, Section 61

PROJECT NAME:	Suffolk Downs Redevelopment
PROJECT LOCATION:	Boston and Revere
PROJECT PROPONENT:	The McClellan Highway Development Company, LLC
	c/o The HYM Investment Group, LLC
EEA NUMBER:	15783

Each agency of the Commonwealth that is taking an Agency Action (e.g., issuing a permit) must make a finding, pursuant to MGL Chapter 30, Section 61, that all feasible measures have been taken by the Proponent to avoid damage to the environment or, to the extent damage to the environment cannot be avoided, to minimize and mitigate damage to the environment to the maximum extent

practicable. These Section 61 Findings specify the entity responsible for funding and implementing any such mitigation measures, and the anticipated mitigation implementation schedule.

The proposed mitigation measures for the Suffolk Downs Redevelopment Project are described in the Draft Environmental Impact Report ("DEIR"), which was filed in October 2018. The following sections provide a summary of impacts to state-jurisdictional wetlands and waterways resulting from construction of the Project and supporting infrastructure. The proposed impact avoidance, minimization and mitigation measures are the basis upon which Section 61 Findings may be made by the Massachusetts Department of Environmental Protection ("DEP"). All impact minimization measures and mitigation measures outlined herein will be funded or implemented by the McClellan Highway Development Company, LLC (the Proponent), its Agents, Representatives and/or Contractors.

Project Description

The Project consists of the redevelopment of the 161-acre Suffolk Downs site in Boston and Revere from a vacant and underutilized horse racing facility into approximately 16.2 million square feet (sf) of a mix of uses as described in the DEIR (including retail, residential, commercial/office, lab, and hotel), connected and supported by new publicly-accessible open space, neighborhood retail, and civic spaces. The redevelopment of Suffolk Downs provides a unique opportunity to create an engaging open space system, create additional housing, spur economic development, and improve connections between several adjoining neighborhoods as well as the surrounding waterfront, open space and other natural amenities.

History of MEPA Review

The Proponent prepared and submitted, pursuant to M.G.L. c. 30, § 61 and 62A-H of MEPA and its implementing regulations (301 CMR 11.00), an Expanded Environmental Notification Form and Phase 1 Waiver Request (the Expanded ENF) on November 30, 2017. On January 26, 2018, the Secretary of Energy and Environmental Affairs (the "Secretary") issued a Certificate on the Expanded ENF and a Draft Record of Decision ("DROD") concerning the Phase 1 Waiver Request for Phase 1 of the Project. A Final Record of Decision ("FROD") for Phase 1 was issued on February 28, 2018.

Permit Requirements

It is anticipated, although not confirmed, that a 401 Water Quality Certification may be required from DEP pursuant to 314 CMR 9.00. The portions of the Project that may be subject to a 401 Water Quality Certification will be more specifically established as the nature of work subject to jurisdiction is finalized. A preliminary identification of portions of the Project that may be subject to a 401 Water Quality Certification is included in the Project Impacts discussion below. Should these or other proposed Project elements be subject to a 401 Water Quality Certification, the

Proponent will address Project-specific performance standards in the associated application(s).

Project Impacts

During the design phase of the Project, consideration was given to conserving environmentally sensitive features. Impacts related to wetlands and waterways resulting from the Project have been avoided and minimized to the extent practicable. The following components of the Project may take place within Land Under Water or Bordering Vegetated Wetland ("BVW"), and may result in impacts to these areas such that a 401 Water Quality Certification would be required:

- The Proponent proposes to reuse an existing stormwater outfall to Sales Creek by increasing its size and shifting its location. The existing outfall is currently located on Bank, and work associated with its reuse will impact 1,010 sf of BVW (includes 890 sf temporary construction impact). More detailed information regarding the proposed impacts, will be provided in related permit applications.
- The Proponent proposes to eliminate a portion of the existing culvert that crosses the northwest side of the race track in order to daylight a section of Sales Creek. The design of this Project component is currently being advanced; specific information regarding the scope of impacts, if any, will be provided in related permit applications.
- The Proponent proposes to provide emergent plantings along the shoreline of the Horseshoe Pond. The design of this Project component is currently being advanced; specific information regarding the scope of impacts, if any, will be provided in related permit applications.
- The Proponent proposes to place a deck to provide recreational access to the Horseshoe Pond. The design of this Project component is currently being advanced; specific information regarding the scope of impacts, if any, will be provided in related permit applications.
- The Proponent is evaluating installation of a tide gate at Sales Creek along the eastern property line, either on-site or off-site, to provide additional on-site and up-gradient off-site resiliency. Specific information regarding the scope of impacts, if any, will be provided in related permit applications.
- The Proponent is evaluating options to convey stormwater to Chelsea Creek; namely possible removal of sediment in the westerly BVW and stream system that discharges to an existing culvert beneath Route 1A, maintenance of the culvert itself, possible installation of an additional connecting culvert, and work down-gradient of the culvert to reestablish the historic flow regime. The Proponent is currently evaluating property ownership, permitting and other considerations, including whether this work is truly part of the Project, or rather deferred maintenance. Specific information regarding the scope of impacts will be provided in related permit applications as applicable.

› The Proponent proposes on and off-site utility infrastructure improvements, including an interim condition sewer connection extending from Tomasello Drive on-site to an existing off-site sewer behind the Revere Fire Station. A maximum of approximately 1,000 square feet of resource area (including a combination of Bank, Bordering Vegetated Wetland, Land Under Waterbodies and Waterways, and Land Subject to Coastal Storm Flowage, as well as potentially Riverfront Area) may be temporarily impacted depending on the final design of the connection and methodology of installation. More detailed information regarding the proposed impacts, will be provided in related permit applications.

Note that portions of the work described above will likely represent mitigation or restoration/improvement of existing conditions of the on-site Waters of the United States within the Commonwealth.

Mitigation Measures

The emergent plantings within the Horseshoe Pond, as well as the daylighting of a portion of Sales Creek, are proposed as mitigation, and are intended to improve the resource areas in which they are located. The extent of associated work will be quantified and documented in the applicable permit applications as the design of these improvements is advanced.

More specifically, the daylighting of a portion of Sales Creek is intended to improve the Creek's ecological and flood storage functions. Additional Riverfront Area, Bank, and associated buffer zone, as well as possible Bordering Vegetated Wetland, will be created along the daylighted portion of Sales Creek. Furthermore, because the Rumney Marshes Area of Critical Environmental Concern ("ACEC") is contiguous with buffer zone in this portion of the ACEC, additional ACEC would also be created on-site.

The ecological function of the Horseshoe Pond will be improved as a result of select removal of stones surrounding the Bank and replacement with native vegetation, as well as planting of aquatic emergent vegetation, which will provide additional wildlife habitat. This work is anticipated to be conducted in a minimally intrusive manner.

While not specifically proposed as mitigation for resource area impacts, the proposed stormwater management system will bring the property into compliance with local and state stormwater management standards and will significantly improve the quality of stormwater runoff as compared to existing conditions, while also addressing overall site resiliency to climate change and sea level rise. In addition, the Project will ultimately terminate the existing Concentrated Animal Feeding Operation, which represents a potential pollutant source in the watershed.

It is anticipated that construction of the Project will commence in 2019 and extend for 15 – 20 years. The development will be executed in phases. It is likely that

multiple detailed applications for permits will be submitted to address Project phases as they advance.

Additional mitigation measures associated with the Project include:

› Invasive species management; and
› Native landscape plantings in the Riverfront Area and adjacent to BVW.

Section 61 Findings

The potential environmental impacts of the Project and associated off-site improvements of the Suffolk Downs Redevelopment quantified in the DEIR are incorporated by reference into this Section 61 Finding. Throughout the planning and environmental review processes, which have included coordination/consultation with DEP, the Proponent has developed measures to mitigate impacts of the Project. With the mitigation proposed and carried out in cooperation with state agencies, DEP finds that there are no significant unmitigated impacts.

For the reasons stated above, DEP hereby finds that pursuant to MGL c. 30, § 61, the construction of the Project as described above, and with the implementation by the Proponent of the noted mitigation measures, all practicable means and measures will be taken to avoid or minimize adverse environmental impacts related to the Project.

Agency:_____

Commissioner:_____

Date:_____

12.3 MEPA GHG Self-Certification Letter

D R A F T O N L Y

October 1, 2018

Secretary Matthew A. Beaton
Executive Office of Energy & Environmental Affairs

100 Cambridge Street, Suite 900
Boston, MA 02114

ATTN: Deirdre Buckley, Director, MEPA Office

Re: Letter of Commitment for Stationary Source Greenhouse Gas Emissions Self-Certification
Suffolk Downs Redevelopment, Boston and Revere, MA
(EEA No. 15783)

Dear Secretary Beaton and Director Buckley:

On behalf of the McClellan Highway Development Company, LLC (the "Proponent"), VHB has prepared a summary of the estimated reduction in overall energy use and stationary source Greenhouse Gas ("GHG") emissions for the construction of a new transit-oriented mixed-use community at the former Suffolk Downs horse racing facility (the "Master Plan Project") set within the neighborhood of East Boston and the City of Revere, Massachusetts (the "Project Site").

In accordance with the current MEPA Greenhouse Gas Emissions Policy and Protocol (the "GHG Policy") dated May 2010, the stationary source GHG assessment was provided to the MEPA Office as part of the joint Draft Environmental Impact Report and Draft Project Impact Report (the "DEIR/DPIR") filed on October 1, 2018. The design case assumed building design and system improvements that would result in energy reductions, in accordance with the GHG Policy.

The energy reduction for the Master Plan Project demonstrates the Proponent's commitment to constructing a sustainable energy-efficient project by exceeding the Stretch Energy Code requirement of 10 percent energy reduction with an aggregate energy reduction of approximately 19.4 percent (without structured parking areas included) resulting in an approximately 17.5 percent overall reduction in stationary source CO_2 emissions. (With structured parking included, the percent energy usage savings increases to 20.9 percent and GHG emissions savings to 19.6 percent.)[1]

[1] Parking is broken out from Master Plan Project energy savings and stationary source GHG emissions totals because it is low energy use and includes significant lighting improvements that artificially inflates overall project reductions.

	Total Energy Consumption			CO_2 Emissions		
	Electricity (MMBtu/yr)	Natural Gas (MMBtu/yr)	Total (MMBtu/yr)	Electricity (tons/ yr)[1]	Natural Gas (tons/ yr)	Total (tons/ yr)
Master Plan Project without Parking						
Base Case	505,616	566,468	1,072,084	52,592	33,167	85,758
Design Case	442,920	421,462	864,382	46,070	24,677	70,747
End-Use Savings	62,696	145,006	207,702	6,521	8,490	15,011
Percent Savings			**19.4%**			**17.5%**
Master Plan Project Parking only						
Base Case	11,940	0	11,940	1,242	0	1,242
Design Case	8,229	0	8,229	856	0	856
End-Use Savings	3,711	0	3,711	386	0	386
Percent Savings			**31.1%**			**31.1%**
Master Plan Project with Parking						
Base Case	548,606	566,468	1,115,073	57,063	33,167	90,230
Design Case	460,298	421,462	869,474	47,878	24,677	72,554
End-Use Savings	70,200	145,006	233,314	9,185	8,490	17,675
Percent Savings			**20.9%**			**19.6%**

1 tons/yr = short tons per year

2 The Base Case represents current Base Energy Code ASHRAE 90.1-2013 standards.

The building energy model results/energy savings and estimated stationary-source GHG emissions reductions are preliminary, as none of the proposed buildings have progressed past a conceptual level of design. Following completion of construction of each development phase, the Proponent will submit a self-certification to the MEPA Office, signed by an appropriate professional, which identifies the as-built energy conservation measures and documents the stationary source GHG emissions reductions from the baseline case.

If you have any questions, please contact me at (617) 607-0091 or via e mail at LDeVoe@vhb.com.

Very truly yours,

Lauren DeVoe
Senior Environmental Planner, VHB

13

Response to Comments

Introduction

This chapter presents direct responses to the MEPA Certificate on the EENF, BPDA Scoping Determination on the EPNF, and agency and public comments received on the EENF and EPNF. Copies of each comment letter received during the public review period of the EENF/EPNF are included within the chapter. Each letter is assigned a number, as listed in Table 13-1 below. Each individual comment is delineated with a code that corresponds to the response code.

Table 13-1 List of Comment Letters Received on the EENF/EPNF

Letter No.	Commenter	Affiliation	Date Received
EENF Comment Letters			
000	Secretary Matthew Beaton	Executive Office of Energy and Environmental Affairs/MEPA Office	January 26, 2018
001	J. Lionel Lucien	Massachusetts Department of Transportation	January 19, 2018
002	Andrew D. Brennan	Massachusetts Bay Transit Authority	January 19, 2018
003	John D. Viola	Massachusetts Department of Environmental Protection	January 19, 2018
004	Bruce Carlisle	Massachusetts Office of Coastal Zone Management	January 19, 2018
005	Paul F. Ormond	Massachusetts Department of Energy Resources	January 17, 2018
006	Leo Roy	Massachusetts Department of Conservation and Recreation	January 19, 2018
007	Gordon M. Carr	Massachusetts Port Authority	January 19, 2018
008	Marianne Connolly	Massachusetts Water Resources Authority	January 19, 2018
009	David E. Pierce	Massachusetts Division of Marine Fisheries	January 19, 2018
010	Brona Simon	Massachusetts Historical Commission	January 18, 2018
011	Robert O'Brien	City of Revere	January 19, 2018
012	John P. Sullivan	Boston Water and Sewer Commission	January 4, 2018

Letter No.	Commenter	Affiliation	Date Received
013	Marc D. Draisen	Metropolitan Area Planning Council	January 19, 2018
014	Deanna Moran	Conservation Law Foundation	January 19, 2018
015	Jill Valdes Horwood	Boston Harbor Now	January 22, 2018
016	Wendy Landman	WalkBoston	January 25, 2018
017	Patrick Herron	Mystic River Watershed Association	January 18, 2018
018	John Walkey	GreenRoots	January 18, 2018
019	Stephen H. Kaiser	Resident	January 19, 2018
020	Kannan Thiruvengadam	Resident	January 19, 2018
021	Andee Krasner	Resident	January 19, 2018
022	Bart DeWolf	Resident	December 13, 2017
023	Lucy DeWolf	Resident	December 10, 2017
024	Lucy DeWolf	Resident	December 6, 2017
EPNF Comment Letters			
025	Scoping Determination	Boston Planning and Development Agency (BPDA)	February 21, 2018
026	Richard McGuinness	BPDA Planning and Urban Design Departments	February 21, 2018
027	Vineet Gupta	BPDA Transportation and Infrastructure Planning Department	February 21, 2018
028	Richard McGuinness	BPDA Climate Change and Environmental Planning Department	February 21, 2018
029	Tim Davis	BPDA Housing Department	January 19, 2018
030	Joseph Boncore, Adrian Madaro, Lydia Edwards	Massachusetts General Court	January 10, 2018
031	Carrie Marsh	Boston Parks and Recreation Department	February 2, 2018
032	John P. Sullivan	Boston Water and Sewer Commission	January 4, 2018
033	Jill Valdes Horwood	Boston Harbor Now	January 30, 2018
034	Wendy Landman	WalkBoston	January 25, 2018
035	John Walkey	GreenRoots	February 2, 2018
036	Melissa Campbell	Resident	January 2, 2018
037	John Murphy	Resident	February 1, 2018

Letter No.	Commenter	Affiliation	Date Received
038	Hector Conde	Resident	February 2, 2018
039	Ernani DeAraujo	Resident	February 2, 2018
040	Madeleine Steczynski, Alex DeFronzo	Resident	February 1, 2018
041	Marisa DiPietro	Resident	February 2, 2018
042	Roberta Marchi	Resident	February 2, 2018
043	Gail Miller	Resident	February 2, 2018
044	Skip Dot	Resident	February 2, 2018
045	Kannan Thiruvengadam	Resident	February 2, 2018
046*	John Vitagliano	Resident	February 1, 2018
047	Kathi Wyatt	Resident	February 2, 2018
048*	JB	Resident	February 2, 2018
049	Patrick Catrone	Resident	February 9, 2018
050*	Debra L. Cave	Resident	February 7, 2018
051*	Claudia Sierra	Resident	February 6, 2018
052	Various	BPDA Online Comments	Various

* Comment letters are supportive of the Project and thus do not require a response and are not included in the chapter.

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

Charles D. Baker
GOVERNOR

Karyn E. Polito
LIEUTENANT GOVERNOR

Matthew A. Beaton
SECRETARY

Tel: (617) 626-1000
Fax: (617) 626-1081
http://www.mass.gov/eea

January 26, 2018

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

PROJECT NAME	: Suffolk Downs Redevelopment
PROJECT MUNICIPALITY	: Boston and Revere
PROJECT WATERSHED	: Boston Harbor
EEA NUMBER	: 15783
PROJECT PROPONENT	: The McClellan Highway Development Company, LLC c/o The HYM Investment Group, LLC
DATE NOTICED IN MONITOR	: December 6, 2017

Pursuant to the Massachusetts Environmental Policy Act (MEPA; M.G. L. c. 30, ss. 61-62I) and Section 11.06 of the MEPA regulations (301 CMR 11.00), I hereby determine that this project **requires** a mandatory Environmental Impact Report (EIR). The Proponent submitted an Expanded Environmental Notification Form (EENF) to support the request that I grant a Phase 1 Waiver pursuant to Section 11.11 of the MEPA regulations. In a separate Draft Record of Decision (DROD), also issued today, **I propose to grant** a Phase 1 Waiver that will allow the first phase of development, as described in the EENF, to proceed to permitting prior to completion of the Draft EIR (DEIR) and Final EIR (FEIR) for the remaining development.

The EENF describes the redevelopment of the 161-acre Suffolk Down site in Boston and Revere over a fifteen to twenty year period. The project will include up to 16.5 million square feet (sf) of housing, offices, labs, retail, parking and associated infrastructure; a 40-acre system of publicly accessible open spaces; and improved connectivity through the site and between neighborhoods. Phase 1 of the project is proposed in response to a request for proposals (RFP) by Amazon to identify cities and sites to locate its second corporate headquarters (Amazon HQ2).

I have received numerous comments from municipal officials, State and regional agencies, environmental advocacy groups, and from residents, including abutters. Many comments highlight the unique opportunity for Massachusetts and the Cities of Boston and Revere to host Amazon's second headquarters and secure up to 50,000 new jobs. Comments from the City of Revere and the Metropolitan Area Planning Council (MAPC) identify the suitability of the site to large-scale, transit oriented development and the ability to integrate the site with the existing transportation network. Other comments express concerns with the size and scale of the development and associated environmental impacts. The majority of comments, whether supportive of the proposed use or not, emphasize the importance of mitigating traffic and addressing congestion of the local and regional roadway system.

The Scope issued today requires the Proponent to thoroughly evaluate and disclose environmental impacts and make commitments to avoid, minimize and mitigate impacts. The DEIR will provide a detailed project description and information regarding the project design, site access alternatives, potential impacts and alternative mitigation measures and it will provide another opportunity for State Agencies and the public to provide input on the project and its impacts.

Project Description

The project includes construction of a 16.5 million-sf transit-oriented mixed-use community at the former Suffolk Downs horse racing facility (the "Master Plan project"). The Master Plan project includes approximately 11 million-sf of development in Boston and 5.5 million-sf of development in Revere. The EENF identifies two potential building programs for full-build of the site ("Pro-Commercial Program" and "Pro-Residential Program"). They constitute a mix of uses within the total buildout. The Pro-Commercial Program was sized to meet the requirements outlined in the Amazon RFP. The Pro-Commercial Program includes approximately 8 million sf of commercial office space; 7.45 million sf of residential space (7,500 units); 550,000 sf of retail space; and 500,000 sf of hotel space (830 rooms). The Pro-Residential Program includes approximately 5.25 million sf of commercial office space; 10.4 million sf of residential space (10,000 units); 450,000 sf of retail space; and 400,000 sf of hotel space (670 rooms). The EENF indicates that the mix of uses will likely fall somewhere between the two building programs. Build out of the Master Plan project will occur over 15-20 years.

The Phase 1 project is located entirely in the City of Boston and includes construction of two office buildings (each 250,000-sf) with ground floor retail space, open space improvements, internal access driveway, pedestrian and bicycle facilities, 520 structured parking spaces, and elimination of 520 existing surface parking spaces. Both office buildings will be connected by a single below-grade level of parking. One of the buildings will include three levels of above-grade structured parking for a total of four levels. On January 18, 2018, Amazon identified the City of Boston/City of Revere and City of Somerville as 2 of the 20 sites that will be evaluated in the next round. Amazon anticipates selecting a final location in 2018.

Project Site

The 161-acre project site is located within a densely developed urban area in East Boston (109 acres) and Revere (52 acres). It is generally bounded by the Lee Burbank Highway (Route 1A) and fuel storage tank farms to the west; a shopping plaza to the northwest; Route 145 (Revere Beach Parkway/ Winthrop Avenue) and the Crescent Beach neighborhood to the north; the MBTA Beachmont and

Suffolk Downs Station, Blue Line tracks, Bennington Street, and Belle Isle Marsh to the northeast and east; and Waldemar Avenue and the Orient Heights neighborhood to the south. The site includes access drives, a grandstand and clubhouse buildings, a one-mile racetrack for thoroughbred racing, horse barns and stables, 3,028 surface parking spaces, and other infrastructure. The Phase 1 project site consists of approximately 25-acres located in the southeastern corner of the project site near the Suffolk Downs MBTA Blue Line Station. This area includes the southern portion of the racetrack and infield, a pond constructed in 1930's (the infield pond), and the access road from Tomasello Drive.

A portion of the project site is located within the Rumney Marshes Area of Critical Environmental Concern (ACEC), which is also an Outstanding Resource Water (ORW). It includes Sales Creek which flows through the site and discharges into the Belle Isle Inlet. According to the EENF, DCR has an easement for the portion of Sales Creek that traverses the project site and is responsible for its maintenance. DCR also owns and maintains the culverts within Sales Creek on the project site, as well as a tide gate and pump station located at the Belle Isle Marsh Inlet. The 241-acre Belle Isle Marsh, located to the southeast of the project site, includes the Belle Isle Reservation which is owned by the Commonwealth of Massachusetts in the care, custody, and control of DCR. Comments from the Division of Marine Fisheries (DMF) indicate that the area adjacent to the Belle Isle Inlet contains soft shell clam *(Mya arenaria)* and blue mussel *(Mytilus edulis)* resources and is potential habitat for winter flounder *(Pseudopleuronectes americanus),* juvenile striped bass *(Morone saxatilis)*, tomcod *(Microgadus tomcod)*, and is a migratory pathway for rainbow smelt *(Osmerus mordax)* and American eel *(Anguilla rostrata)*.

Wetland resource areas include Bank, Bordering Vegetated Wetlands (BVW), Riverfront Area, and Land Subject to Coastal Storm Flowage (LSCSF). Phase 1 wetland resource areas are limited to LSCSF. The majority of Phase 1 and other portions of the project site are located within the 100-year floodplain. The floodplain is identified by the Federal Emergency Management Agency (FEMA) as Zone AE with a Base Flood Elevation (BFE) of 11-ft North American Vertical Datum of 1988 (NAVD88) as shown on the Flood Insurance Rate Map (FIRM) for Suffolk County (Map No. 25025C0038J, effective March 16, 2016).[1] In addition, the project site includes landlocked, filled tidelands. According to the Massachusetts Historical Commission (MHC), the Suffolk Downs Complex (BOS.ABQ/REV.J), including the Clubhouse (BOS.209), Grandstand (BOS.16592), Administration Building (BOS.16593), Racetrack (BOS.9754/REV.968), Pony Barn (REV.87), Stables (REV.86), Pumphouse (REV.969), and Maintenance Building (REV.88) are included in the MHC *Inventory of Historic and Archaeological Assets of the Commonwealth* (Inventory) and may be eligible for listing in the State and National Registers of Historic Places. The project site is also adjacent to the Revere Beach Parkway (REV.H), which is listed in the State and National Registers of Historic Places.

Three projects associated with the site have undergone MEPA review: the Sales Creek Culvert Emergency Repairs (EEA# 13437), the Suffolk Downs Stabling Area and Racecourse Stormwater Improvements (EEA# 14747), and Caesar's Resort at Suffolk Downs/Mohegan Sun Massachusetts (EEA# 15006). The latter two consisted of a stormwater separation project to secure an Individual National Pollutant Discharge Elimination System (NPDES) Permit for the Concentrated Animal Feeding Operations (CAFO) and a destination resort casino development (formerly known as Caesar's Resort at Suffolk Downs or Mohegan Sun Massachusetts), respectively. The casino did not complete MEPA review and was not constructed.

[1] The terms 100-year floodplain and Land Subject to Coastal Storm Flowage (LSCSF) are used interchangeably within this Certificate.

Environmental Impacts and Mitigation

As described in the EENF, potential environmental impacts associated with the Phase 1 project include: creation of 6 acres of impervious area; generation of 2,775 new unadjusted adt; alteration of 9 acres of LSCSF; use of 43,000 gallons per day (gpd) of water and generation of 39,000 gpd of wastewater. The EENF describes commitments to avoid, minimize and mitigate environmental impacts associated with Phase 1 including: improved sidewalks and pedestrian connections to Suffolk Downs station, a transportation demand management (TDM) program, open space improvements, construction of a stormwater management system, and measures to reduce GHG emissions.

The EENF identified potential impacts associated with both building programs. Potential impacts are associated with the creation of 51-55 acres of impervious area; alteration of 3.5 million sf of LSCSF; generation of 91,319 – 93,265 new unadjusted adt; generation of approximately 2.13-2.30 million gpd of wastewater; and an increase in water demand of approximately 2.51-2.70 million gpd. Measures to avoid, minimize, and mitigate impacts will be refined in the DEIR and include signal timing and/or roadway improvements, implementation of a TDM program to support alternative travel modes, stormwater management Best Management Practices (BMPs), and measures to reduce GHG emissions.

Jurisdiction and Permitting

The Master Plan project is undergoing MEPA review and is subject to preparation of a mandatory EIR pursuant to Sections 11.03(1)(a)(2), 11.03(3)(a)(1)(b), 11.03(6)(a)(6) and (7) of the MEPA regulations because it requires a State Agency Action and will create ten or more acres of impervious area, alter greater than 10 acres of any other wetlands (LSCSF and Riverfront Area), generate 3,000 or more New adt, and construct 1,000 or more New parking spaces at a single location. It also exceeds ENF thresholds pertaining to wetlands, wastewater, transportation, historic and archaeological resources, and ACECs.[2] The Master Plan project requires a Vehicular Access Permit from MassDOT and an Access Permit from DCR. It may require a Section 8(M) Permit, Sewer Use Discharge Permit, and Temporary Construction Site Dewatering Permit from the Massachusetts Water Resources Authority (MWRA), an Agreement for Improvements with the MBTA, and Federal Consistency Review by Coastal Zone Management (CZM). The project is subject to the May 5, 2010 MEPA Greenhouse Gas (GHG) Policy and Protocol (the "GHG Policy"). The EENF indicates that the Proponent may seek State Financial Assistance for the Master Plan project.

The Phase 1 project does not exceed any mandatory EIR thresholds. It requires a Vehicular Access Permit from MassDOT and may require an Agreement for Improvements from the MBTA. It requires an Order of Conditions from the Boston Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from MassDEP).

The Master Plan project requires a National Pollutant Discharge Elimination System (NPDES) Construction General Permit and modification, replacement, and/or closure of the existing NPDES Permit for the CAFO from the U.S. Environmental Protection Agency (EPA) and a Determination of No Hazard to Air Navigation from the Federal Aviation Administration (FAA).

[2] The applicable ENF thresholds are identified at 301 CMR 11.03(3)(b)(1)(f), 301 CMR 11.03(5)(b)(3)(c), 301 CMR 11.03(5)(b)(4)(a), 301 CMR 11.03(6)(b)(13), (14), and (15), 301 CMR 11.03(10)(b)(a)(1), and 301 CMR 11.03(11)(b).

The Master Plan and Phase 1 projects are subject to review by several City of Boston agencies, including, but not limited to: Article 80B Large Project review by the Boston Planning and Development Agency (BPDA), Site Plan Review by the Boston Water and Sewer Commission (BWSC), and an Order of Conditions from the Boston Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from MassDEP). An Impact Advisory Group (IAG), consisting of community members, was appointed to provide input to the BPDA during its review of the project. The Master Plan project also requires Demolition Review by the Boston Landmarks Commission. The Proponent will prepare and submit a Transportation Access Plan Agreement (TAPA) and Construction Management Plan in coordination with the Boston Transportation Department (BTD) for both the Master Plan and Phase 1 projects. The Proponent has indicated that they intend to apply to the City for the creation of a Planned Development Area (PDA) and Approval of a PDA Development Plan in connection with the Master Plan project. The Phase 1 project is expected to commence prior to completion of the PDA Development Plan process and requires zoning relief from the BPDA and Boston Zoning Commission to address height restrictions.

The Master Plan project will also be subject to review by several City of Revere agencies, including, but not limited to: a Special Permit and/or Zoning Code Amendment from the Revere City Council, Site Plan Review from the Site Plan Review Committee, and Subdivision Plan Approval from the Revere Planning Board. It will also require an Order of Conditions from the Revere Conservation Commission (or in the case of an appeal, a Superseding Order of Conditions from MassDEP).

Because the Proponent may seek Financial Assistance from the Commonwealth for the project, MEPA jurisdiction is broad and extends to all aspects of the project that have the potential to cause Damage to the Environment as defined in the MEPA regulations.

Request for Phase 1 Waiver

The Proponent submitted an EENF in support of its request for a Phase 1 Waiver, which would allow Phase 1 project to proceed prior to completion of the EIR for the entire project. Consistent with this request, the EENF was subject to an extended 30-day public comment period and the Proponent requested an additional two-week extension. The comment period closed on Friday, January 19, 2018.

The MEPA regulations at 301 CMR 11.11(1) state that I may waive any provision or requirement in 301 CMR 11.00 not specifically required by MEPA and may impose appropriate and relevant conditions or restrictions, provided that I find that strict compliance with the provision or requirement would:

(a) result in an undue hardship for the Proponent, unless based on delay in compliance by the Proponent; and
(b) not serve to avoid or minimize Damage to the Environment.

The MEPA regulations at 301 CMR 11.11(4) state that, in the case of a partial waiver of a mandatory EIR review threshold that will allow the Proponent to proceed with Phase 1 of the project prior to preparing an EIR, I shall base the finding required in accordance with 301 CMR 11.11(1)(b) on a determination that:

(a) the potential environmental impacts of Phase 1, taken alone, are insignificant; (b) ample and unconstrained infrastructure facilities and services exist to support Phase 1; (c) the project is severable, such that Phase 1 does not require the implementation of any other future phase of the project or restrict the means by which potential environmental impacts from any other phase of the project may be avoided, minimized or mitigated; and (d) the agency action**(s)** on Phase 1 will contain terms such as a condition or restriction, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to commencement of any other phase of the project.

Review of the EENF

The Proponent filed a joint EENF/Expanded Project Notification Form (EPNF) with MEPA and BPDA. The EENF described the existing conditions, provided a description and conceptual project plans of the Phase 1 Project and Master Plan project, and identified potential environmental impacts. The EENF addressed the project's consistency with the City of Boston and City of Revere's planning documents. The EENF included a GHG analysis, Transportation Impact Assessment (TIA), and Stormwater Report for the Phase 1 project. The Proponent provided supplemental information regarding the Phase 1 project to the MEPA Office.[3] For the purposes of this Certificate, the EENF and supplemental information are referred to as the EENF.

Alternatives Analysis

According to the EENF, the Phase 1 project has been designed to meet requirements established in Amazon's HQ2 RFP. Site and building requirements include: access to mass transit at the site, close proximity to major highways and arterial roads (no more than 1-2 miles), proximity to international airport (within 45 minutes), and construction/provision of 500,000-sf of office space by 2019.[4] The EENF identified site constraints and other considerations that guided development of Phase 1, including: preserve and incorporate wetland resources, provide publicly-accessible open space, access to and capacity of existing utility infrastructure, provide direct link to adjacent public transit, utilization of existing vehicular circulation network, and ability to implement Phase 1 project while maintaining flexibly for the Master Plan.

The EENF evaluated the following project alternatives for Phase 1: No-Build, As-of-Right, Site Location Alternatives, Single Building Alternative, and Preferred Alternative (as described herein). The EENF quantified and compared the environmental impacts of each alternative in tabular form. The No-Build alternative was dismissed as it would leave the existing conditions in place and would not provide increased economic development benefits to the region. The As-of-Right alternative consisted of 520,000-sf of "big box" retail development. According to the EENF this alternative was dismissed because it would not meet the HQ2 requirements and would increase land and traffic impacts (18,446 unadjusted adt) compared to the Site Location Alternatives and the Preferred Alternative. The large amount of land area required to meet the building and parking space needs (2,000 parking spaces) would

[3] Emails from Lauren DeVoe (VHB, Inc.) to Page Czepiga (MEPA Office) sent December 15, 2017 and January 4, 12, and 16, 2018 regarding the following information specific to Phase 1: trip generation, alternative analysis, Public Benefits Determination, open space, fill volume, and grading plan.

[4] "Amazon HQ2 RFP." *Amazon HQ2 RFP*, Amazon, Sept. 2017, www.amazon.com/b?node=17044620011. Accessed January 3, 2017.

limit the ability to provide a significant amount of open space. The EENF indicated that the following locations within the site were evaluated for Phase 1:

- Location Alternative A - adjacent to the existing vehicular entrance off Route 1A;
- Location Alternative B - within grandstand, clubhouse, and/or surface parking lots; and
- Location Alternative C - adjacent to the Beachmont MBTA Blue Line station.

The EENF indicated that Location Alternatives A and B were dismissed because they would be less accessible by public transit and would not be well integrated with the MBTA stations. As described in the EENF, Location Alternative C was eliminated as it would limit the flexibility of the future master planning process and layout, including potential connections from the site to Winthrop Avenue. The single office building alternative was dismissed as it limited activation of the public realm, the building was out of scale with the master plan, and it provide flexibility to market the office space to multiple tenants if the site is not selected by Amazon.

The following site constraints and considerations guided development of the Master Plan project: limited vehicular access, integration with surrounding land uses, and FAA restrictions on building heights. It evaluated the following Master Plan project alternatives: No-Build, As-of-Right, Manufacturing/Airport Support Facilities, and Preferred Alternative (as described herein). The EENF did not provide conceptual plans nor quantify environmental impacts of each alternative. Under the No-Build alternative, the site would remain in its existing condition. The EENF indicated that this alternative was dismissed as the site would remain as an underutilized horse racing facility with vacant and dilapidated buildings. The EENF indicated that approximately 14 million-sf of either office uses (such as a suburban-style office park) or retail uses (such as destination or big box retail) would be permitted under existing zoning. The EENF indicated that residential uses are not currently allowed by-right under existing zoning. According to the EENF, this alternative was dismissed because it would create a significant amount of traffic, would provide less open space and the absence of housing would conflict with the City of Boston's *Imagine Boston 2030* Plan. The EENF indicated that the Manufacturing/ Airport Support Facilities alternative would include low-density and low-rise warehouse and distribution uses. According to the EENF, this alternative was dismissed because it would create more water and wastewater impacts and increase truck traffic compared to other alternatives.

Wetlands and Stormwater

The EENF described the wetland resource areas on the site and identified potential impacts to resource areas associated with Phase 1. Wetland resource areas were delineated in July 2017 in accordance with the Wetland Protect Act (WPA), Sections 401 and 404 of the United States Clean Water Act (CWA), and the City of Revere's Wetlands Protection Ordinance.[5] On-site wetland resource areas were confirmed in Orders of Resource Area Delineation (ORAD) issued by the Boston and Revere Conservation Commissions on September 28, 2017 and October 4, 2017, respectively. A Notice of Intent (NOI) application for Phase 1 was submitted to the Boston Conservation Commission on January 17, 2018. The Boston Conservation Commission will review Phase 1 to determine its consistency with the Wetlands Protection Act (WPA), the Wetlands Regulations (310 CMR 10.00), and associated performance standards, including the Stormwater Management Standards (SMS).

[5] The City of Boston does not have a local wetlands ordinance or bylaw.

The majority of the Phase 1 project site is located within LSCSF and contains the infield pond and an intermittent stream that flows parallel to the eastern boundary of the Phase 1 site. It will impact 9 acres of LSCSF associated with the placement of 19,000 cubic yard (cy) of fill to raise portions of the site above the BFE and to construct the buildings, access road, stormwater management infrastructure, and utilities. The Wetlands Regulations do not identify performance standards for LSCSF. Phase 1 will include work within the Buffer Zone to Bank of the infield pond and the intermittent stream. I refer the Proponent to comments from CZM which identify concerns regarding the ability of the site to provide floodplain functions prior to and after construction for Phase 1 and the Master Plan.

The EENF described existing stormwater conditions. The stormwater management system was constructed in the 1930's prior to the promulgation of the MassDEP SMS and the majority of the system provides negligible water quality treatment. Under existing conditions, stormwater from the CAFO area is directed to the sanitary sewer system. Phase 1 will relocate the four-inch force main which collects the CAFO discharge. The remainder of the CAFO infrastructure will be maintained until construction of the Master Plan project. The remainder of the stormwater from the project site discharges directly or indirectly into Sales Creek, which flows to Belle Isle Marsh. The EENF identified on-site soils and summarized the results of on-site soil and groundwater investigations.

The EENF included a Phase 1 Stormwater Management Report (Appendix I) that described the proposed stormwater management system, provided supporting data, HydroCAD calculations, and drainage plans. The stormwater management system has been designed to comply with MassDEP's SMS. It includes the following BMPs: deep sump hooded catch basins, water quality treatment systems, and two infiltration systems sized to capture and treat the flow rate associated with the first inch of runoff from impervious surfaces. The stormwater management system for Phase 1 will be designed to remove at least 80% of Total Suspended Solids (TSS) and will provide approximately 0.436 acre-feet of groundwater recharge.

Landlocked Tidelands

The EENF indicates that the site includes landlocked, filled tidelands consistent with a previous MassDEP decision documented in a June 2000 letter (Appendix F). Consistent with the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts ch. 168, sec. 8) (the Act), I *must* conduct a Public Benefit Review for projects in tidelands that are required to file an EIR. The project exceeds EIR thresholds at Sections 11.03(1)(a)(2), 11.03(3)(a)(1)(b), 11.03(6)(a)(6) and (7) of the MEPA regulations. The EENF included information regarding public benefits specific to the Phase 1 project and Master Plan project consistent with this requirement. Therefore, I will issue a separate PBD for the Phase 1 project within 30 days of the issuance of the Final Record of Decision (FROD). I will issue a separate PBD for the Master Plan project in accordance with the regulations at 301 CMR 13.00 within 30 days of the issuance of the Certificate on the FEIR.

Traffic and Transportation

Section 5 of the EENF included a Phase 1 Transportation Impact Assessment (TIA) that was prepared in conformance with the *EEA/MassDOT Guidelines for Transportation Impact Assessments*. The TIA described existing traffic volumes and conditions on area roadways, anticipated trip generation rates of the project, crash rate data for intersections in the study area, and levels-of-service (LOS)

operations at signalized and unsignalized intersections under 2017 Existing Conditions, 2024 No Build, and 2024 Build Conditions. The TIA also described public transportation and pedestrian and bicycle opportunities within the study area. Roadways adjacent to the project site that are under state jurisdiction include: William F. McClellan Highway (Route 1A) State Road, and Bennington Street (all under the jurisdiction of MassDOT) and Revere Beach Parkway (under the jurisdiction of DCR).

The EENF identified existing pedestrian and bicycle accommodations within the vicinity of the project site. Sidewalks are located along both sides of Route 1A and Winthrop Avenue and along the west side of Tomasello Drive from Winthrop Avenue until the shopping plaza. The project site lacks bicycle accommodations. The EENF indicated that the Phase 1 project will improve the sidewalks located adjacent to the project and will include a direct pedestrian connection to Suffolk Downs Station. New sidewalks will be designed to comply with the Americans with Disabilities Act (ADA) standards and will incorporate new street trees. Comments from the Metropolitan Area Planning Council (MAPC), WalkBoston, and the MBTA highlight the importance of providing continuous sidewalks and bicycle accommodations between Phase 1 and the Suffolk Downs Station to reinforce street vitality, walkability, and access to transit. I expect that improved pedestrian and bicycle connectivity within the site and to adjacent land uses will be a significant focus of MassDOT's permitting process.

Phase 1 trip generation was derived from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition) using Land Use Code (LUC) 714 (Corporate Headquarters). Phase 1 project will generate 2,775 unadjusted adt on an average weekday, including 667 trips during the morning (AM) peak hour and 572 trips during the evening (PM) peak hour. When the trip generation data is adjusted for mode share based on the BTD guidelines, Phase 1 will generate 330 walking/bicycle trips, 1,176 transit trips, and 1,492 vehicle trips. Comments from MassDOT confirm their general agreement with this methodology.

Comments from MassDOT do not identify concerns with the proposed study area for Phase 1. It includes the following 15 intersections, which are signalized unless otherwise noted:

- William F McClellan Highway (Route 1A) at Boardman Street;
- William F McClellan Highway (Route 1A) at Waldemar Avenue (unsignalized);
- William F McClellan Highway (Route 1A) at Tomasello Drive (unsignalized);
- William F McClellan Highway (Route 1A) at Route 1A Southbound Jughandle;
- Bennington Street at Crescent Avenue (unsignalized);
- Bennington Street/State Road at Winthrop Avenue;
- Winthrop Avenue (Route 145) at Revere Beach Parkway;
- Winthrop Avenue (Route 145) at Tomasello Drive;
- Winthrop Avenue (Route 145) at North Shore Road;
- Winthrop Avenue (Route 145) at William F McClellan Highway (Route 1A) Southbound On-Ramp;
- Winthrop Avenue (Route 145) at Revere Beach Parkway (Route 16)/Harris Street;
- Route 60 (American Legion Highway) at Bell Circle-North;
- Route 1A (American Legion Highway)/Route 16 (Revere Beach Parkway) at Bell Circle-South;
- Route 1A (VFW Parkway) at Bell Circle; and
- Beach Street at Bell Circle[6].

[6] Bell Circle (the intersection of Routes 1A, 16, and 60; also known as Mahoney Circle) is not a traffic circle; it is controlled by a set of four traffic signals.

The TIA provided a comprehensive safety analysis and crash rates for all intersections within the Phase 1 study area and compared the average rates to the appropriate district and statewide average. According to the EENF, the following Phase 1 study area intersections have been identified as Highway Safety Improvement Program (HSIP) crash clusters:

- Winthrop Avenue (Route 145) at North Shore Road;
- Winthrop Avenue (Route 145) at Revere Beach Parkway and Harris Street;
- Bennington Street at Crescent Avenue; and
- Bennington Street and State Road at Winthrop Avenue.

Winthrop Avenue at North Shore Road is the only intersection that exceeds the MassDOT average crash rate. I refer the Proponent to comments from MassDOT which require the preparation of Road Safety Audits (RSA) at these intersections prior to submitting the DEIR.

Traffic conditions were projected to the year 2024, consistent with MassDOT's 7-year design horizon requirements. The 2024 No Build Conditions assumed the presence of existing traffic, new traffic associated with normal background growth, and traffic associated with 22 projects in the Cities of Revere and Boston that are in the planning or development stages.[7] I note comments from the City of Revere which identify additional developments that should be included in the future conditions analysis. The TIA presented a capacity analyses and a summary of average and 95th percentile vehicle queues for the weekday morning and evening peak hours for 2017 Existing, 2024 No Build, and 2024 Build Conditions for each intersection within the Phase 1 project study area. The EENF indicated that a number of Phase 1 study area intersections either currently experience, or, are projected to experience operational deficiencies independent of the project in the 2017 Existing and 2024 No Build Conditions. Certain turn movements at specific intersections will degrade to unacceptable LOS (i.e., LOS E or F) between the 2024 No Build and 2024 Build Condition, or if already operating at LOS E or F, will experience increases in delay and queue length. The EENF identified the following improvements to mitigate existing conditions and the addition of Phase 1 project related traffic:

- Winthrop Avenue at Tomasello Drive: Traffic signal timing optimization to facilitate access to and from the project site.
- Route 1A at Tomasello Drive: Installation of MUTCD-compliant "no left turn" signage to restrict movements of exiting traffic. Comments from MassDOT indicate that additional analysis will occur during the permitting process to identify whether additional improvements are necessary at this location to support the Phase 1 project.

Comments from MassDOT indicate that additional analysis will be required during permitting of Phase 1 at the Route 1A/Tomasello Drive and Route 1A/Boardman Street intersections.

The Phase 1 project includes 520 parking spaces which will be provided within the garages of the office buildings (approximately 1 space per 1,000 sf). The new spaces will be offset by the

[7] Including the following 5 projects in Revere: La Quinta Hotel, Revere Beach Hotel, 205 Revere Beach Parkway, 71 Revere Street, and 90 Ocean Avenue and the following 17 projects in East Boston: 75-85 Liverpool Street, 944-946 Saratoga Street, 9 Chelsea Street, 175 McClellan Highway, 135 Bremen Street, 175 Orleans Street, 301-303 Border Street, 125 Sumner Street, 99 Sumner Street, 10-16 Everett Street, 187-191 and 211 Condor Street, 1181 Bennington Street, 202 Maverick Street, 319-327 Chelsea Street, 917 Bennington Street, 151 Liverpool Street, and 114 Orleans Street.

elimination of access to 520 surface parking spaces located in front of the grandstand and clubhouse building. MassDOT comments identify additional information regarding parking supply that should be provided in the DEIR for the Master Plan project.

The EENF included an analysis of capacity of the MBTA Blue Line to support transit demand from Phase 1. According to the EENF, approximately 37.5% of the office transit trips would occur on the Blue Line with the majority of these trips occurring in the non-critical or reverse commute direction. According to the EENF, under the 2024 Build Condition, the Blue Line will operate within its policy capacity during the peak periods for both entering and existing the Suffolk Downs Station and at the critical link between Maverick and Aquarium Stations. In the No-Build and Future Build Conditions, the Blue Line passenger volumes are projected to slightly exceed policy capacity just before and just after the peak periods, when service is less frequent and when the MBTA's Policy dictates reduced maximum passenger loading levels. Comments from MassDOT and the MBTA confirm that the Phase 1 ridership can be accommodated by current Blue Line capacity. MBTA's comment letter indicates that a study of the Suffolk Downs MBTA Station is necessary to identify any improvements necessary to provide sufficient capacity or meet accessibility requirements during Phase 1.

The Proponent will implement a TDM program for the Phase 1 project to reduce single occupancy vehicle (SOV) trips and encourage the use of public transportation and alternative modes of transit. The EENF included a preliminary list of TDM measures to be implemented with the Phase 1 project: designation of an on-site transportation coordinator; secure bicycle storage and bicycle racks; a new Hubway Station; designated parking spaces for a car-sharing service such as ZipCar; the parking garage will include 30 electric vehicle (EV) charging stations, 35 EV ready spaces and 35 preferred parking spaces for alternative-fuel vehicles. The Proponent will also encourage tenants to implement or provide the following: employer subsidies for transit passes, guaranteed ride home program for employees, and direct deposit for employee paychecks.

I refer the Proponent to comments from MassDOT which encourage the Proponent to provide better pedestrian connectivity between the site and abutting land uses and to identify additional TDM measures. Comments from MassDOT also encourage the Proponent to consult with MassRIDES, the Commonwealth's Travel Options provider, to identify additional TDM measures that have been successful in limiting SOV trips at similar projects within Boston's urban core. As requested by DCR, the Proponent should work with DCR and MassDOT during permitting to develop a transportation monitoring program to evaluate the effectiveness of Phase 1 mitigation and the TDM program.

Climate Change Adaptation/Resiliency and Sustainable Building Design

The EENF indicated that the Phase 1 project stormwater management system will be designed to convey and detain the future (year 2100) 10-year and 100-year design storm rainfall depths based on extreme precipitation data developed for the BWSC. The Proponent will continue to evaluate a rooftop solar PV system for the Phase 1 project which will provide utility grid relief and resilient back-up power generation. The EENF indicated that the project site is located within the 100-year floodplain which has a BFE of 11-ft NAVD88; equivalent to 17.5-ft Boston City Base (BCB) datum. The EENF identified design elements incorporated into the Phase 1 project intended to improve its resiliency to the effects of climate change; including increased intensity and frequency of storm events, sea level rise, and extreme temperature events. The top of curb elevation of Phase 1 roadways and the finished floor elevation

(FFE) of the Phase 1 buildings will be located 3.3-ft and 4.5-ft (respectively) above the floodplain elevation (at 20.83-ft BCB and 22-ft BCB, respectively) to account for sea level rise and localized storm surge during the design life of the buildings. Comments from CZM, MassDEP, DCR, MAPC, Mystic River Watershed (MyRWA) and others identify concerns with the vulnerability of the site and the project to the effects of climate change (including sea level rise) and request additional analysis of this issue and additional measures to improve the project's resiliency. Additional analysis of Phase 1 is required as a condition of the DROD.

In compliance with Article 37 of the City of Boston's zoning code, the Phase 1 project will be designed to be certifiable at the gold level by LEED (version 4) for the Core and Shell Development rating system. The EENF included preliminary LEEDv4 scorecards for the Phase 1 and the Master Plan project.

Greenhouse Gas Emissions

The EENF included a GHG analysis for Phase 1 prepared in accordance with the standard requirements of the May 5, 2010 MEPA GHG Emissions Policy and Protocol ("the Policy"). The Policy requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize, or mitigate emissions. I acknowledge and appreciate the Proponent for its significant efforts and responsiveness in providing additional analysis to advance the Phase 1 GHG evaluation.

The GHG analysis quantified the direct and indirect CO_2 emissions associated with the project's energy use (stationary sources). The stationary source GHG analysis evaluated CO_2 emissions for the Base Case and the Preferred Case as required by the Policy. The Base Case was designed to meet the minimum energy requirements of the 9th Edition of the Massachusetts Building Code, which references the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) 90.1-2013 and the International Energy Conservation Code (IECC) 2015. The City of Boston is a designated Green Community under the provisions of the Green Communities Act of 2008. As such, the City has adopted the Commonwealth of Massachusetts' Stretch Code (SC).The project will be required to meet the applicable version of the SC in effect at the time of construction. The SC requires at least a 10-percent reduction in energy use compared to the base Building Code requirements.

Phase 1 stationary sources were evaluated using an energy analysis procedure that combines the IES Virtual Environmental[8] modeling software with excel spreadsheets. The energy model analyzed the 2 office buildings and the associated below-grade parking levels. The EENF included a summary of modeling inputs (e.g., R-values, U-values, efficiencies, lighting power density, etc.) for the Phase 1 Base Case and Phase 1 Preferred Alternative. The Proponent has committed to provide an EV charging program for 100 parking spaces within the garage (as described above). Other building related energy efficiency measures modeled for the Phase 1 project include:

- Building envelope with improved roof insulation (U=0.025; R-40), improved slab insulation (R-35), and improved windows (U=0.35; SHGC=0.25);
- Daylighting controls in all perimeter spaces;
- Dedicated outside air system with energy recovery serving chilled beams;
- Air cooled chiller with free cooling;

[8] "Virtual Environment". *Integrated Environmental Solutions Limited (IES).* Glasgow, Scotland.

- Reduced chilled and hot water loop supply temperature delta-T (6°F and 30°F, respectively);
- High efficiency condensing boilers (efficiency of 93%);
- Condensing hot water heater (efficiency of 93%);
- Reduced Lighting Power Density (LPD) within the office spaces (LPD = 0.6 W/sf);
- All LED lighting within the parking garage; and
- Reduced LPD within the parking garage (0.19 W/sf).

Comments from DOER indicate that the benefits of the GHG mitigation measures are reduced by the effects of curtain wall construction combined with the high window to wall ratio (60%). Because Phase 1 project is at a conceptual design level, the Proponent can consider incorporation of additional GHG reduction measures. As recommended by DOER, the Proponent should consider additional improvements to the roof insulation (R-50 insulation) which would provide additional GHG reduction benefits.

Phase 1 stationary source CO_2 emissions were estimated at 2,686 tons per year (tpy) in the Base Case. Adoption of energy efficiency measures will reduce stationary source CO_2 emissions by 595 tpy, for a total of 2,091 tpy, or a 22-percent decrease. The EENF indicated the estimated number of new trips associated with the Phase 1 project (2,775 unadjusted adt) is not anticipated to generate a significant level of mobile source GHG emissions. The Proponent will work with the tenants of the Phase 1 project to incorporate TDM measures to reduce SOV trips and associated mobile source GHG emissions.

According to the EENF, the Proponent will construct the core and shell of Phase 1 buildings; tenants will be responsible for fit-up of their spaces. The EENF includes a commitment to provide Tenant Design and Construction Guidelines to Phase 1 tenants that address opportunities to incorporate sustainable strategies and energy efficiency/renewable generation measures in building fit-out. The Proponent will implement the following GHG reduction measures which were not modeled: building commissioning, energy use tracking, sub metering, Energy Star appliances and equipment, and water conservation and efficiency measures. The DEIR should provide an update on the GHG mitigation measures that have been implemented by the Proponent and/or incorporated into the Phase 1 project.

The EENF evaluated the use of solar photovoltaics (PV), solar thermal, wind, and co-generation/district energy. According to the EENF, a rooftop solar PV system located on 20% of the total roof area would generate 785 MMBTU/year and result in a GHG reduction of 60 tpy of CO_2. The EENF indicates that the system would have a simple payback period of approximately 12 years. The EENF indicates that rooftop solar PV is not proposed based on uncertainty in the solar PV market (incentive program and tariffs). The Proponent has committed to construct "solar ready" roofs and will continue to evaluate rooftop solar systems as the design develops. The EENF indicated that a central co- or tri-generation plant (or plants) will be evaluated for the Master Plan project.

Historic Resources

As noted previously, the Suffolk Downs Complex (BOS.ABQ/REV.J), including several associated structures, and the racetrack are included in the Inventory and may be eligible for listing in the State and National Registers of Historic Places. The Phase 1 project includes demolition of a portion of the racetrack. The EENF indicated that retention of the racetrack is not feasible to meet programmatic requirements of the proposed project, nor is retention of the race track economically viable. As noted

below in greater detail, the MHC has indicated that the proposed project will have an "adverse effect" and requests continued evaluation of alternatives that adaptively reuse existing buildings.

Area of Critical Environmental Concern (ACEC)

Stormwater associated with Phase 1 will ultimately discharge to the ACEC. The *"Rumney Marshes Area of Critical Environmental Concern Salt Marsh Restoration Plan,"* dated May 2002, identifies disturbances to wetlands within the ACEC, as well as impairments to water quality, as threats to the ecological functions of the ACEC. The Phase 1 project is located outside of and will not alter wetlands within the ACEC. Phase 1 will improve stormwater management through compliance the SMS, including Standard 6 (Critical Areas).

Water Supply/Wastewater

According to the EENF, Phase 1 will require 43,000 gpd of potable water supply and will generate approximately 39,000 gpd of wastewater flow. Phase 1 will connect to the BWSC water and wastewater infrastructure located southeast of the project site at the intersection of Walley Street and Waldemar Avenue. The EENF indicated that these systems have sufficient capacity to meet Phase 1 water and wastewater needs. The EENF indicated that the Master Plan project will evaluate the use of low-flow plumbing fixtures and other water conservation and reuse techniques to reduce overall water usage and wastewater generation. The Master Plan project will also evaluate measures to reduce water demand for irrigation through a combination of efficient system design, water re-use, and drought-tolerant plantings.

The BWSC wastewater infrastructure ultimately conveys flows to the MWRA's Deer Island Treatment Plant. MassDEP requires sewer authorities with permitted combined sewer overflows (CSOs), including the City of Boston, to require removal of four gallons of infiltration and inflow (I/I) for each gallon of new wastewater flow generated for any new connection that will provide more than 15,000 gpd of new wastewater flows. Comments from BWSC indicate that it will require the Proponent to develop a consistent inflow reduction plan and address the 4:1 I/I mitigation requirement. The Proponent proposes to make a financial contribution to BWSC to support I/I removal for Phase 1. Comments from the MWRA recommend that the Proponent support specific I/I removal projects to ensure that additional wastewater flows do not result in discharges of untreated CSO to the Boston Harbor and Chelsea Creek during large storms. I expect the Proponent will work with the City of Boston and MWRA regarding this issue.

Solid and Hazardous Waste

The EENF indicated that a release of heavy metals, petroleum, and polycyclic aromatic hydrocarbons (PAHs) was reported to MassDEP in 1997 and was assigned a Release Tracking Number (RTN) (3-14857). The file was closed in February 1998 with a Permanent Solution Class B-1 Response Action Outcome (RAO). No Activity and Use Limitation (AUL) was placed on the property. The EENF noted that subsurface investigations with soil and groundwater sampling and testing were completed in 2017 which identified low levels of contaminants in soil and/or groundwater consistent with an urban site; no new Massachusetts Contingency Plan (MCP) – reportable conditions were identified with respect to soil and groundwater. The EENF identified a release of arsenic in the soil that was assigned

RTN 3-34499 in September 2017 and is in the Initial Site Investigation Phase 1 of the MCP. This area is located outside of the Phase 1 site. Soils excavated during Phase 1 will be reused as geotechnical surcharge and fill material.

Conclusion

Based on a review of the EENF, consultation with State Agencies, and public comments, I am proposing to grant a Phase 1 Waiver which would allow the Proponent to proceed with Phase 1 of the project prior to the completion of the EIR review. The Proponent submitted an EENF that addressed the criteria for all waivers and Phase 1 waivers. It has demonstrated that the project is consistent with the criteria and that granting of a Phase 1 Waiver will not result in Damage to the Environment. Consistency with the Waiver criteria is addressed with more specificity in the DROD. The Proponent should submit a DEIR for the Master Plan Project in accordance with the Scope below.

SCOPE

General

The DEIR should follow Section 11.07 of the MEPA regulations for outline and content, as modified by this Scope. If the Suffolk Downs site is not selected as the location for Amazon HQ2, the Proponent should incorporate Phase 1 and associated permitting and impacts into the DEIR.

I acknowledge and appreciate the Proponent's extensive public outreach and efforts to consult and collaborate with municipalities, residents and organizations. I expect that the Proponent will continue working with the Cities of Boston and Revere, MassDOT, MBTA, DCR, and other stakeholder groups prior to the preparation of the DEIR. These collaborative efforts will assist the Proponent in identifying mitigation measures and presenting a project that meets applicable environmental performance standards. To address comments that express concerns regarding the lack of community outreach to Spanish speaking community organizations, the Proponent has indicated that it will translate the Executive Summary of the DEIR into Spanish and adhere to continuing enhanced circulation and community outreach.

000a-001 The Master Plan project will be built out in multiple phases and, therefore, requires a phased approach to environmental review of the Master Plan project. The DEIR should identify proposed phases with supporting building program and site plan configurations. It will be particularly important to demonstrate that access to the Blue Line stations will not be impeded at intermediate stages of development, and that transportation/transit mitigation, greenhouse gas commitments, stormwater improvements, public open space, and other public benefits are phased proportionally to development. The DEIR should also address appropriate thresholds for provision of phased mitigation.

Project Description and Permitting

000a-002 The DEIR should include a detailed description of the existing and proposed conditions, describe any changes to the project since the filing of the EENF, and should provide an update on Phase 1. The

000a-003 DEIR should include updated site plans for existing and post-development conditions at a legible scale. The plans should clearly identify access roadways and internal driveways, transit connections, publicly

000a-001

Refer to Chapter 1, *Project Description and Alternatives*, for a description of project phasing and Chapter 12, *Summary of Mitigation/Draft Section 61 Findings*, for a description of mitigation phasing.

000a-002

Refer to Chapter 1, *Project Description and Alternatives*.

000a-003

Refer to the supporting figures of Chapter 1, *Project Description and Alternatives,* and to Appendix H for the 80-scale Grading, Drainage an Utilities Plan.

000a-003 accessible open space, easement areas (including but not limited to DCR's easements associated with Sales Creek), pedestrian and bicycle accommodations, wetland resource areas, surface and structured parking, and stormwater and water and wastewater infrastructure. The FEIR should include updated

000a-004 conceptual plans at a legible scale for any proposed off-site utility (water and wastewater) and transportation improvements that clearly identify lane widths, expanded areas of pavement or removal of medians/open space, traffic signals, pedestrian and bicycle accommodations, wetland resource areas and c.91 jurisdiction, stormwater management infrastructure, historic resources and proposed easements or acquisitions as may be required from the MBTA or other State Agencies. Proposed real estate

000a-005 acquisitions or easements from the MBTA or other State Agencies should be included in the narrative.

000a-006 The DEIR should include a summary table identifying the potential environmental impacts associated with the Master Plan project and associated off-site transportation improvements. It is acknowledged that in the instance of off-site transportation improvements, these impact estimates will be conceptual in nature, but will assist in identifying potential permitting requirements, design challenges, and identify wetland, stormwater, construction-period and other potential impacts. The impact assessment provided for the Master Plan project should present the project's cumulative impacts, including Phase 1.

000a-007 As the project will discharge to Sales Creek (an ORW), it appears the project may require a Surface Water Discharge General Permit for Construction General Permits or Multi-Sector General Permits in Outstanding Resource Waters (BRP WM 15) from MassDEP. The Proponent should clarify

000a-008 whether this Permit is required. The DEIR should provide a brief description and analysis of applicable statutory and regulatory standards and requirements, and describe how the project will meet those

000a-009 standards. The DEIR should include a list of required permits and approvals and provide an update on the status of each permit and/or approval. It should indicate how permitting will be addressed within the context of the Master Plan and phasing.

000a-010 The DEIR should identify the project's consistency with Executive Order (EO) 384, the Commonwealth's Sustainable Development Principles, and regional and local land use plans, including: *Imagine Boston 2030*, *Go Boston 2030*, the City of Revere's FY 2010 – 2015 Strategic Plan, and Boston Regional Metropolitan Planning Organizations (MPO) Journey to 2030. Comments from MAPC

000a-011 indicate that the City of Revere is completing an update to its Open Space and Recreation Plan (OSRP), which should be finalized in spring 2018. Additionally, the City of Revere is embarking on a full citywide Master Plan, which should commence in early 2018. The Proponent should consult with the City of Revere prior to preparing the DEIR to clarify the City's timeframe for these planning processes. The DEIR should provide an update on these planning processes and address the project's consistency with any of the goals and objectives that have been identified.

Alternatives Analysis

000a-012 I encourage the Proponent to continue to explore on-site alternatives to reduce impacts to environmental resources through design modification or the addition of features to further mitigate potential impacts. The DEIR should include a reduced development alternative that would reduce impervious surfaces, traffic generation, decrease development and fill in the floodplain and increase

000a-013 open space. It should also consider alternative site designs that would increase buffers to Sales Creek and use bridge spans to minimize impacts. The DEIR should evaluate alternatives that improve the

000a-004

Refer to the DEIR/DPIR report figures for updated conceptual plans of the Master Plan Project.

000a-005

Refer to Chapter 2, *Regulatory Context and General Information.*

000a-006

Table 1-3 of Chapter 1, *Project Description and Alternatives*, provides a summary of the Master Plan Project-related impacts (under the Reduced Development/Preferred Alternative), inclusive of the Phase 1 Project. Section 5.4 of Chapter 5, *Wetlands and Waterways*, includes an assesses the estimated impacts associated with off-site infrastructure improvements, including the proposed roadway improvements required to reduce/mitigate traffic impacts and water/wastewater system improvements.

000a-007

Refer to Chapter 10, *Infrastructure.*

000a-008

Refer to Chapter 2, *Regulatory Context and General Information.*

000a-009

Refer to Chapter 2, *Regulatory Context and General Information.*

000a-010

Refer to Chapter 2, *Regulatory Context and General Information.*

000a-011

Refer to Chapter 2, *Regulatory Context and General Information.*

000a-014 ecological functions of Sales Creek including but not limited to improving the tidal restriction to allow tidal inundation into the wetlands, additional daylighting, bank improvements, and/or increasing culvert sizes. I note that these measures would also provide additional resiliency benefits. The DEIR should

000a-015 evaluate alternative designs that avoid, minimize, and mitigate any impacts to LSCSF and the beneficial functions of the floodplain currently present on the project site. In addition, the Traffic and Transportation Section of the Scope identifies additional alternatives analysis that will be required for

000a-016 development of roadway improvements and mitigation. The DEIR should provide conceptual plans and describe and quantify each alternative's impacts on land alteration, creation of impervious area, impacts to wetland resource areas, ACEC, traffic generation, GHG emissions, parking, water use, and wastewater. This comparison should be provided in a tabular format with supporting narrative and conceptual site plans.

000a-017 Additional recommendations provided in this Certificate may result in a modified design that would further avoid, minimize, or mitigate Damage to the Environment. The DEIR should address how the project has been revised to further reduce impacts and, if certain measures identified herein are infeasible, the DEIR should discuss why these measures will not be adopted.

Wetlands and Drainage

000a-018 The DEIR should quantify and describe the nature of all impacts that cannot be avoided including grading and construction-related disturbances and whether they will be temporary or permanent in nature. The DEIR should clearly identify how impacts to wetland resources have been avoided and minimized to the maximum extent practicable and identify mitigation measures for those impacts that are unavoidable. The DEIR should demonstrate that the project can be designed and constructed consistent with the WPA performance standards. It should include plans at a reasonable

000a-019 scale that clearly delineate all applicable resource area and buffer zone boundaries including FEMA FIRM floodplain elevations for both the project site and for all off-site improvements. The DEIR should

000a-020 discuss whether there are opportunities both on the project site and at off-site roadway improvement areas to eradicate existing invasive species problems and consider the implementation of a long-term invasive species management program.

000a-021 The DEIR should provide more information on work and activity proposed in the ACEC and how it will avoid adverse impacts to wetland resources in the ACEC. The DEIR should identify the

000a-022 locations where Sales Creek is culverted, the diameter of culverts and evaluate opportunities to improve the ecological function of Sales Creek.

000a-023 The EENF indicated that the Master Plan project will impact approximately 80 acres of LSCSF. As requested by CZM and CLF, the DEIR should analyze alternative designs to avoid, minimize, and mitigate any impacts to the beneficial functions of the floodplain. I refer the Proponent to CZM's comment letter which identifies additional information that should be provided in this analysis. The FEIR should elaborate on the design features incorporated into the project site to maximize the function of the LSCSF and minimize flood damage on the site and adjacent properties. The project site does not

000a-024 have an unrestricted outlet for flood waters; water is pumped to Belle Isle Inlet via DCR's Bennington Street pump station during flood events. The DEIR should include a detailed analysis specific to how the proposed fill, grading and structures (buildings, roadways, infrastructure, etc.) within the coastal

000a-012

Refer to Chapter 1, *Project Description and Alternatives*.

000a-013

Refer to Chapter 5, *Wetlands and Waterways.*

000a-014

Refer to Chapter 5, *Wetlands and Waterways.*

000a-015

Refer to Chapter 5, *Wetlands and Waterways,* and Chapter 8, *Climate Change Resiliency.*

000a-016

Refer to Chapter 1, *Project Description and Alternatives*.

000a-017

Refer to Chapter 1, *Project Description and Alternatives*.

000a-018

Refer to Chapter 5, *Wetlands and Waterways.*

000a-019

Refer to Chapter 5, *Wetlands and Waterways.*

000a-020

Refer to Chapter 5, *Wetlands and Waterways.*

000a-021

Refer to Chapter 5, *Wetlands and Waterways.*

000a-022

Refer to Chapter 5, *Wetlands and Waterways.*

000a-023

Refer to Chapter 8, *Climate Change Resiliency.*

000a-024

Refer to Chapter 8, *Climate Change Resiliency.*

000b-024 floodplain will affect water flow and drainage patterns within and adjacent to the site; both during rain events as well as costal storm events where there is a combination of rain and coastal flooding.

000b-025 The DEIR should include a conceptual drainage plan and should discuss how the project will comply with MassDEP's SMS and the requirements of other applicable stormwater programs, including but not limited to applicable NPDES Phase II Stormwater General Permits. The DEIR should clarify if
000b-026 the project qualifies as a redevelopment project in accordance with the SMS. If redevelopment standards are applicable, the DEIR should contain information that demonstrates that the project conforms to the Stormwater Management Standards to the maximum extent practicable. If it can be demonstrated that full compliance cannot be achieved, then it must be shown that the highest practical level of stormwater management is being provided.

000b-027 The DEIR should provide sufficient information to demonstrate that the conceptual stormwater management plan for the project area provides adequate protection for wetland resources, improves water quality and ecosystem function, manages surface and groundwater flows, and integrates the environment fully into the project (i.e., Sales Creek). The DEIR should specifically address the types of stormwater BMPs proposed to enhance water quality in Sales Creek, and ultimately downstream to Belle Isle Marsh and the ACEC as a whole. Supporting graphics and drainage calculations should be provided for the conceptual design to demonstrate adequacy of the proposed stormwater management system, identify the type and location of proposed BMP's or recharge/infiltration areas, and to understand the relationship of the BMPs to regulated wetland resource areas. A draft Total Maximum
000b-028 Daily Load (TMDL) for pathogens has been established for the Boston Harbor Watershed (excluding the Neponset River sub-basin). I strongly encourage the Proponent to design a stormwater management system that conforms to the goals established by the TMDL.

000b-029 The DEIR should identify and evaluate all feasible methods to reduce impervious surfaces, including reduced parking ratios, use of pervious pavement, and narrow driveway widths, etc. If
000b-030 groundwater recharge is required or proposed, the DEIR should demonstrate that sufficient area is
000b-031 available to site recharge areas. In the context of considering climate change adaptation measures, the DEIR should evaluate measures that could be employed to provide enhanced protection from less
000b-032 frequent storm events (e.g., 25-year). The DEIR should identify whether the existing pumping station is adequate to prevent flooding under the proposed conditions, and identify what upgrades or mitigation
000b-033 may be necessary to address future conditions. The DEIR should discuss the drainage impacts associated with abandonment of the CAFO on the project site and the timeframe for this work.

000b-034 The DEIR should describe the potential impact of off-site transportation improvements on existing stormwater infrastructure and describe how these improvements can be designed to meet applicable SMS or improve existing drainage problems. I encourage the Proponent to identify, evaluate, and implement measures that go beyond the required minimum SMS standards.

Landlocked Tidelands

The project exceeds EIR thresholds as defined in 301 CMR 11.03 and is subject to the provisions of *An Act Relative to Licensing Requirements for Certain Tidelands* (2007 Mass. Acts ch. 168) and the
000b-035 Public Benefit Determination regulations (301 CMR 13.00). The DEIR should provide an updated

000b-024

Refer to Chapter 8, *Climate Change Resiliency.*

000b-025

Refer to Chapter 10, *Infrastructure.*

000b-026

Refer to Chapter 10, *Infrastructure.*

000b-027

Refer to Chapter 10, *Infrastructure.*

000b-028

Refer to Chapter 10, *Infrastructure.*

000b-029

Refer to Chapter 1, *Project Description and Alternatives*.

000b-030

Refer to Chapter 10, *Infrastructure.*

000b-031

Refer to Chapter 10, *Infrastructure.*

000b-032

Refer to Chapter 10, *Infrastructure.*

000b-033

Refer to Chapter 10, *Infrastructure.*

000b-035 analysis of the project's public benefits and how it will address the PBD regulatory criteria. I will issue a PBD within 30 days of the issuance of the final Certificate.

Section 3 of this legislation 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. The DEIR should address each of the considerations identified in the legislation and provide information to support this review. The Proponent should consider measures that may support the PBD such as contributions to water transportation and improvements to Belle Isle Marsh.

Traffic and Transportation

The Master Plan project has the potential to generate 93,265 unadjusted adt. It requires a Vehicular Access Permit from MassDOT and an Access Permit from DCR. Development of an effective transportation access and mitigation plan is critical to avoid potentially significant impacts to the regional transportation system and state roadways. Project planning should place equal emphasis on roadway improvements and TDM measures and pursue creative solutions to encourage both patrons and employees to use alternative, less-polluting transportation.

Traffic Study

000b-036 The DEIR should include a transportation study for the Master Plan project that is prepared in conformance current with the MassDOT/EEA *Transportation Impact Assessment (TIA) Guidelines* (March 2014). The Proponent should consult with appropriate MassDOT units during preparation of the DEIR to address MassDOT comments. I hereby incorporate by reference the MassDOT and MBTA comment letters, both dated January 19, 2018, into the DEIR scope. Key comments raised by MassDOT address Route 1A access alternatives, identifying interim planning horizons, transit analysis, and use of the Central Transportation Planning Staff's (CTPS) regional travel demand model.

000b-037 The DEIR should present capacity analyses and a summary of average and 95th percentile vehicle queues for each intersection within the study area. The results of this analysis should be provided in a tabular format that identifies Existing, Future No-Build and Future Build Conditions for all peak hour conditions. Analysis should use a 10-year horizon (2028) for the transportation study and a 20-year horizon for the full build-out of the project. The Proponent should consult with MassDOT and MBTA to identify other intermediate development phases that should be evaluated in the TIA. I refer the

000b-038 Proponent to comments from the City of Revere which identifies additional projects located in the City of Revere for inclusion in the future build condition. The EENF indicated that the future conditions

000b-039 analysis assumed completion of the roadway improvements proposed as part of the 205 Revere Beach Parkway project (EEA# 15411). As requested by DCR, the DEIR should clarify the timing of the Lynnway roadway improvements in relation to construction of the Phase 1 project. If warranted, the DEIR should identify interim measures to address potential impacts from site generated traffic should the Phase 1 project be completed prior to the roadway improvements.

000b-040 The EENF included a proposed study area for the Master Plan TIA that included 34 intersections within the Cities of Revere, Chelsea, and Boston. Comments from MassDOT and the Massachusetts

000b-034

Refer to Chapter 5, *Wetlands and Waterways.*

000b-035

Refer to Chapter 5, *Wetlands and Waterways.*

000b-036

The DEIR includes a transportation chapter prepared in conformance current with the MassDOT/EEA Transportation Impact Assessment (TIA) Guidelines (March 2015). Refer to Chapter 6, *Transportation.*

000b-037

Refer to Chapter 6, *Transportation.*

000b-038

Refer to Chapter 6, *Transportation.*

000b-039

Refer to Chapter 6, *Transportation.*

000b-040

Refer to Chapter 6, *Transportation.*

000b-040 Port Authority (Massport) request that the three harbor tunnels (Ted Williams Tunnel, Callahan Tunnel, and Sumner Tunnel) be included in the study area and that a roadway segment analysis, prepared in accordance with the Highway Capacity manual (HCM) be provided for each tunnel to identify the project's potential impact and appropriate mitigation measures. Comments from the City of Revere highlight the importance of understanding local traffic impacts (in addition to regional impacts) and recommend that the study area be expanded to identify the project's potential impact on local traffic circulation. I refer the Proponent to comments from the City of Revere and MAPC which identify additional locations for the study area and expect that they will be incorporated into the TIA. The Proponent should conduct a comprehensive data collection program to evaluate existing and future traffic conditions. The Proponent should coordinate with MassDOT and Massport to obtain the latest ATR volumes and to identify additional analysis that may be required for the TIA.

000b-041

I refer the Proponent to MassDOT's comment letter for additional guidance on trip generation, transit demand and mode split, trip distribution, data collection, safety and crash rate evaluation, and traffic operations/capacity analyses. As requested by MassDOT, the Proponent should complete a Road Safety Audit (RSA) for any identified Highway Safety Improvements Program (HSIP) eligible locations prior to preparing the DEIR. The results of the RSA(s) should be used to identify improvements to enhance safety and operations at these locations.

000b-042

Trip Generation and Distribution and Mode Split

According to the EENF, the Master Plan project may generate up to 93,265 unadjusted adt on an average weekday. This estimate was calculated using ITE trip generation rates for LUC 221 (mid-rise residential), 222 (high-rise residential), 255 (senior housing), 310 (hotel), 710 (general office), 760 (research & development), and 820 (retail). The EENF provided the adjusted trip generation data which reflects credits for pass-by and/or internal capture, and mode share (vehicle, transit, and walk/bike) based on the BTD guidelines for this location. On a daily basis, the project will generate up to 33,320 adjusted adt, 54,269 transit trips, and 20,025 pedestrian/bicyclist trips. I refer the Proponent to comments from MassDOT and the MAPC which request the Proponent utilize the Central Transportation Planning Staff's (CTPS) regional travel demand model to estimate future traffic volumes as it more fully incorporates conditions occurring across the larger regional network. I note that use of the CTPS regional travel demand model was recently utilized in the Union Point development in Weymouth (EEA# 11085R). The Proponent should discuss the feasibility of utilizing the CTPS model with MassDOT to determine the number of new trips that will be generated by the Master Plan project and to make trip assignments on the different modes of transportation. The Proponent should consult with MassDOT and the MBTA to develop travel demand and trip generation characteristics in light of the difficulty in adequately modeling the transit trip generation and trip assignments for the project.

000b-043

Roadway and Signalization Improvements

The EENF identified the following preliminary concepts for on-site vehicular access and for off-site roadway, traffic and safety improvements that will be developed further in the DEIR:

- Tomasello Drive at Route 1A – Implementation of a two-phase traffic signal and left-turn egress onto Route 1A southbound and widening of both roadways;
- Tomasello Drive at Route 145 (Revere Beach Parkway/Winthrop Avenue) – Geometric and traffic signal improvements;

000b-041

Refer to Chapter 6, *Transportation.* The study area proposed in the EENF/EPNF included 35 study area intersections, which encompasses the locations analyzed as part of the Phase 1 Project TIA and beyond. Through discussions with MassDOT, City of Boston, and the City of Revere, it was determined that the Project could potentially have an impact on additional locations, thus, expanding the traffic study area for this DEIR/DPIR to a total of 53 locations, including intersections, circles, weaves, merges and diverges.

000b-042

Refer to Chapter 6, *Transportation.* The Proponent has worked closely with MassDOT, the City of Revere, the City of Chelsea, and the City of Boston to arrange the RSAs. The road safety audits were conducted in advance of the preparation of the DPIR/DEIR. Copies of the final road safety audit reports are included in Appendix D.

000b-043

Refer to Chapter 6, *Transportation.*

- Tomasello Drive/Winthrop Avenue – Right-turn in/right-turn out driveway east of this intersection; and
- Furlong Drive/Route 1A (Lee Burbank Highway) – Break in the median and installation of a two-phase traffic signal to allow vehicles existing the site (via Furlong Drive) to take a left-turn onto Route 1A.

As noted above, MassDOT has indicated that improvements at the Tomasello Drive/Route 1A intersection may be necessary to accommodate Phase 1.

Comments from Massport, MassDOT, and the City of Revere identify concerns with traffic operations along the Route 1A corridor, particularly at the Route 1A/Boardman Street intersection. The congestion along this corridor impacts commuters on a daily basis and affects local access to East Boston, Revere and Winthrop. As indicated in the EENF, approximately 35% to 56% of the project vehicle trips will approach the project through the Boardman Street intersection with Route 1A. The DEIR should include a comprehensive access alternatives evaluation that focuses on the Route 1 corridor between Boardman Street and Route 145. I strongly recommend that the Proponent consult with MassDOT, DCR, Massport, the City of Boston, and the City of Revere regarding the development of this analysis and identification of mitigation alternatives prior to filing the DEIR. The DEIR should also identify access management techniques to improve overall traffic along the Route 1A corridor, the Route 145 corridor, and local streets in the vicinity of the project.

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The DEIR should include conceptual plans at a reasonable scale (e.g. 80-scale) for the proposed roadway improvements that clearly show proposed lane widths and offsets, layout lines and jurisdictions, and the land uses adjacent to areas where improvements are proposed. Land acquisition and/or easements required to support improvements should be identified in the DEIR. Any proposed measures within the State highway layout, as well as internal circulation, must be consistent with a Complete Streets design approach that provides adequate and safe accommodation for all roadway users, including pedestrians, bicyclists, and public transit riders. Where these criteria cannot be met, the DEIR should describe why they cannot be met and should work with the MassDOT Highway Division to obtain a design waiver.

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000b-047

Transit/Public Transportation

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The Proponent should provide robust connections between public transit serving the site and the Master Plan project. The access should be visible, fully integrated with the proposed buildings, and outfitted with ample accommodation for transit vehicles and with attractive amenities for passengers. Comments from MassDOT and MBTA acknowledge that the project has a unique opportunity to be fully integrated with the existing transit network and indicate their interest in working with the Proponent identify creative solutions that would encourage both patrons and employees to reduce SOV traffic.

000b-049

The DEIR should estimate the additional demand that will be generated by the project and include a detailed transit capacity analysis to determine the existing conditions and potential impacts of the project on the transit system. The Proponent should consult with the MBTA to identify the planning horizons and intermediate development phases that should be evaluated in the TIA. The DEIR should address the expected additional ridership on the Blue Line and the impact of the additional ridership

000b-044

Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 2, *Regulatory Context and General Information.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 3, *Urban Design.*

000b-049

Refer to Chapter 6, *Transportation.*

000b-049 throughout the day, including peak periods. This data should be provided for future conditions upon completion of the project. This information should be shown graphically in the format identified in the MBTA's comment letter to indicate the project's added ridership in comparison to base ridership and the load capacities.

000b-050 The DEIR should address the impact of additional ridership on functionality and capacity of the Beachmont and Suffolk Downs stations. MBTA's comment letter indicates that a study of the Suffolk Downs Station is necessary to identify any improvements necessary to provide sufficient capacity or meet accessibility requirements of Phase 1. The Proponent has agreed to fund the analysis requested by the MBTA for Phase 1 of the project. The Proponent should consult with the MBTA regarding the results of the analysis, costs of necessary improvements and how improvements to support Phase 1 transit demand can be implemented. For the Master Plan, the DEIR should include an architectural and engineering assessment that identifies the level of investment needed to ensure that both Blue Line Stations can accommodate the significantly higher anticipated demand and timeline for implementation.

000b-051 The DEIR should provide a detailed analysis of the project's impact to the MBTA bus network that serves the site, including Routes 119 and 120. The DEIR should review the capacity of bus service to the site under existing conditions and proposed Build and No Build scenarios, taking into account other projects in the vicinity that are under construction or planned. The DEIR should identify whether additional service would need to be added in order to ensure that the MBTA bus routes will continue to comply with existing MBTA service standards and should calculate the cost to the MBTA to accommodate the unmet transit demand. The Proponent should provide the analysis of impacts to bus

000b-052 service requested in comments from MassDOT and MBTA. As requested by MBTA, the DEIR should also evaluate opportunities to improve bus stops along Route 1A, either directly at the site or further north of the project.

000b-053 Comments from MassDOT indicate that the MBTA is currently constrained from offering more bus and rapid transit service during the morning and evening weekday rush hours. The DEIR should specifically identify any impacts to MBTA service (bus and rapid transit) from the proposed project that occur during weekday rush hours and should describe how these impacts will be mitigated.

000b-054 As requested by MassDOT and the MBTA, the DEIR should describe existing conditions; how employees, visitors, and residents will travel from the site to the Beachmont and Suffolk Downs stations; and identify any measures necessary to provide a fully accessible path of travel for all users.

000b-055 The DEIR should clarify how any proposed shuttle bus will access the Blue Line Station at Suffolk Downs. It should evaluate a route that would serve both MBTA stations and other potential locations, such as the intersection of Tomasello Drive and Route 1A and the intersection of Tomasello Drive and Furlong Drive (and/or within the shopping center). Such a route may be in addition to a direct route from the Suffolk Downs Station. I refer the Proponent to comments which support implementation of a shuttle service to connect the site to Suffolk Downs station and to facilitate a significant mode shift. Comments also recommend the use of alternatives fuels or electric shuttles to reduce GHG emissions.

Pedestrian and Bicycle Access

000b-056 The EENF has identified, at a conceptual level, a series of on-site pedestrian and bicycle improvements. The DEIR should expand upon the information presented in the EENF to demonstrate a

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

000b-054

Refer to Chapter 6, *Transportation,* and Chapter 3, *Urban Design.*

000b-055

Refer to Chapter 6, *Transportation,* and Chapter 3, *Urban Design.*

000b-056

Refer to Chapter 3, *Urban Design.*

clear commitment to promotion of pedestrian access throughout the project site and the ability to accommodate bicycle uses. The DEIR should elaborate on the construction timing of proposed pedestrian and bicycle amenities, including but not limited to the proposed pedestrian plaza near the Suffolk Downs MBTA station. The DEIR should provide an inventory of pedestrian and bicycle facilities in the study area and bicycle network in the vicinity of the project as requested in MassDOT's comment letter. The DEIR should identify measures for improving deficient pedestrian and bicycle facilities in the area and expanding or adding new pedestrian/bicycle routes. As recommended by MAPC, DCR, and Boston Harbor Now, this evaluation should consider connecting the site to the East Boston Greenway (which currently terminates at Constitution Beach, just short of Orient Heights Station), the Belle Isle Marsh trail network to the east, and Chelsea Creek to the west.

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Parking

The DEIR should identify the proposed parking supply for the Master Plan project, include a parking study that identifies assumptions and methodology used to project parking demand, provides the information identified in MassDOT's comment letter, and describe its shared parking strategy (on- and off-site). The TDM Program should incorporate policies designed to minimize parking demand, including unbundling parking for residents, fees for parking and parking cash-out incentives for employees.

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The Proponent has increased the amount of parking spaces, associated with Phase 1, that will be equipped with EV charging stations, will be EV ready and will provide preferential parking for plug-in electric vehicles and hybrid or alternatively-fueled vehicles. I note recommendations that encourage the Proponent to supplement the proposed Hubway station with a dockless bike sharing station.

Transportation Demand Management (TDM)

The DEIR should present the TDM program to discourage single-occupancy-vehicle (SOV) trips. The TDM plan should seek to maximize the use of pedestrian and bicycle facilities, offer incentives for using public transportation, and encourage the use of low-emissions vehicles. It should include specific, defined mode share goals that target high rates of transit, bicycle, and pedestrian use. Data and analysis of existing modes (including public transportation, walking, and bicycling), and origin-destination data, should be employed to identify physical improvements and supporting programs to increase these modes. The DEIR should evaluate the feasibility of facilitating pedestrian/bicyclist access across Route 1 at the southwest corner of the site and of incorporating a water transportation component. It should specifically address TDM measures identified in the MassDEP and MAPC comment letters. The Proponent should also consult with MassRIDES and the Logan Airport Transportation Management Association (TMA) to identify specific measures that have been successful in reducing trip generation for similar projects in Boston.

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Monitoring Program

The DEIR should include a proposed monitoring program to evaluate assumptions regarding traffic generation, mode splits and, effectiveness of the traffic mitigation program and the TDM program. The Proponent should consult with MassDOT regarding the duration and frequency of monitoring, the identification of triggers for identification and implementation of additional

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

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Refer to Chapter 6, *Transportation.*

000b-063 improvements or programs. The Proponent should provide a clear commitment to implement and continuously fund the TDM Program.

Airspace/Aviation

The project site appears to be located within protected airport approach and/or transitional airspace areas as defined by state law (MGL, Chapter 90, Section 35B) and Federal regulations (Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace). State and federal notice is required for proposed buildings, parking lots/structures, lighting (within parking lot, street lights/traffic lights, temporary lighting during construction) and use of cranes. I refer the Proponent to comments from Massport which provide additional guidance on building heights as they relate to airport approach and or

000b-064 transitional areas as defined by state law and federal regulations. The Proponent should consult with Massport and the MassDOT Aeronautics Division regarding project elements, including lighting and consideration of reflective building materials or use of solar panels, and impacts of glare on aviation.

Air Quality

000b-065 In accordance with the Massachusetts State Implementation Plan (SIP) for ozone attainment, the Proponent must conduct an indirect source review analysis because this is a mixed-use project that would generate 6,000 or more new adt. This analysis should be conducted in accordance with MassDEP's *Guidelines for Performing Mesoscale Analysis of Indirect Sources*. The Proponent should consult with MassDEP to discuss the modeling protocol and to confirm the applicable emissions model prior to conducting the analysis. If the analysis demonstrates that emissions of the Future Build Scenario exceed the Future No-Build, the Proponent must provide mitigation, including implementation of a TDM program.

The MassDEP comment letter identifies potential certifications and permits that may be required for on-site energy sources such as boilers, emergency generators, etc. The DEIR should identify certification and/or permits that likely will be required for project elements.

Climate Change

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 GHG 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.

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.

000b-064

The Proponent has met with Massport regarding the Master Plan Project and discussed the potential for the application of solar PV systems on portions of the building rooftops. As the design of individual buildings and/or development phases advance, the Proponent will continue to consult Massport, as needed.

000b-065

Refer to Chapter 9, *Environmental Protection.*

Greenhouse Gas Emissions

Comments from DOER indicate that the project, if built to code with no mitigation, will generate an estimated 59,000 tpy of new emissions. This would increase Revere's city-wide emissions rate by more than 10% and increase Boston's city-wide emissions rate by 0.7%. Comments from MAPC indicate that the Cities of Boston and Revere are part of the Metro Mayors Coalition and have a net-zero emissions goal by 2050. This project represents a significant opportunity to reduce new emissions using readily available efficiency and renewable strategies. Comments from the City of Revere, DOER, and others identify the importance of providing efficient building envelopes and recommend the Proponent minimize the use of curtain-wall construction in favor of framed and insulated structures and adoption of passive designs for residential properties. This approach, combined with energy efficient HVAC systems and equipment could reduce new emissions by more than 50,000 tpy and assist the cities in achieving their GHG reduction goals.

The Master Plan project is subject to review under the May 5, 2010 MEPA GHG Policy and it is subject to the Massachusetts Stretch Energy Code (SC) adopted by both the Cities of Boston and Revere. The Policy requires projects to quantify carbon dioxide (CO_2) emissions and identify measures to avoid, minimize or mitigate such emissions. The analysis should quantify the direct and indirect CO_2 emissions associated with the project's energy use (stationary sources) and transportation-related emissions (mobile sources). Direct emissions include on-site stationary sources, which typically emit GHGs by burning fossil fuel for heat, hot water, steam and other processes. Indirect emissions result from the consumption of energy, such as electricity, that is generated off-site by burning of fossil fuels, and from emissions associated with vehicle use by employees, vendors, customers and others. The DEIR should identify and commit to mitigation measures to reduce GHG emissions.

Stationary Sources

000b-066 The DEIR should include a GHG analysis that calculates and compares GHG emissions associated with 1) a Base Case corresponding to the 8th Edition of the Massachusetts Building Code with amendments; and 2) a Preferred Alternative that incorporates additional energy saving measures which, at a minimum, demonstrate compliance with the SC. The 8th Edition of the Building Code incorporates the building energy provisions of the International Energy Conservation Code (IECC) 2015, which references the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE) 90.1-2013 standards. The GHG analysis should also include the additional information, analyses, and evaluation requested in DOER's comment letter, which is incorporated by reference into this Scope.

000b-067 The Proponent should demonstrate in the DEIR that it has evaluated and committed to GHG-reduction measures consistent with the GHG Policy. The DEIR should include a detailed evaluation of the feasibility and benefits of higher efficiency building envelopes (i.e. framed, insulated walls with continuous insulation), roof-mounted solar PV, high efficiency HVAC systems and lighting, and passive design methods for the multifamily portion of the project. The GHG analysis should clearly present modeling data inputs, the results of calculations used to establish the existing/baseline condition(s), the build condition(s), and the impact of proposed emissions-reduction mitigation. As recommended by DOER, prototype buildings representing each of the proposed use types and building geometries (i.e. podium with and without lower level parking, tower, townhouse, etc.) should be modeled at this stage in

000b-066

Refer to Chapter 7, *Greenhouse Gas Assessment.*

000b-067

Refer to Chapter 7, *Greenhouse Gas Assessment.*

000b-067 lieu of individually modeling every building. The Proponent should consult with DOER and the MEPA Office to confirm the modeling approach prior to submitting the DEIR.

000b-068 The EENF included a commitment to examine co- and tri-generation options as well as to examine the feasibility of siting and sizing one or more central energy plant to serve the Master Plan project. The DEIR should compare emissions generated by this potential facility with a scenario in which existing utility services are used for each proposed building in the Master Plan project area. The Proponent should consult with the DOER to confirm the methodology prior to preparing this analysis.

000b-069 The project may lend itself to implementation of renewable energy technologies to reduce project-related GHG emissions. As recommended by DOER, at a minimum, the DEIR should analyze the feasibility and GHG mitigation benefits of on-site renewable technologies including rooftop solar PV. The financial analysis should identify potential payback periods and specifically discuss how the SMART Plan could improve the value of solar PV to the Proponent. The analysis should include a narrative and data to support the Proponent's adoption (or dismissal) of solar PV as a feasible measure to avoid, minimize or mitigate project-related GHG emissions and Damage to the Environment.

Mobile Sources

000b-070 The GHG analysis should include an evaluation of potential GHG emissions from mobile emissions sources. The DEIR should follow the guidance provided in the Policy for *Indirect Emissions from Transportation* to determine mobile emissions for Existing Conditions, Build Conditions, and Build Conditions with Mitigation. The GHG analysis in the DEIR should also demonstrate that mobile source GHG emissions can be avoided, minimized and mitigated to the maximum extent feasible through establishment of aggressive mode share goals supported by: strong transit user incentives (e.g. transit subsidies, shuttle services, etc.), right-sized parking supply, safe and convenient access and services for bicyclists and pedestrians, and a robust TDM program with clearly defined goals and monitoring. The Build with Mitigation model should incorporate roadway and transit improvements, if proposed, and TDM measures implemented by the project and document the reductions in GHG emissions associated with the mitigation.

Mitigation

000b-071 The project will be built out over a period of 15-20 years. The DEIR should describe an approach to address how each phase will be designed to achieve the maximum feasible reductions in energy use and GHG emissions and a strategy for providing self-certifications to the MEPA Office based on phasing or completion of individual buildings.

Adaptation and Resiliency

000b-072 The DEIR should provide an analysis and discussion of vulnerabilities of the site to the potential effects of climate change, including sea level rise, increased frequency and intensity of precipitation events, and extreme heat events. Using available data and considering the level of acceptable risk to the expected project lifetime, the Proponent should select a predicted sea level rise and storm intensity scenario and evaluate in the DEIR how the project may be directly or indirectly impacted. I refer the Proponent to CZM's comment letter which indicates that MassDOT's dynamic hydrologic model is

000b-068

Refer to Chapter 7, *Greenhouse Gas Assessment.*

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Refer to Chapter 7, *Greenhouse Gas Assessment.*

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Refer to Chapter 7, *Greenhouse Gas Assessment.*

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Refer to Chapter 7, *Greenhouse Gas Assessment.*

000b-072

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

000b-072 currently being expanded to include the entire coast and recommends this data be used for the analysis. The DEIR should discuss why a specific scenario (or scenarios) was selected for evaluation, describe associated sea level rise and, if applicable, storm surge elevations, identify the extent of inundation areas on-site, and indicate how the project will be designed to mitigate this impact or to facilitate adaptation
000b-073 responses, if applicable. The DEIR should address whether the adjacent Belle Isle Marsh will be submerged during the design life of the project due to sea level rise which would significantly reduce its ability to buffer storm events. Staff from MEPA, MassDEP, and CZM are available to assist the Proponent in establishing study methodologies and storm event scenarios to complete this analysis.

000b-074 Based on likely impacts identified by modeling scenarios, the DEIR should incorporate ecosystem-based adaptation measures and infrastructure design to minimize and mitigate impacts. Building elevations and stormwater management infrastructure should be designed in a manner to promote climate change resiliency and adaptation. The Proponent should also consider impacts on the
000b-075 proposed structures, building entry and exit points, roadways that both provide access to and traverse the site, public and private on-site utilities, and first floor uses. The analysis provided in the DEIR should
000b-076 demonstrate that the drainage system is designed to avoid exacerbating flooding of the site and adjacent properties. Comments from the MBTA indicate that the Suffolk Downs and Beachmont MBTA stations and the Blue Line tracks may be vulnerable to flooding, which would affect the accessibility of the project via transit. Any proposed modifications to the Beachmont and/or Suffolk Downs Station should be implemented in a manner to promote climate change resiliency. The Proponent should work with the MBTA to review existing vulnerabilities and to identify improvements that could be undertaken in conjunction with the project. The DEIR should report on the results of this analysis and meetings with the MBTA and discuss what types of design improvements can or will be made to prevent or reduce impacts from extreme storms, sea level rise, and potential flooding.

000b-077 The DEIR should provide information on project phasing and development of active and passive recreation areas and wetland or open space features that will be designed to flood. It should include figures that depict existing and proposed elevation contours and a supporting narrative that addresses how the open space will function to absorb and buffer flood waters. The DEIR should also identify site
000b-078 elements that have been incorporated into project design to reduce the impact of extreme heat waves and limit the potential impact of more frequent and intense storm precipitation. The Proponent should
000b-079 consider how on-site renewable energy, a central energy plant, or co- or tri-generation systems may provide added resiliency during periods of power loss during storms.

000b-080 The EENF indicated that temporary floodwater barriers may be used to increase the Master Plan project's resiliency to flooding and sea level rise. As requested by CZM, the DEIR should provide additional information regarding the effectiveness, location, and potential impacts of temporary floodwater barriers. The DEIR should also explain how flood waters that may inundate the project site will be conveyed and controlled during and after storm events and identify potential impacts to DCR's Bennington Street pump station.

Water Supply/Wastewater

000b-081 The Master Plan project will consume up to 2.725 million gpd of water and will generate up to 2.476 million gpd of wastewater. The DEIR should tabulate wastewater generation and water consumption by use, including estimates of peak and continuous maximum water demand for each

000b-073

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

000b-074

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

000b-075

Refer to Chapter 3, *Urban Design.*

000b-076

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

000b-077

Refer to Chapter 10*, Infrastructure.*

000b-078

Refer to Chapter 3, *Urban Design.*

000b-079

Refer to Chapter 7, *Greenhouse Gas Assessment.*

000b-080

Refer to Chapter 8, *Climate Change Resiliency.*

000b-081

Refer to Chapter 10, *Infrastructure.*

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proposed use and for landscape irrigation and air conditioning make-up water. The DEIR should describe the location and size of existing and proposed water and wastewater infrastructure, connections to the BWSC and Revere's water and sewer systems, and the path and ultimate disposal of wastewater from the site. The DEIR should provide supporting documentation or data to demonstrate that water and wastewater systems have sufficient capacity to accommodate the project. I refer the Proponent to MWRA's comment letter for additional guidance regarding the wastewater capacity analysis. The DEIR should describe water conservation efforts to be incorporated into the project.

000b-084
000b-085
The DEIR should identify any combined sewers along the project's wastewater flow path, discuss potential impacts to system capacity during dry and wet weather conditions, and identify opportunities to minimize combined sewer overflow (CSO) events within the system. The project will be required to fully offset new sanitary flows into the regional wastewater system. The DEIR should discuss how the project intends to meet the requirement to offset new flows in accordance with state and city policies and requirements. The Proponent should consult with MassDEP, MWRA, BWSC, and the City of Revere to develop a mitigation plan. The DEIR should discuss the outcome of these consultations, identify sewer system deficiencies within the system serving the project site and describe I/I mitigation commitments.

000b-086
I refer the Proponent to the comments from MWRA regarding applicable Toxic Reduction and Control (TRAC) Discharge permitting including: prohibiting discharges of groundwater to the sanitary sewer system pursuant to 360 CMR 10.023(1); discharges of wastewater requiring a Sewer Use Discharge Permit; and approvals for the installation of oil/gas separators. The DEIR should provide an update on the applicability of these Permits and address how the project complies with applicable statutory and regulatory standards and requirements.

Historic and Archaeological Resources

000b-087
The Master Plan project includes demolition of all of the existing on-site structures. The MHC has determined that the proposed demolition and new construction will have an "adverse effect" on historic Suffolk Downs through the demolition of all or part of the property and the introduction of visual elements that are out of character with and will alter the setting of the property. I refer the Proponent to comments from MHC which request the Proponent evaluate alternatives that will eliminate or reduce adverse impacts to historic resources (including but not limited to adaptive reuse of existing buildings). In addition, MHC indicates that the DEIR should clearly identify any and all potential alterations to the Revere Beach Parkway (REV.H). The DEIR should describe this process and any measures that have been incorporated into the design to avoid, minimize, and mitigate adverse impacts to historic resources.

Solid and Hazardous Waste

000b-088
The DEIR should include an update on any sampling or site assessment activities that have occurred since the EENF was filed and should propose mitigation measures as appropriate.

000b-082

Refer to Chapter 10, *Infrastructure.*

000b-083

Refer to Chapter 10, *Infrastructure.*

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Refer to Chapter 10, *Infrastructure.*

000b-085

Refer to Chapter 10, *Infrastructure.*

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Refer to Chapter 10, *Infrastructure.*

000b-087

Refer to Chapter 11, *Historic Resources.*

000b-088

Refer to Chapter 9, *Environmental Protection.*

Construction Period Impacts

000b-089 The DEIR should elaborate on the schedule for construction of various project elements and identify construction staging areas. It should identify construction-period impacts (including but not limited to noise, air quality, water quality, vibration, and transportation/traffic, including pedestrians, bicyclists, and transit riders) and outline feasible measures that can be implemented to eliminate or minimize these impacts in a draft Construction Management Plan (CMP). This CMP may be prepared and presented in a conceptual form in the DEIR. The DEIR should describe how it will comply with M.G.L. c. 21E during construction. It should describe potential construction period dewatering requirements, discuss how dewatering will be conducted in a manner consistent with applicable regulations/guidelines, and identify any necessary permits.

000b-090

000b-091

000b-092 The DEIR should provide a conceptual plan clarifying pedestrian and bicycle routes during construction that demonstrates the maintenance of sufficient pedestrian and bicycle routes to and around the project site to key destinations such as Suffolk Downs Station via Waldemar Avenue and Walley Street, Beachmont Station via Winthrop Avenue, the Orient Heights neighborhood via Tomasello Drive, and the adjacent shopping areas on Furlong Drive.

000b-093 The DEIR should identify the anticipated amount (cy) of fill required to raise the Master Plan project site above the floodplain. It should identify and describe proposed construction truck traffic routes to the site and provide an estimate of the number of vehicle trips that will be generated during the construction period. The DEIR should identify measures that will be taken to minimize truck traffic and noise disruption to the surrounding residential areas. Because the project is located adjacent to residential areas, I encourage the Proponent to mitigate the construction period impacts of diesel emissions to the maximum extent feasible. This mitigation may be achieved through the installation of after-engine emission controls such as diesel oxidation catalysts (DOCs) or diesel particulate filters (DPFs), or the use of equipment that meets Tier 3 or Tier 4 emission standards for non-road construction equipment. The DEIR should address how the project will support compliance with the Massachusetts Idling regulation at 310 CMR 7.11.

000b-094

000b-095

000b-096 The project must comply with MassDEP's Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. c.40, §54. The DEIR should discuss the solid waste and air quality regulatory requirements identified in MassDEP's comment letter and identify the specific and aggressive construction recycling and source reduction goals the Proponent will adopt.

Mitigation and Draft Section 61 Findings

000b-097 The DEIR should include a separate chapter summarizing proposed mitigation measures. This chapter should also include draft Section 61 Findings for each State Agency that will issue permits for the project. The DEIR should contain clear commitments to implement mitigation measures, estimate the individual costs of each proposed measure, identify the parties responsible for implementation (either funding design and construction or performing actual construction), and contain a schedule for implementation. If appropriate, the mitigation implementation schedule should clearly note how mitigation will be provided in relation to project phasing; tying commitments to either completion of project square footages or generation of a specific number of traffic trips based upon project build out.

000b-098 To ensure that all GHG emissions reduction measures adopted by the Proponent in the Preferred

000b-089

Refer to Chapter 9, *Environmental Protection.*

000b-090

Refer to Chapter 9, *Environmental Protection.*

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Refer to Chapter 9, *Environmental Protection.*

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Refer to Chapter 9, *Environmental Protection.*

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Refer to Chapter 5, *Wetlands and Waterways.*

000b-094

Refer to Chapter 9, *Environmental Protection.*

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Refer to Chapter 9, *Environmental Protection.*

000b-096

Refer to Chapter 9, *Environmental Protection.*

000b-097

Refer to Chapter 12, *Summary of Mitigation/Draft Section 61 Findings.*

000b-098

Refer to Chapter 12, *Summary of Mitigation/Draft Section 61 Findings.*

000b-098 Alternative are actually constructed or performed by the Proponent, I require Proponents to provide a self-certification to the MEPA Office indicating that all of the required mitigation measures, or their equivalent, have been completed. The commitment to provide this self-certification in the manner outlined above should be incorporated into the draft Section 61 Findings.

Response to Comments

000b-099 The DEIR should contain a copy of this Certificate and a copy of each comment letter received. In order to ensure that the issues raised by commenters are addressed, the DEIR should include direct responses to comments to the extent that they are within MEPA jurisdiction. This directive is not intended, and shall not be construed, to enlarge the scope of the DEIR beyond what has been expressly identified in this certificate.

Circulation

000b-100 The Proponent should circulate the DEIR to those parties who commented on the EENF, to any State Agencies from which the Proponent will seek permits or approvals, and to any parties specified in Section 11.16 of the MEPA regulations. In addition, the DEIR should be made available for review at the Boston Public Library (BPL), the East Boston Branch of the BPL, and the Revere Public Library. The DEIR submitted to the MEPA office should include a digital copy (e.g., CD-ROM, USB drive) of the complete document.

January 26, 2018
Date

Matthew A. Beaton

Comments received:

12/6/2017	Lucy DeWolf (1 of 2)
12/10/2017	Lucy DeWolf (2 of 2)
12/13/2017	Bart DeWolf
1/04/2018	Boston Water and Sewer Commission (BWSC)
1/17/2018	Department of Energy Resources (DOER)
1/18/2018	Massachusetts Historical Commission (MHC)
1/18/2018	Mystic River Watershed Association (MyRWA)
1/18/2018	GreenRoots (co-signed by 7 other East Boston residents)
1/19/2018	Revere Mayor Brian Arrigo and Robert O'Brien (Director of Economic Development) on behalf of the City of Revere
1/19/2018	Division of Marine Fisheries (DMF)
1/19/2018	Stephen H. Kaiser
1/19/2018	Massachusetts Water Resources Authority (MWRA)
1/19/2018	Massachusetts Port Authority (Massport)
1/19/2018	Metropolitan Area Planning Council (MAPC)
1/19/2018	Massachusetts Department of Transportation (MassDOT)

000b-099

Refer to Chapter 13, *Response to Comments.*

000b-100

Refer to Appendix A, *DEIR Distribution List*.

1/19/2018	Andee Krasner
1/19/2018	Conservation Law Foundation (CLF)
1/19/2018	Office of Coastal Zone Management (CZM)
1/19/2018	Department of Environmental Protection (MassDEP)
1/19/2018	Kannan Thiruvengadam
1/19/2018	Massachusetts Bay Transportation Authority (MBTA)
1/19/2018	Department of Conservation and Recreation (DCR)
1/22/2018	Boston Harbor Now
1/25/2018	WalkBoston

MAB/PRC/prc

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

January 19, 2018

Matthew Beaton, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114-2150

RE: Boston: Suffolk Downs Redevelopment – EENF
(EEA #15783)

ATTN: MEPA Unit
Page Czepiga

Dear Secretary Beaton:

On behalf of the Massachusetts Department of Transportation, I am submitting comments regarding the proposed Suffolk Downs Redevelopment project in Boston and Revere, as prepared by the Office of Transportation Planning. If you have any questions regarding these comments, please contact J. Lionel Lucien, P.E., Manager of the Public/Private Development Unit, at (857) 368-8862.

Sincerely,

David J. Mohler
Executive Director
Office of Transportation Planning

DJM/jll

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cc: Jonathan Gulliver, Administrator, Highway Division
Patricia Leavenworth, P.E., Chief Engineer, Highway Division
John McInerney, P.E., District 6 Highway Director
Paul Stedman, District 4 Highway Director
Andrew Brennan, Director of Environmental Services, MBTA
Neil Boudreau, Assistant Administrator of Traffic and Safety Engineering
Andrew Paul, P.E., Highway Design Engineer
Boston Transportation Department
Planning Department, City of Revere
Boston Region Metropolitan Planning Organization
PPDU Files

Charles D. Baker, Governor
Karyn E. Polito, Lieutenant Governor
Stephanie Pollack, MassDOT Secretary & CEO

massDOT
Massachusetts Department of Transportation

TO: David J. Mohler, Executive Director
Office of Transportation Planning

FROM: J. Lionel Lucien, P.E, Manager
Public/Private Development Unit

DATE: January 19, 2018

RE: Boston/Revere – Suffolk Downs Redevelopment: EENF
(EEA #15783)

The Public/Private Development Unit has reviewed the Expanded Environmental Notification Form (EENF) for the Suffolk Downs Redevelopment project in East Boston and Revere. The proposed project entails the redevelopment of the existing Suffolk Downs thoroughbred racetrack facility into a new transit-oriented mixed-use community. The project will be located along Route 1A on approximately 161 acres currently zoned as Economic Development Area (EDA), with 109 acres of the site in East Boston and the remaining 52 acres in Revere. The project is bounded to the west by a retail shopping plaza, properties containing fuel storage tanks owned by Irving Oil Terminals Inc. and by Global Petroleum, and Route 1A; to the north by Winthrop Avenue; to the east by the Massachusetts Bay Transportation Authority (MBTA) Blue Line and Bennington Street; and to the south by Waldemar Avenue.

The Master Plan project proposes to include 11 million gross square feet (GSF) of development in Boston and approximately 5.5 million square feet in Revere. The project is expected to be built in phases, over a 15 to 20-year period. The Master Plan project under consideration includes some level of flexibility to balance a mix of primarily residential and commercial land uses. Two development programs are proposed as part of this EENF for the purpose of evaluating the regional transportation impacts of the project. Program A would entail the redevelopment of the site for the construction of up to 8 million GSF of commercial office space, up to 7.45 million square feet (±7,500 units) of residential space, up to 550,000 square feet of retail, and 500,000 square feet (±830 rooms) of hotel space. Program B would entail the construction of up to 5.25 million square feet of commercial office space, up to 10.4 million square feet (±10,000 units) of residential space, up to 450,000 square feet of retail, and 400,000 square feet (±670 rooms) of hotel space.

Based on information included in the EENF, the Master Plan project at full build is expected to generate approximately 33,760 net vehicle trips on an average weekday. The project is categorically included for the preparation of an Environmental Impact Report (EIR). The project requires a Vehicular Access Permit because of revised site access and roadway improvements proposed along Route 1A to mitigate the project's traffic impacts.

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The project site has been proposed by the City of Boston and the City of Revere as a potential site for Amazon's second corporate headquarters, for which a Request for Proposals (RFP) was issued. As part of the RFP, Amazon is seeking an initial 500,000 square foot building to be ready by 2019. Therefore, the proponent has requested a Phase I Waiver to proceed with the initial phase of the project to accommodate the Amazon request should the joint bid by the Cities of Boston and Revere bid to attract Amazon's second corporate office to Massachusetts be successful.

PHASE I PROJECT

Phase I is proposed to be located in the southeastern corner of the Boston portion of the project site, adjacent to the Suffolk Downs MBTA Blue Line station. It would consist of:

- Two approximately 260,000 GSF office buildings with supporting corporate uses/amenities;
- Approximately 520 structured parking spaces ;
- New internal access driveway connecting Phase I to Tomasello Drive; and
- Pedestrian and bicycle facilities connecting the buildings to the Suffolk Downs MBTA station and to the existing pedestrian and bicycle network.

Phase I requires a Vehicular Access Permit from MassDOT for access from Route 1A and for improvements at its intersection with Tomasselo Drive.

The EENF includes a Phase I transportation study that generally conforms to the latest EOEEA/MassDOT Guidelines for EIR/EIS Transportation Impact Assessments (TIA). The study provides a detailed description of the Phase I project's transportation impacts and identifies a number of transportation improvements to address Phase I future build conditions. The proponent has committed to a comprehensive mitigation program consisting of the following components: traffic signal and geometric improvements, bicycle and pedestrian improvements to facilitate access to the Suffolk Downs MBTA station, and a Transportation Demand Management Program.

Trip Generation

Based on the information presented in the EENF, Phase I of the project would generate 2,775 unadjusted vehicle trips with 667 in the morning peak hour and 572 vehicle trips in the afternoon peak hour. The trip generation was refined using mode share splits based on Census Transportation Planning Products, and then reduced to account for existing site traffic based on traffic counts and observations for on-going Off-track Betting operations occurring at Suffolk Downs. When adjusted, Phase I is expected to generate 1,492 vehicle trips, 1,176 transit trips, and 330 other (walk, Bike, etc.) trips on an average weekday. During the weekday AM peak hour, the project is estimated to generate 359 net vehicle trips, 283 transit trips, and 80 other trips. During the weekday PM peak hour, the project is expected to generate 308 net vehicle trips, 242 transit trips, and 68 other trips. MassDOT finds the methodology used and the resulting mode share splits reasonable.

Trip Distribution and Assignment

The EENF includes a comprehensive trip distribution and assignment for the office land use identified for Phase I of the project. A number of factors were considered in developing the methodology for trip distribution and assignment. The EENF provides sufficient documentation and MassDOT generally agrees with the methodology and the resulting percentages assigned to the different regions, roadway network, and transit network used in the transportation analysis.

001a-001

Vehicle Crash Data

The EENF includes a detailed crash analysis for all of the intersections within the study area using the most current crash data available. The analysis has identified four intersections located within Highway Safety Improvement Program (HSIP) clusters. The proponent will be required to conduct Road Safety Audits (RSAs) for these intersections as part of safety analysis and improvements in the EIR for the Master Plan project. In addition, MassDOT has previously conducted a Road Safety Audit for Bell Circle, which is in the Phase I study area. The proponent has agreed to work with MassDOT to determine if additional safety review is required, and to implement recommended safety improvements as appropriate.

Transportation Analysis

Vehicular:

The TIA presents capacity analyses and a summary of average and 95th percentile vehicle queues for the weekday AM and PM peak hours for both existing and future conditions for Phase I of the project. According to the capacity analysis, some intersections within the study area are expected to experience minor increases in delay during the weekday morning and afternoon peak hours as a result of the additional vehicle trips associated with Phase I of the project and/or the trip redistribution associated with the access restrictions at the Route 1A/Tomasello Drive intersection.

001a-002

The proponent has identified and listed in the EENF a series of improvements to reduce the traffic impacts of the project at these locations. These improvements consist primarily of new signage and traffic signal timing and phasing optimization. MassDOT provides the following comments on the proposed improvements:

- Route 1A at Tomasello (existing unsignalized intersection)

The existing configuration at this intersection would not meet current standards if turning movements were allowed. Since the proponent expects more than half of vehicular traffic exiting the site to head towards the tunnels, it is expected that this intersection will need to be upgraded and signalized; alternatively the Route 1A median could be physically closed to fully deter potentially dangerous crossings. According to Table 5-13, the existing operating conditions at this intersection are currently constrained and would slightly degrade as a result of Phase I.

001a-001

Refer to Chapter 6, *Transportation.*

001a-002

Refer to Chapter 6, *Transportation.*

001a-003

- Route 1A at Boardman Street

This intersection experiences significant congestion throughout the day, with queues routinely exceeding 1000 feet. The proponent should provide a more detailed analysis of the effects of Phase I on this location, including the potential need to coordinate this signal with Tomasello Drive and the Route 1A intersection with the Jughandle and the driveway entrance to the Irving Oil Terminals. The proponent should carefully assess to what degree this traffic signal meters traffic volumes heading south towards the tunnels and analyze the possible detrimental downstream effects of any spot improvements at this intersection.

The proponent should work with MassDOT during the permitting process to ensure that the appropriate improvements are in place at these locations to provide adequate and safe access to the site.

Transit:

The MBTA currently operates rapid transit directly to the site. The TIA includes a comprehensive analysis of existing service provided by the MBTA Blue Line. Based on the mode split associated with the project, the MBTA Blue Line is expected to see a significant share of site projected transit ridership entering and exiting the system at the Suffolk Downs Station. The TIA estimates that approximately 37.5% of office transit trips would occur via the Blue Line. This additional new ridership on the Blue Line, which would travel in the non-critical or reverse commute direction, is not expected to have a significant impact on this segment of the system. According to the EENF, under the 2024 Build Condition, the Blue Line is projected to operate within its policy capacity during the peak periods for both entering and exiting the Suffolk Downs Station and at the critical link between Maverick and Aquarium Stations. However, Blue Line passenger volumes are projected to slightly exceed policy capacity just before and just after the peak periods under No-Build and Future Build conditions. The Phase I project would result in a nominal increase to passenger loading during these times, but overall the increase in ridership associated with the project would not result in significant adverse impacts to the system.

In addition to the above transit services, the study area is served by a series of MBTA bus routes, including Bus Routes #s 119, 120, 424, 434, 448, 449, 450, and 459. The TIA includes a summary of the MBTA bus network; however, despite being within the study area, these routes are not expected to attract substantial transit ridership due to their current frequency, schedule, and bus stop locations.

001a-004

The EENF also includes a comprehensive evaluation of the infrastructure needed to provide access to the Phase I of the project, including the Suffolk Downs Station. Of particular importance to the MBTA are all codes and standards related to the Americans with Disabilities Act (ADA), the Massachusetts Architectural Access Board (MAAB) along with Federal Transit Administration (FTA) regulations and guidance. The MBTA will continue to work with the proponent through design coordination meetings, review, and construction phase services to address any and all issues relating to customer safety, accessibility, services, and MBTA infrastructure.

001a-003

Refer to Chapter 6, *Transportation.*

001a-004

The Proponent will continue to work with the MBTA through design coordination meetings, review and construction phase services to address issues related to customer safety, accessibility, services, and MBTA infrastructure.

Pedestrian Access

The TIA provides a comprehensive inventory of the pedestrian network in the vicinity of the site. According to the TIA, sidewalks are provided along both sides of Route 1A and Winthrop Avenue. Sidewalks are also provided along the west side of Tomasello Drive from Winthrop Avenue up to the shopping plaza. Crosswalks are provided at the intersection of Winthrop Avenue and Tomasello Drive. However, except for the pedestrian connection to the Suffolk Downs MBTA station, Phase I of the project provides for limited connectivity to the existing sidewalk network. While the Master Plan project would expand the site and facilitate pedestrian connectivity, the proponent should provide for temporary and safe pedestrian accommodations between Phase I and the abutting shopping plaza and the Waldemar residential neighborhood.

001b-005

Bicycle Access

According to the TIA, the project site and surrounding areas lack bicycle accommodations. However, the proponent has committed to provide a new Hubway Station, bike racks, and secure bicycle storage for building tenants and their employees. The proponent should identify the corridor that bicyclists are expected to travel to reach the site. As necessary, the proponent should provide adequate signage and accommodations to ensure safe bicycle access to the site. The proponent should work with the City of Boston and the City of Revere to enhance bicycle infrastructure in the vicinity of the project pending the implementation of the Master Plan project.

001b-006

Transportation Demand Management

To reduce site trip generation, the EENF includes a comprehensive Transportation Demand Management (TDM) program. The TDM program has identified measures that would reduce auto-dependency and encourage usage of existing pedestrian, bicycle, and transit facilities. Such measures include the provision of bicycle amenities in the form of a new Hubway Station along with bike racks and secure bicycle storage, subsidizing transit passes, and carsharing programs and conveniences that would reduce the need for automobile travel. MassDOT recommends that the proponent provides better pedestrian connectivity between the site and abutting land uses and consider additional TDM measures such as teleworking, flexible work hours, and the creation of a Transportation Management Association (TMA) in this area or membership in the existing Logan Airport TMA.

The proponent should work with MassRIDES to discuss TDM measures that have been successful in limiting single occupant vehicle trips at similar projects within Boston's urban core.

001b-007

Phase I Waiver Determination

Based on the proponent's commitment to implement the mitigation program listed in the EENF and the recommendations suggested in this comment letter for inclusion in the Draft

001b-005

The EEA Secretary granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. Mitigation measures associated with the Phase 1 Project documented in a mitigation summary memo to the MEPA office dated February 21, 2018 includes on-site pedestrian and bicycle connections to the Suffolk Downs MBTA Blue Line Station.

001b-006

Refer to Chapter 6, *Transportation.*

001b-007

The EEA Secretary granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. A summary of mitigation measures was provided to the MEPA office in a memo dated February 21, 2018, which presented transportation-related measures, including a TDM plan for the Phase 1 Project.

Record of Decision, MassDOT believes that the waiver request has merit, and that the proponent has satisfactorily documented the Phase I project's transportation impacts and provided acceptable mitigation measures to minimize these impacts. The details of the above comments and any access-related issues could be addressed during the permitting process for Phase I of the project.

MASTER PLAN PROJECT

The EENF includes a general description of the existing Suffolk Downs Racetrack as well as the proposed redevelopment of the site into a transit-oriented mixed use development, the Master Plan project would include up to 16,500,000 square feet of space, with a mix of commercial, residential, hotel, and retail land uses (in two alternative mixes of uses, Program A & B). Program A – being the most conservative based on peak hour projections – is considered for the purpose of scoping the DEIR for the project.

The proposed site is located within an urban setting, which provides many access options. The project abuts Route 1A, which is a major commuter route and provides connections to downtown Boston, the regional highway network, and to points north of the Boston core. The project site is also located along the Blue Line, one of the MBTA's principal rapid transit lines, and in close proximity to several MBTA bus routes. Several bicycle routes are also close to the site and connect to adjacent neighborhoods. The site also connects to the urban fabric of the East Boston neighborhood, and provides the opportunity for direct pedestrian connections. The Suffolk Downs site was previously reviewed through the MEPA process for a potential casino project (EEA #15006), and as part of this process, MassDOT has worked with the proponent to evaluate existing conditions within the study area and conducted some alternative analysis to address the impacts of the redevelopment of the Suffolk Downs site. While the size and the land uses of the Master Plan project are different from the previously reviewed proposal, the scope of the transportation study would generally reflect similar comments and analysis.

001b-008

The DEIR should include a transportation study prepared in conformance with the current *MassDOT/EOEEA Guidelines for Transportation Impact Assessments* (2014). The study should include a comprehensive assessment of the transportation impacts of the project based on a thorough analysis of existing conditions, future No-Build conditions, and future Build conditions. The study should take into account the regional context of the project and provide a comprehensive, integrated multimodal mitigation package that would allow the maximum possible use of non-SOV travel modes by both residents, employees and visitors. MassDOT strongly encourages the proponent to provide similar focus to both physical- and non-physical improvements and to seek creative solutions that would encourage both patrons and employees to reduce SOV traffic.

Trip Generation

Based on the information presented in the EENF, the Master Plan project's unadjusted trip generation is based on the Institute of Transportation Engineering Trip Generation Manual. The trip generation was refined using mode share splits based on Census Transportation

001b-008

Refer to Chapter 6, *Transportation.*

Planning Products and trip reduction estimates resulting from pass-by and/or internal capture trips using applicable methodologies from the most recent editions of ITE's Trip Generation Manual and Trip Generation Handbook. When adjusted, the project is expected to generate 33,320 net vehicle trips; 54,269 transit trips; and 20,025 other trips on an average weekday. During the weekday AM peak hour, the project is estimated to generate 3,383 net vehicle trips, 4,814 transit trips, and 1,697 other trips. During the weekday PM peak hour, the project is expected to generate 3,491 net vehicle trips, 5,528 transit trips, and 1,906 other trips.

001b-009 However, given the urban nature of the Master Plan project, the level of density proposed on the project site, the overall size of the development, and the regional context of the project, MassDOT strongly recommends the use of the services of the Central Transportation Planning Staff (CTPS) to estimate future traffic volumes based on the CTPS regional travel demand model. The model represents the region's transportation network with links and nodes to signify roadways and intersections. The model closely depicts the actual transportation network, including attributes such as capacity and travel speeds along roadway links. With regional growth accounted for in the CTPS model, it would be better able to estimate the number of vehicle trips anticipated to be generated by the project than by using standard trip generation default values for the assumed types of land use. In addition, the CTPS model can estimate internal capture rates for the site and to make estimates for transit and non-motorized trips that more fully incorporate conditions occurring across the larger regional network.

001b-010 The proponent should discuss with MassDOT the feasibility to work with CTPS to conduct this modeling effort to determine the number of new trips that will be generated by the Master Plan project and to make trip assignments on the different modes of transportation. CTPS would also develop mode share assumptions for the project. CTPS could also model several scenarios, including no-build scenarios, build scenarios, and build scenarios with mitigation measures. MassDOT will work closely with CTPS and the proponent in establishing the different scenarios.

As requested, MassDOT will work with the proponent in coordination with the City of Boston and the City of Revere to identify the most appropriate methodology to estimate the trips associated with the project and the transit oriented, mixed use nature of the development.

Transit Demand and Mode Split

001b-011 As described above, the MBTA currently operates extensive rapid transit and bus service to the site, as well as other services in the general vicinity of the project site. The DEIR should include an analysis of what additional demand would be generated by the project. While the proximity of

001b-012 transit provides an excellent opportunity for a high level of transit usage, MassDOT anticipates that it will be a challenge to adequately model the transit trip generation and trip assignments for the project. As a result, the proponent should work closely with the MassDOT Office of Transportation Planning and the MBTA Service Planning Department to develop appropriate and reasonable travel demand and trip generation characteristics.

001b-009

Refer to Chapter 6, *Transportation.* Through ongoing collaborative efforts with MassDOT, the MBTA, Boston Transportation Department, BPDA, City of Revere and the Central Transportation Planning Staff (CTPS), an in-depth assessment of anticipated future travel choices has been included within the transportation analysis that considers highly effective shifts to non-auto mode choices. The Master Plan Project location offers a unique opportunity to utilize a diverse array of transportation choices that makes aggressive TDM initiatives more likely to be successful.

001b-010

Refer to Chapter 6, *Transportation.*

001b-011

Refer to Chapter 6, *Transportation.*

001b-012

Refer to Chapter 6, *Transportation.* The Proponent has worked closely with the MassDOT Office of Transportation Planning and the MBTA Service Planning Department to develop appropriate and reasonable travel demand and trip generation characteristics.

Trip Distribution

001b-013 The trip distribution for the project should be based on a gravity model or similar model to map a spatial distribution onto the trip generation in order to determine the origin-destination of the development trips in the study area. Additional factors such as population, travel time, and distance should be considered in the model to determine trip characteristics for residents and employees. The DEIR should provide all appropriate documentation to verify how the different percentages are calculated and assigned to the roadway network and the transit system.

001b-014 Once the trip generation, the modal split, and the trip distribution and assignment are developed, network maps of the study area should be created for the different peak-hour analyses and the different modes.

Study Area

The proposed mixed use development is expected to add significant traffic within East Boston and in the surrounding communities of Chelsea, Revere. As indicated in the EENF, the project is surrounded by a regional roadway network that includes Route 1A to the west, Route 145 (Revere Beach Parkway/Winthrop Avenue) to the north, Bennington Street to the east, and Waldemar Avenue to the south. In addition, the study area roadway network (in particular Route 1A) provides connections to the nearby interstate highway system and metropolitan highway system, which includes the eastern terminus of I-90 (Massachusetts Turnpike), the Ted Williams Tunnel (TWT), the Sumner Tunnel, the Callahan Tunnel, and I-93.

001b-015 The EENF has proposed a study area that includes locations within the Cities of Revere, Chelsea, and Boston. The study area includes a number of signalized and unsignalized intersections, three roundabouts/rotaries (Elliot, Butler, and Brown Circles), and the Route 1/Route 16 interchange that includes ramps and highway merges/diverges.

In addition to the proposed locations, MassDOT recommends that the following roadway segments be included in the study area:

- The Ted Williams Tunnel;
- The Callahan Tunnel; and
- The Sumner Tunnel.

Safety Analysis

001b-016 The DEIR should include a comprehensive safety analysis based on the study area. Vehicle crash data should be included in the DEIR. Specifically, the DEIR should conduct analysis for any study area intersections having crash rates higher than the State and/or District 6 averages. As necessary, the MassDOT crash data should be supplemented with crash data from the municipalities within the study area. The analysis should include a discussion of causality, suggestions for mitigation, and commitment to implementing this mitigation. Roadway Safety

001b-013

Refer to Chapter 6, *Transportation.*

001b-014

Refer to Chapter 6, *Transportation.*

001b-015

Refer to Chapter 6, *Transportation.*

001b-016

Refer to Chapter 6, *Transportation.*

001b-016 Audits (RSAs) will be required for intersections within an HSIP cluster in order to assess safety issues and develop safety improvements for these locations. The RSAs should be completed prior to the submission of the DEIR to identify safety improvements that the proponent could implement as part of the mitigation program for the project. The proponent should work closely with the MassDOT Traffic Safety Unit to schedule the RSAs and to obtain all appropriate crash data.

Horizon Year

Generally, MassDOT requires that a 7-year horizon be used to evaluate traffic impacts for most private development projects. The proponent has indicated in the EENF that they would study multiple intermediate development phases in addition to the assessment of the full build

001b-017 conditions. MassDOT will work with the proponent to better understand the phasing scheme for the project. Given the nature of the proposed land use, the location of the project, and the transportation infrastructure that may be impacted, MassDOT would require that at a minimum an interim 10-year horizon (2028) be used for the transportation study and a 20-year horizon for the

001b-018 full build-out of the project. The transportation study should include a comprehensive plan for monitoring that would also enable MassDOT to adequately evaluate the effectiveness of the transportation system improvements and the TDM program over time.

Traffic Volumes

001b-019 The EENF should conduct a comprehensive data collection program to evaluate existing and future traffic conditions. The data collection program should include Automatic Traffic Recorder (ATR) counts and Turning Movement Counts (TMC) to measure the existing volumes on the roadway network at a number of locations in the study area. The DEIR should provide a table that shows the increase in traffic volumes on these roadway segments for the future No-Build and future Build conditions once the trip generation and distribution have been validated and approved by MassDOT.

The data collection should include the Ted Williams Tunnel, Sumner Tunnel, and Callahan Tunnel in order to demonstrate existing daily volumes and peak characteristics. The proponent should work closely with the MassDOT Highway Division and Massport to obtain the latest ATR volumes for these facilities, in addition to other traffic counts that may be required to conduct the necessary analysis. These facilities currently provide access to Boston Logan Airport and it is critical that they continue to operate at acceptable levels of service. While the peak hour of the Master Plan Project is expected to occur in the non-critical or reverse commute direction rather than the peak hours of the tunnel facilities, the project-related traffic could result in a high congestion levels in the tunnels. Thus, it is essential that the DEIR provide the necessary information and analysis for these tunnels in order to evaluate appropriate mitigation measures, if any, to minimize traffic impacts on these facilities.

001b-017

Refer to Chapter 6, *Transportation.*

001b-018

Refer to Chapter 6, *Transportation.*

001b-019

Refer to Chapter 6, *Transportation.*

Traffic Operations

001b-020 The DEIR should present capacity analyses and a summary of average and 95th percentile vehicle queues for each intersection within the study area. The DEIR should also present a merge and diverge for each ramp junction, and weaving analyses for all the interchanges located in the study area. Any proposed traffic signal along Route 1A or at other locations must include a traffic signal warrant analysis conducted according to the Manual of Uniform Traffic Control Devices (MUTCD). The DEIR should ensure that any proposed mitigation is compatible with future long-term transportation improvements under consideration by MassDOT for this area.

001b-021 In addition, the proponent should provide roadway segment analyses for the three harbor tunnel locations based on the latest methodology of the Highway Capacity Manual or contained in the appropriate traffic analysis software approved by MassDOT. This information is critical for MassDOT to evaluate the impacts of the project on these facilities and to help identify physical and/or non-physical mitigation measures to lessen the impacts associated with the project.

001b-022 The DEIR should present the performance measures of these analyses in a summary format that would allow comparisons of Existing, Future No-Build, and Future Build conditions with mitigation for all peak-hour conditions. Where appropriate, the DEIR should discuss how the proposed system improvements and impacts to one mode can be measured relative to the improvements and impacts of other modes.

Pedestrian Access

001b-023 The DEIR should provide details regarding pedestrian accommodations on site with appropriate connectivity to the off-site pedestrian network in the area. The DEIR should provide a thorough inventory of all existing, planned, and proposed services, facilities, and routes for accessing the site. It should also provide an evaluation of the network to include pavement conditions, sidewalk widths, crosswalks, compliance with current accessibility standards, and existing pedestrian volumes and movements. The proponent should develop the site plan to ensure that the project is as open to pedestrians (and to the neighborhood) as possible along all edges of the development.

Bicycle Access

001b-024 The DEIR should include a detailed inventory of the bicycle network to include bikeway types, bikeway widths, and bicycle numbers. The proponent should identify suitable bicycle routes within the study area, as well as any other existing bicycle facilities (e.g. bicycle lanes, cycle tracks, shared-use paths). The DEIR should reevaluate these routes based on the origin-destination of potential employees and residents. Based on this analysis, the proponent should consider the feasibility of expanding some of these existing routes or consider new routes to encourage bicycle travel in and around the site.

001b-020

Refer to Chapter 6, *Transportation.*

001b-021

Refer to Chapter 6, *Transportation.*

001b-022

Refer to Chapter 6, *Transportation.*

001b-023

Refer to Chapter 3, *Urban Design.*

001b-024

Refer to Chapter 6, *Transportation.*

Route 1A Access Alternatives Analysis

001c-025 Primary access to the site would be at Tomasello intersection, a privately-owned roadway providing access to Route 1A at one end and to Winthrop Drive at the other end. According to the EENF, to support the future Master Plan project, significant infrastructure improvements are proposed at this location in the form of traffic signal and geometric modifications at Tomasello Drive. As part of the environmental review of the Caesars Resort Casino proposal, which was expected to generate significantly less traffic, a conceptual plan for improvements that consisted of a Route 1A northbound flyover at Boardman Street, an additional Route 1A southbound lane, the signalization of the Route 1A/Waldemar Avenue intersection, and the signalization of the Route 1A/Tomasello Drive intersection was considered to address traffic impacts. Several other access alternatives were also evaluated for the site at that time.

The proponent should address in the DEIR why these previous alternatives should not be further considered and continue discussions with MassDOT to evaluate alternatives that address long term regional goals for the corridor while providing access to the site. As such, the DEIR should include a comprehensive access alternatives evaluation along this Route 1A corridor segment, between the Boardman Street intersection and the Route 145 intersection. The access alternatives should be consistent with MassDOT standards and provide for multimodal travel along the corridor. MassDOT recommends that this evaluation focus not only on physical improvement strategies, but also on creative and innovative strategies that would encourage non-SOV travel modes and reduce congestion within the study area. The DEIR should also identify

001c-026 access management techniques to improve overall traffic along the Route 1A corridor, the Route 145 corridor, and local streets in the vicinity of the project.

001c-027 The DEIR should include sufficiently detailed conceptual plans (preferably 80-scale) for any proposed roadway improvements in order to verify the feasibility of constructing such improvements. The conceptual plans should clearly show proposed lane widths and offsets, layout lines and jurisdictions, and the land uses (including access drives) adjacent to areas where improvements are proposed. Any proposed mitigation within the state highway layout must be

001c-028 consistent with a Complete Streets design approach that provides adequate and safe accommodation for all roadway users, including pedestrians, bicyclists, and public transit riders. Guidance on Complete Streets design guidelines is included in the MassDOT *project Development and Design Guide*. Where these criteria cannot be met, the proponent should provide the justification as to the reasons why and should work with the MassDOT Highway Division to obtain a design waiver.

Public Transportation

Given the scale of the proposed project and its potential traffic impacts, significant congestion of the regional highway network in the area, and the proximity of excellent public transit services to the project, the proponent should make public transportation a core component

001c-029 of its mitigation program. Therefore, the DEIR should include a comprehensive analysis of existing and future conditions of transit services within the study area. The DEIR should identify existing frequency and capacity; provide a realistic projection of future demand; propose a

001c-025

Refer to Chapter 6, *Transportation.*

001c-026

Refer to Chapter 6, *Transportation.*

001c-027

Refer to Chapter 6, *Transportation.*

001c-028

Refer to Chapter 6, *Transportation.* Proposed State Highway mitigation is consistent with a Complete Streets design approach for all users of the roadway including pedestrians, bicyclists and public transit riders.

001c-029

Refer to Chapter 6, *Transportation.*

001c-029 comprehensive transit mitigation plan to reduce site vehicular traffic; and commit to key investments that will attract both employees and patrons to public transportation. The proponent
001c-030 should ensure that public transit serving the site has robust connections to the Master Plan project, and that transit access is visible, fully integrated with the proposed buildings on site, and outfitted with ample accommodation for transit vehicles and with attractive amenities for passengers.

MassDOT and the MBTA are interested in working with the proponent to develop transportation plans that allow the project to take advantage of its close proximity to an extensive transit network, while at the same time realizing and responding to the inherent limitations of the
001c-031 transit system and the MBTA's capacity constraints. High-level MBTA-related issues that should be addressed in the DEIR include the following:

- What will the ridership impacts be on the MBTA Blue Line and bus network, and what changes to the current operational system, if any, will be required to accommodate this additional demand?

001c-032
- How will this additional demand affect Suffolk Downs Station and Beachmont Station given their sizes and existing conditions?

001c-033
- What will the traffic impacts on the local and regional roadways be and how will MBTA buses currently operating in the area be affected by this additional traffic and/or proposed roadway changes?

001c-034
- What measures and steps will the proponent take to encourage, to the greatest degree possible, that employees, residents, and visitors to the site at Suffolk Downs arrive by transit?

001c-035
- How will the Master Plan project impact MBTA stations and operations other than Suffolk Downs Station?

Impacts to Blue Line Ridership

001c-036 The DEIR should contain an assessment of how riders, particularly in the MBTA peak period, are expected to board and alight at Suffolk Downs Station. The DEIR should estimate what additional new ridership on the Blue Line can be anticipated and what time of day those impacts will occur. The proponent should work with the MBTA Service Planning Department to ensure that it has access to the most recent and relevant ridership and operational statistics for the Blue Line.

Impacts to Suffolk Downs Station

The Blue Line Station at Suffolk Downs was designed and fully rebuilt in the mid-1990s as part of the major Blue Line Upgrade project designed to modernize all stations, make them accessible to people with disabilities, and accommodate longer, six-car Blue Line trains. The Suffolk Downs Station was designed, however, as a small neighborhood station and was not intended to accommodate the potentially large number of employees and customers that would access the project site at Suffolk Downs. In fact, the Suffolk Downs Station currently has the lowest number of daily boardings of any of the MBTA's heavy rail (Red, Orange, and Blue Lines) rapid transit stations.

001c-030
Refer to Chapter 3, *Urban Design.*

001c-031
Refer to Chapter 6, *Transportation.*

001c-032
Refer to Chapter 6, *Transportation.*

001c-033
Refer to Chapter 6, *Transportation.*

001c-034
Refer to Chapter 6, *Transportation.*

001c-035
Refer to Chapter 6, *Transportation.*

001c-036
Refer to Chapter 6, *Transportation.*

In addition, in the nearly two decades since design plans for Suffolk Downs Station were conceived, there have been a number of advancements and new approaches to planning and design of transit facilities so as to reduce or eliminate the barriers that *people with disabilities* experience when trying to access transit. Given what could be a substantial change in the usage of and volumes of the station, many of these types of improvements will become all the more important for people accessing this station.

001c-037 The DEIR should address what the additional ridership demand is on Suffolk Downs Station (and any other related Blue Line station such as Beachmont Station) and how that ridership compares not only to current usage but also to station capacity and station functionality. The DEIR should determine which current building and safety codes could be affected by adding potentially large numbers of riders to the station. A code analysis that compares existing station conditions to current codes (i.e. those relating to life safety, emergency egress, accessibility or other critical functions) should be performed to determine what, if any, upgrades need to be made to the station(s). The proponent should work with the MBTA's Design Department, Engineering and Maintenance and System-Wide Accessibility to identify key building and safety codes which are most applicable to this station. Of particular importance to the MBTA are all building codes and standards related to the Americans with Disabilities Act (ADA), the Massachusetts Architectural Access Board (MAAB), and Federal Transit Authority (FTA) regulations and guidance.

The proponent should present in the DEIR the current accessibility conditions of the Suffolk Downs Station and how those conditions should be upgraded given the potentially large number of additional riders being added to this small station.

Impacts to MBTA Bus Service

In addition to Blue Line service, the area is also served by a series of MBTA bus routes, predominantly the Route #119 (Northgate to Beachmont Station), as well as Route #120 (Orient Heights to Maverick Station). The Route #450 and Route #459 (running from Boston to Salem) currently make stops in the vicinity. A third series of Routes (#424, #434, #448 and #449) run through the travel area but do not currently stop in the vicinity of the proposed development.

001c-038 As part of the DEIR, the MBTA would like to see a detailed presentation of the impacts to the MBTA bus network. Specifically, the MBTA asks that the DEIR be prepared so that the document can identify what is the future build demand for the #119 and #120 buses and how does it compare to the future No-Build demand for local bus services. Based on this assessment, the DEIR should present the anticipated demand in terms of MBTA service standards for bus volumes and capacity or determine what the impacts to the MBTA bus network will be.

001c-039 The DEIR should determine what if any additional service would need to be added to the bus network in order to ensure that the MBTA bus routes would meet existing MBTA service standards. Using current MBTA standards for labor, fuel, and maintenance costs, the proponent should calculate what the cost to the MBTA would be to accommodate all of the unmet transit demand and to do so in a way that meets MBTA service standards.

001c-037

Refer to Chapter 6, *Transportation.*

001c-038

Refer to Chapter 6, *Transportation.*

001c-039

Refer to Chapter 6, *Transportation.*

001c-040 In addition, the DEIR should specifically address what the impacts to MBTA bus service would be due to traffic generated by the project. The MBTA assumes that the DEIR will provide a level of service analysis for all affected intersections. The MBTA requests that the DEIR present, in a tabular format, an assessment of which of these intersections are utilized by MBTA buses and how their timing or turning movements may be affected by the increased traffic and/or proposed roadway changes generated by the project.

New Transit Usage during Existing MBTA Peak Periods

001c-041 For both rapid transit and bus service, the MBTA is currently constrained from offering more service during the AM and PM weekday rush hours (approximately 7:00-9:00 AM and 4:00-6:30 PM). This is due to the limitations of existing infrastructure including the number of rail and bus vehicles, the capacity of storage and maintenance facilities, and the limitations of rail signaling systems. Existing ridership at these peak periods already results in overcrowded conditions throughout the MBTA network. Therefore, special note should be taken of any impacts to MBTA service from the proposed project during weekday rush hours, and the DEIR should describe how any negative impacts could be mitigated.

Access to and From Suffolk Downs Station

001c-042 The DEIR should identify, preferably in graphic format, how any proposed shuttle bus will access the Blue Line Station at Suffolk Downs. The shuttle buses that currently serve Suffolk Downs racetrack pick up and drop off passengers approximately 100 feet from the entrance to the station. The DEIR should show how these new and additional shuttles will serve the station and how passengers will have a safe and accessible path of travel from the Blue Line Station to the Shuttle. The proponent should develop its site plan to ensure that the pickup and drop off of transit and shuttle bus passengers is seamless and easy for passengers, particularly those passengers with limited mobility.

001c-043 Additionally, the DEIR should identify, also preferably in graphic format, how pedestrians who choose to walk from the Blue Line Station or the local bus service will access the facility. The DEIR should demonstrate what the path of travel will be and what steps will be taken to design and maintain a path of travel that is safe, accommodating, accessible and inviting. The MBTA feels that while immediate transit access to the facility should help to encourage transit ridership to the facility, a well-planned and well-maintained path between the Suffolk Downs Station and the Master Plan project is critical to encouraging transit usage.

001c-044 The MBTA believes that the proposed Master Plan project at Suffolk Downs has a unique opportunity to be fully integrated with the existing transit network. The DEIR should identify the steps that will be taken to encourage transit usage and what the resulting effects will be on the existing network. The MBTA has extensive background and information on the service in the area.

001c-040

Refer to Chapter 6, *Transportation.*

001c-041

Refer to Chapter 6, *Transportation.*

001c-042

Refer to Chapter 6, *Transportation.*

001c-043

Refer to Chapter 3, *Urban Design.*

001c-044

Refer to Chapter 6, *Transportation.*

Aviation (Aeronautics)

Airspace Obstructions

001c-045

The project site appears to be located within protected airport approach and/or transitional airspace areas as defined by state law (Massachusetts General Law, Chapter 90, Section 35B) and Federal regulations (Federal Aviation Regulation Part 77, Objects Affecting Navigable Airspace). Therefore, state and federal notice is required for the following:

- Proposed buildings;
- Proposed parking lots/parking structures;
- Proposed parking lot lights;
- Proposed permanent street lights and/or traffic lights;
- Proposed temporary installation of cranes that may be used to construct the structure/structures; and
- Proposed temporary lights that may be used during nighttime construction.

Both the state (MassDOT Aeronautics Division) and federal (Federal Aviation Administration) agencies can be notified of the proposed project by filing online as indicated below.

- **State notice** is required by filing a MAC Form E-10, *Aeronautics Commission Request for Airspace Review*, per 780 Code of Massachusetts Regulations (CMR) 111.7, *Hazards to Air Navigation*, to determine if any part of the project impacts the protected airport approach areas. Online filing is available via http://app1.massdot.state.ma.us/airspacereview/
- **Federal notice** is required by filing an FAA Form 7460-1, *Notice of Proposed Construction or Alteration*, per Code of Federal Regulations (CFR) Title 14 Part 77.13, *Construction or Alteration Requiring Notice*, to determine if any part of the project impacts the protected airport approach areas. Online filing is available via https://oeaaa.faa.gov/oeaaa/external/portal.jsp
- Under provisions of 780 CMR 111.7, *Hazards to Air Navigation*, the proponent of the project is required to furnish a copy of the FAA Form 7460-1 to the MassDOT Aeronautics Division within three business days after submitting said form to the FAA.

Lighting/Glare

001c-046

The preservation of optimal night vision is important for pilots operating an aircraft at night. Exposure to bright light can result in temporary visual impairment due to glare. Therefore, any temporary lights that may be used during nighttime construction must be placed and aimed in such a way as to minimize glare to aircraft pilots. Light shielding must be incorporated into the design of all temporary lighting such as cranes and lighting used during nighttime

001c-045

Refer to Chapter 2, *Regulatory Context and General Information.*

001c-046

Comment noted.

001c-046 construction and permanent lighting such as parking lot and traffic lights to reduce potential visual impacts.

001c-047 Additionally, lighting and glare could occur if reflective building materials are used or green technologies are used such as solar panels. Please ensure that any such materials are discussed with both Massport and the MassDOT Aeronautics Division.

Construction Activities

001c-048 Construction activities should also be closely coordinated with the Massport, if temporary cranes, construction lights, or other heavy equipment will be used, or if dust and/or smoke are generated, so that appropriate notices to airmen can be issued (NOTAMS). Additionally, if

001c-049 cranes are to be used for construction purposes, the cranes must be appropriately marked and lighted according to U.S. Department of Transportation/Federal Aviation Administration Advisory Circular (AC) 70/7460-1K, Obstruction Marking and Lighting. The temporary cranes shall also be lowered to the ground at night and/or when not in use.

Parking

According to the EENF, a substantial portion of the current site comprises surface parking, with a total capacity of 3,208 spaces. The redevelopment of the site would include the construction of an approximately 520-space parking garage attached to the Phase I proposed buildings; however, the EENF has not indicated the number of expected parking spaces for the Master Plan project.

The Institute of Transportation Engineers' *Parking Generation* generally provides a reasonable basis for comparison of parking requirements under local zoning, but this reference

001c-050 does not present parking rates for this type and size of mixed use development. In the absence of such a ready reference for parking supply, the DEIR should analyze the anticipated parking demand based upon parking needs and supplies for comparable facilities (based on multiple data sources, and discounted to allow for the urban location and available transit); the projected traffic demand at different times of day; the expected parking duration; and the different types of

001c-051 parking demand (e.g. residential, employee, hotel guest, etc.). The proponent should propose parking policies that are designed to minimize parking demand and automobile use, such as fees for parking, parking cash-out policies, and other demand-reduction measures for employees.

Transportation Demand Management

001c-052 The DEIR must include a proposed Travel Demand Management (TDM) program based on the project proposal that would implement measures aimed at reducing site trip generation. The DEIR should further refine and expand the Phase I TDM program in light of the regional context of the project. The TDM plan should be based on the specific measures that have been successful in reducing trip generation for similar facilities, and should further investigate measures that would maximize usage of existing and new pedestrian, bicycle, and transit facilities. Such measures may include subsidizing transit passes for both employees and

001c-047

Comment noted.

001c-048

Comment Noted.

001c-049

Comment noted.

001c-050

Refer to Chapter 6, *Transportation.*

001c-051

Refer to Chapter 6, *Transportation.*

001c-052

Refer to Chapter 6, *Transportation.*

patrons/hotel guests, limiting available parking supply, providing on-site amenities and conveniences that would reduce the need for automobile travel, and providing a circulating shuttle between transportation hubs, activity centers, and the project's transportation terminal. The proponent should consider providing a Mobility Hub for bus services or an MBTA/public bus stop with amenities, near a doorway or in a garage, or at a minimum, with a breezeway and climate-controlled waiting area.

001d-053

The DEIR should also describe the full range of TDM proposals being considered by the proponent and how those TDM concepts will be incorporated into the operations of the facility. The DEIR should also propose how these TDM strategies can be tracked and evaluated during operations so that they can be regularly reviewed and updated as appropriate.

001d-054

The TDM program should identify existing and proposed connections for pedestrians and bicyclists; analyze their existing and future conditions based on the project's impacts; and commit to making improvements that will increase usage of those modes. The site plan should also provide pedestrian and bicycle connections to existing land uses within close proximity to the project site, maximize the connectivity and permeability of the site edges, and provide excellent pedestrian and bicycle connections within the project site. The proponent should provide ample bicycle parking; on-site showers, lockers, and changing facilities; and financial incentives to encourage employees or customers to walk, bicycle, or ride public transit to the site.

001d-055

001d-056

The project proponent should also consult with MassRIDES, the Commonwealth's travel options service, as well as the Logan Airport TMA. These travel option services can help the proponent identify potential trip reduction measures, especially those targeting employees, and support the implementation of the TDM program. The proponent should also promote ridesharing through NuRide, the Commonwealth's web-based trip planning and ridematching service that enables participants to earn rewards for taking "green" trips. The proponent should provide information on the substance and outcomes of its consultations in the DEIR, along with a summary of the revised TDM program proposal.

001d-057

001d-058

Transportation Monitoring Program

As part of the project mitigation program, the project proponent should commit to implement a transportation monitoring program to be conducted at each phased occupancy of the project. The goals of the transportation monitoring program will be to evaluate the assumptions made in the DEIR and the adequacy of the transportation mitigation measures, as well as to determine the effectiveness of the TDM program. The project proponent shall discuss with MassDOT an appropriate timeframe for the monitoring program or commit to initiating the monitoring program upon MassDOT's request.

001d-059

Due to the size of the project, MassDOT anticipates the need to monitor and update the TDM program as necessary before the project reaches full occupancy. If the traffic monitoring program indicates that the proposed mitigation is not effective in accommodating the future traffic volumes at key area intersections impacting the state highway system, the project proponent will be responsible for identifying and implementing operational improvements at

001d-060

001d-053

As an preliminary improvement, the Proponent has invested in a new stop and turnaround on Tomasello Drive for the MBTA #119 bus route and will continue to work with the MBTA to explore potential future bus routing and stops within the Project Site as the demand is warranted by the Master Plan Project.

As discussed in Chapter 3, *Urban Design*, the Project includes a privately-operated shuttle bus system on-site for direct links to the MBTA Blue Line Stations. The establishment of new, privately-operated shuttle services that would provide direct transit connections between the Project Site and the commuter rail service at North Station, South Station, and Chelsea Station, as well as to the Seaport District are also proposed. Please refer to Chapter 6, *Transportation*, for more details.

001d-054

Refer to Chapter 6, *Transportation.*

001d-055

Refer to Chapter 6, *Transportation.*

001d-056

Refer to Chapter 6, *Transportation.*

001d-057

The Proponent is committed to working and collaborating with MassRIDES and the Logan Airport TMA to identify possible trip reduction measures that can be put in place over time as the Project is implemented.

001d-058

Refer to Chapter 6, *Transportation.*

001d-060 these constrained locations. These improvements could entail traffic signal timing and phasing modifications, optimization of the coordinated/interconnected signal system, and/or further refinement of the TDM program to reduce site trip generation. MassDOT will require a tailored transportation monitoring program to ensure that the TDM measures and the infrastructure improvements are successful in reducing traffic volumes and reducing congestion along a number of key corridors within the study area.

The proponent should continue consultation with the Office of Transportation Planning, the MassDOT Highway Division, and the MBTA during the preparation of the DEIR for the project. If you have any questions regarding these comments, please contact me at (617) 368-8862.

001d-059

Refer to Chapter 6, *Transportation.*

001d-060

The Proponent understands updates to the TDM Plan may be necessary based on traffic monitoring as the Master Plan Project is built out and will continue to work closely with MassDOT on the results of the transportation monitoring program.

Deval L. Patrick, Governor
Richard A. Davey, MassDOT Secretary & CEO
Beverly A. Scott, Ph.D., General Manager
and Rail & Transit Administrator

massDOT
Massachusetts Department of Transportation
Rail & Transit Division

January 19, 2018

Matthew Beaton, Secretary
Executive Office of Energy and Environmental Affairs
Attention: Page Czepiga, MEPA Unit
100 Cambridge Street
Boston, MA 02114

RE: **EEA # 15783 – Suffolk Downs Redevelopment**
Environmental Notification Form (ENF) and Request for Phase I Waiver

Dear Ms. Czepiga:

The MBTA appreciates the opportunity to comment on the above-referenced project. The proponent proposes to build 16.5 million square feet of retail, restaurant, office, lab hotel and residential uses as well as public realm and civic spaces. The development is located on a parcel that is directly adjacent to the Blue Line, with Suffolk Downs Station at its southeast corner and Beachmont Station at its northeast corner. The development, particularly in its earlier stages, would be more heavily tied to Suffolk Downs Station.

Suffolk Downs Station area is the least busy MBTA heavy rail rapid transit station in terms of volumes of passengers. Because of these transit levels, the area is an extraordinary opportunity for sustainable transit oriented development in that it is placing high density mixed-use development adjacent to an existing transit node that is not currently overburdened. If properly planned and developed, the project can work well in tandem with the existing MBTA system. We have worked with the developer and its consulting team on this project (as well as many other issues undertaken by the developer in the area) and they have demonstrated a strong willingness to work with the MBTA to address its needs. We appreciate this level of cooperation and fully anticipate that it will continue on this important project as well.

Upon review of this ENF, the MBTA offers the following comments:

1. **Transit Demand and Mode Split:**

   i. **Rapid Transit Access**

002a-001

As described above, the MBTA currently operates rapid transit service to the site. As is typical of a project like this, the MBTA needs to review what the number of transit trips that will be generated and an analysis of the peak period capacity of these modes to determine the MBTA's ability to accommodate these new riders. The MBTA requests tables showing how these riders are distributed across modes and compares the ridership (in both the Build and No Build Conditions) to MBTA Policy for Capacity as well as how it compares to Crush Capacity.

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002a-001

Refer to Chapter 6, *Transportation.*

The ENF provides the types of charts and analysis that the MBTA typically prefers. We appreciate that the proponent has started this process by providing this type of graphical presentation (as in Figure 5.29 among others). These figures identify the current Blue Line ridership, the anticipated growth that will occur, and then adds to it the net new demand resulting from the project. The graphs are then compared to MBTA standards for capacity and for crush load. The analysis in this ENF is appropriately limited to the Phase 1. From the analysis, it appears that the additional transit demand generated by the project is such that it can be accommodated by the Blue Line,

This development is uniquely located along the Blue Line. The Blue Line currently is approaching and in some cases exceeding) its capacity standards in the AM and PM peak. Those capacity limits are being reached in the busiest part of the Blue Line – between Maverick and Aquarium Stations. In the AM peak, passengers arriving to the development from the north will alight at Suffolk Downs Station, and not, therefore, exacerbate the capacity constraints. Nor will customer arriving from the south (from downtown Boston) since there is ample capacity for reverse commuters on the Blue Line. These conditions are similar in the afternoon peaks in the reverse directions.

002a-002 The MBTA will need to see this analysis expanded in the Draft EIR for the Full Build. Given the size and scale, and the diversity of uses, the developer should perform the same type of analysis and provide this analysis in the same graphical format as the ENF.

002a-003 The MBTA's Engineering and Maintenance Department is currently planning and evaluating Blue Line signal improvements. These plans are in the early stages and no capital funds have been identified to implement any of the improvements identified in the study. In its analysis of travel demand and capacity constraints, the proponent should assess Blue Line capacity both with and without these signal improvements. This analysis will help the MBTA identify the relative benefits of these improvements.

This analysis should be included in the Draft EIR and if necessary, adjusted if there are any relevant changes to the Phase 1 project or if there are any major changes in land use that may affect the overall transit demand and transit capacity of this area.

002a-004 Given the size of the development, the MBTA realizes that this project will progress and come on line over a period of many years. It, therefore, might not be appropriate to have a single horizon year for ridership and travel demand projections. The MBTA recommends that instead of a single opening year and future year horizon, the travel demand modeling include some type of interim year projections that aligns with development plans. With this interim year horizon, the MBTA can get a better sense of how transit demand from the project will increase over time. The MBTA is available to work with the developer to determine how these multiple horizon years are structured.

The MBTA believes it is important, however, that solutions be found to address the continued demand for more transit that projects such as this, in the aggregate, add to the system (as opposed to the additional transit demand generated by an individual project). The MBTA is interested in working with

002a-002

Refer to Chapter 6, *Transportation.*

002a-003

Refer to Chapter 6, *Transportation.*

002a-004

Refer to Chapter 6, *Transportation.*

MEPA and perhaps the Boston Planning and Development Agency (BPDA) to determine what types of opportunities can be created through the state and local permitting process to have developers work with the MBTA to help address this continued demand.

ii. **MBTA Bus Access**

In addition to Blue Line service, the area is also served by a series of MBTA bus routes, predominantly the Route #119 (Northgate to Beachmont Station) as well as Route #120 (Orient Heights to Maverick Station). The Route #450 and Route #459 (running from Boston to Salem) currently makes stops in the vicinity. A third series of Routes (#424, #434, #448 #449, #450 and #459) run through the travel area. Not all of these buses currently stop in the vicinity of the proposed project; other buses provide only limited service in this area.

002a-005 As part of the EIR, the MBTA would like to see a detailed presentation of the impact to the MBTA bus network. Specifically, the MBTA asks that the Scope of the EIR be prepared so that the document can identify what is the future Build Demand for the #119 and #120 buses and how does it compare to the Future No Build Demand for local bus services. Based on this assessment, the EIR should present the anticipated demand in terms of MBTA Service Standards for bus volumes, capacity, *etc.* to determine what the impacts to the MBTA bus network will be. The EIR should determine what if any additional service would need to be added to the bus network in order to ensure that the MBTA bus routes would meet existing MBTA service standards. Using current MBTA standards for labor, fuel, maintenance costs, *etc.*, the proponent should calculate what the cost to the MBTA would be to accommodate all of the unmet transit demand and to do so in a way that meets MBTA service standards.

002a-006

002a-007 In addition, the EIR should specifically address what the impacts to MBTA bus service would be due to traffic generated by the project. The MBTA requests that the EIR will provide a Turning Movement analysis and a Level of Service analysis for all affected intersections. The MBTA requests that the EIR present, in a tabular format, an assessment of which of these intersections are utilized by MBTA buses and how their timing or turning movements may be affected by the increased traffic and/or proposed roadway changes generated by the project.

002a-008 The MBTA also runs several buses along Route 1A which is adjacent to the project site, particularly at the southwest corner of the project site. Stops along Route 1A are typically difficult given the lack of bus shelters, protected crosswalks or room for the bus to pull out of traffic. The EIR should present an assessment of what types of improvements could be made for bus stops along Route 1A, either directly at the project site or further north of the project.

The MBTA has had preliminary conversations with the developer about providing access to its property that will give the MBTA the flexibility to improve bus service to customers on the Route #119 bus which runs from Winthrop through Revere and to Beachmont Station. Currently, the bus travels on Winthrop

002a-005
Refer to Chapter 6, *Transportation.*

002a-006
Refer to Chapter 6, *Transportation.*

002a-007
Refer to Chapter 6, *Transportation.*

002a-008
Refer to Chapter 6, *Transportation.*

002a-009

Avenue in Revere near the Stop and Shop but due to roadway configurations, the closest stop is approximately a third of a mile from the supermarket. This distant is fairly long for transit access, particularly a supermarket where passengers are likely to have multiple bags with them. The current layout of Tomasello Drive does not allow for MBTA buses to get closer to the supermarket and then continue back on its route to Beachmont Station. The configuration of the parking lot makes it extremely difficult for MBTA buses to pull in and navigate the lot safely and easily. MBTA Service Planning staff have discussed with the developer about the possibility of utilizing a portion of their property for a bus turnaround that would allow the MBTA to site a bus stop on Tomasello Drive directly at the Stop and Shop.

This configuration would be a temporary condition. Once the new internal roadway network envisioned by the proponent is implemented, MBTA would be able to do a slight adjustment to the Route #119 to provide service to the supermarket and then continue on easily to Beachmont Station.

Transit access to quality, healthy and fresh foods is an important component of sustainable communities, particularly for communities of color and low income who often do not have access to healthy foods. By providing this temporary layout for bus turn around, the developer would be making a significant improvement to the community. The MBTA would like to continue to work with the developer to implement this route change utilizing the proponent's property.

Suffolk Downs and Beachmont Stations:

As described in the ENF, the Blue Line Stations at Beachmont and especially at Suffolk Downs will serve as key access points for this development. The Blue Line Station at Suffolk Downs was designed and fully rebuilt in the mid-1990's as part of the major Blue Line Upgrade project designed to modernize all stations, make them accessible to people with disabilities, and to accommodate longer, six car Blue Line trains. The Suffolk Downs Station was designed, however, as a small neighborhood station and was not designed to accommodate the potentially large number of people who will potentially utilize transit under the current proposal. As described in the ENF, the project site will soon be a very different type of land use than was in place when this station was designed and developed. In fact, the Suffolk Downs Station currently has the lowest number of daily boardings of any of the MBTA's heavy rail rapid transit stations (that is, Red, Orange, and Blue Lines). That is certainly likely to change with a 16.5 million square foot multi-use development in place. It is also likely to change with the proposed 520,000 square foot Phase 1 development.

In the over two decades since design plans for Suffolk Downs Station were conceived, there have been a number of advancements and new approaches to planning design of transit so as to reduce and eliminate the barriers that people with disabilities experience when trying to access transit. Many of these types of improvements and design elements are not implemented at stations like Suffolk Downs. Given what could be a substantial change in the usage and volumes of the station, many of these types of improvements will become all the more important for people accessing the station.

002a-009

As requested, the Proponent has invested in a new stop and turnaround on Tomasello Drive for the MBTA #119 bus route next to the Stop & Shop supermarket. The Proponent will continue to work with the MBTA to explore potential future bus routing and stops within the Project Site as the demand is warranted by the Master Plan Project. Refer to Chapter 6, *Transportation*, for more details.

In the ENF, the Weekday Platform Activity graphics (Figures 5.31 & 5.32) show an anticipated number of passengers on the platforms than what the MBTA currently experiences. These graphics identify that during the peak hour, the MBTA will realize nearly seven times the usage in 2024 than what is currently anticipated without the proposed development in place.

These figures identify the impacts of additional platform usage when the Phase 1 only is in place in 2024; this situation is certainly going to be compounded significantly when the Full Build is in place.

These increases, even for the Phase 1, maybe larger than what the station can accommodate, particularly on emergency access, egress, as well as day to day pedestrian flow. These larger volumes of customers may require the MBTA to make improvements (such as wider or longer platforms, or greater/improved egress and access paths of travel). It is the MBTA's experience that improvements to stations such as this often trigger additional station issues to bring the station up to current code for safety, egress, accessibility, *etc.*

Additionally, a visual inspection of Suffolk Downs Station will reveal a level wear and tear that is greater than other stations of this size and age. Any upgrades or improvements to the station to accommodate the increased boardings and alightings resulting from the Phase 1 complex may trigger or necessitate fixing these conditions.

002a-010

A full assessment of the existing engineering and infrastructure conditions of the Blue Line Stations must be performed as part of this project. Those conditions must then be evaluated to determine how the station can function and remain code compliant once the new development is in place. The MBTA

002a-011

recommends that for the Phase 1 components, the proponent provide the MBTA with the funding necessary to perform an engineering and architectural assessment of the station conditions and compliance with current codes (for both fire/life safety and accessibility), and determine what type of and the cost of improvements to the station that may be triggered by the Phase 1 proposal.

With this information in hand, the MBTA can work with the proponent to identify the funding and timeline for implementation of any improvements needed.

002a-012

For the Full Build of the development, the EIR should contain an architectural and engineering assessment that identifies what level of investment will be needed to ensure that the two Blue Line Stations can accommodate the anticipated demand resulting from this large development. The EIR should identify the cost of these improvements and a timeline for when these improvements would be made. We realize that a development of this size will occur over a period of years and as such, not all of the station improvements would be made at once. The EIR should, however, identify a timeline for when these improvements will be made.

It is important that the developer realize that the MBTA has begun to plan and design – but not yet fund the implementation – of certain improvements to Beachmont Station. These improvements focus on improved customer access, particularly elevator access from the street level to the mezzanine and

002a-010

Refer to Chapter 6, *Transportation.*

002a-011

The Proponent has supported an engineering and architectural assessment of the MBTA Suffolk Downs and Beachmont Blue Line Stations. Refer to Chapter 6, *Transportation*.

002a-012

Refer to Chapter 6, *Transportation.*

platforms. In addition, the MBTA has identified certain improvements related to code compliance that also need to be addressed. The MBTA can provide this information to the proponent who should then be certain to work with MBTA staff to ensure that any proposed improvements to Beachmont Station is consistent with MBTA plans and standards for station upgrades.

2. **Station Access**:

002a-013 The ENF provides very little information about how passengers will traverse from the MBTA stations to the development site. To maximize the transit usage to the site, the developer must ensure that there is a safe, accessible, welcoming path of travel for passengers coming from the MBTA station to the site.

002a-014 The EIR should contain a graphic of the route and path that passengers will use to get to the development. The narrative should explain how the paths are designed, built and maintained to ensure that they are continually accessible. The narrative should discuss the type of surfaces, materials, dimensions, lighting, signage, landscaping and other pedestrian elements that contribute to a successful connection to the station.

002a-015

002a-016 The narrative in the EIR should also indicate the dimension that these paths of travel will occur on MBTA property and what the proposed real estate acquisition is to build this infrastructure.

002a-017 This issue is important for the Phase 1 work as well. The proponent should provide this information, including renderings, prior to the construction of the Phase 1 facility to ensure that even in this temporary condition, safe and healthy access from the development to the station can be maintained.

3. **Climate Change Adaptation**:

The MBTA believes that it is prudent to work with developers who are building adjacent to our stations, particularly in coastal areas, to coordinate improvements to that station while the developer is planning, designing and constructing its project. The Suffolk Downs Redevelopment project provides a potential opportunity to make improvements to Blue Line and particularly Suffolk Downs Station and the section of track along the Belle Isle Marsh. The MBTA had previously identified areas of the Blue Line as vulnerable to coastal flooding. During the January 4th winter storm, (the co-called "bomb cyclone") an area of track between Beachmont and Suffolk Downs stations experienced flooding. Though inundation was brief and damage was minimal, it did result in several hours of service being suspended while flood waters receded. This area is considered to be in the current 5% (20-year) storm risk area. By the 2030s, the stretch is projected to be in the 50-100% flood risk area (1-year or 2-year storm). Suffolk Downs station is currently experiencing ongoing impacts from salt water mist due to its close proximity to the coast. There is significant corrosion visible at the station, including pedestrian walkway and bridge areas, as well as the generator room. Salt water damage to these systems has longer term and more devastating impacts to the MBTA's ability to deliver service.

002a-013

Refer to Chapter 3, *Urban Design.*

002a-014

Refer to Chapter 3, *Urban Design.*

002a-015

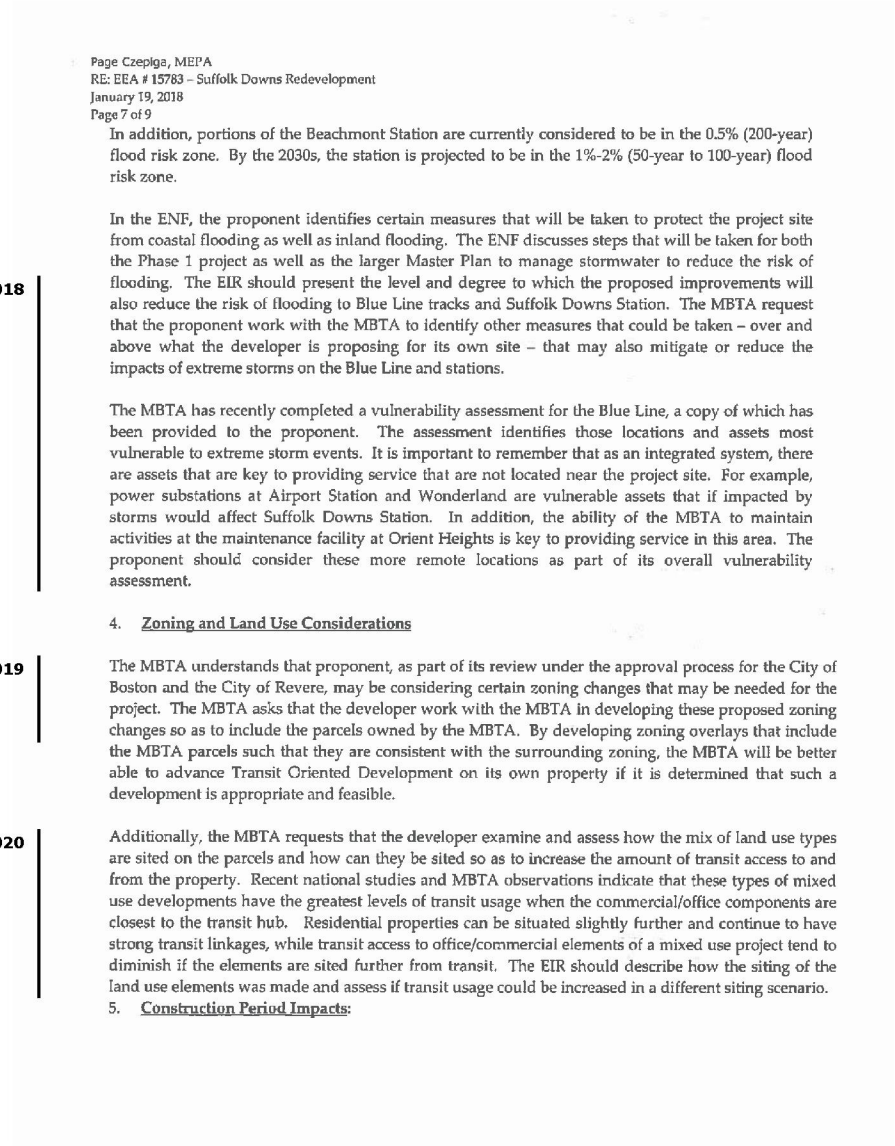
Refer to Chapter 3, *Urban Design.*

002a-016

Refer to Chapter 3, *Urban Design.*

002a-017

Refer to Chapter 3, *Urban Design.*



Page Czepiga, MEPA
RE: EEA # 15783 – Suffolk Downs Redevelopment
January 19, 2018
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In addition, portions of the Beachmont Station are currently considered to be in the 0.5% (200-year) flood risk zone. By the 2030s, the station is projected to be in the 1%-2% (50-year to 100-year) flood risk zone.

002a-018

In the ENF, the proponent identifies certain measures that will be taken to protect the project site from coastal flooding as well as inland flooding. The ENF discusses steps that will be taken for both the Phase 1 project as well as the larger Master Plan to manage stormwater to reduce the risk of flooding. The EIR should present the level and degree to which the proposed improvements will also reduce the risk of flooding to Blue Line tracks and Suffolk Downs Station. The MBTA request that the proponent work with the MBTA to identify other measures that could be taken – over and above what the developer is proposing for its own site – that may also mitigate or reduce the impacts of extreme storms on the Blue Line and stations.

The MBTA has recently completed a vulnerability assessment for the Blue Line, a copy of which has been provided to the proponent. The assessment identifies those locations and assets most vulnerable to extreme storm events. It is important to remember that as an integrated system, there are assets that are key to providing service that are not located near the project site. For example, power substations at Airport Station and Wonderland are vulnerable assets that if impacted by storms would affect Suffolk Downs Station. In addition, the ability of the MBTA to maintain activities at the maintenance facility at Orient Heights is key to providing service in this area. The proponent should consider these more remote locations as part of its overall vulnerability assessment.

4. Zoning and Land Use Considerations

002a-019

The MBTA understands that proponent, as part of its review under the approval process for the City of Boston and the City of Revere, may be considering certain zoning changes that may be needed for the project. The MBTA asks that the developer work with the MBTA in developing these proposed zoning changes so as to include the parcels owned by the MBTA. By developing zoning overlays that include the MBTA parcels such that they are consistent with the surrounding zoning, the MBTA will be better able to advance Transit Oriented Development on its own property if it is determined that such a development is appropriate and feasible.

002a-020

Additionally, the MBTA requests that the developer examine and assess how the mix of land use types are sited on the parcels and how can they be sited so as to increase the amount of transit access to and from the property. Recent national studies and MBTA observations indicate that these types of mixed use developments have the greatest levels of transit usage when the commercial/office components are closest to the transit hub. Residential properties can be situated slightly further and continue to have strong transit linkages, while transit access to office/commercial elements of a mixed use project tend to diminish if the elements are sited further from transit. The EIR should describe how the siting of the land use elements was made and assess if transit usage could be increased in a different siting scenario.

5. Construction Period Impacts:

002a-018

Refer to Chapter 8, *Climate Change Resiliency.*

002a-019

The Proponent supports the MBTA's efforts to promote Transit Oriented Development; however, the process of seeking zoning changes in both Revere and Boston is based on extensive planning and design coordination efforts with both cities limited to the 161 acres of land owned and controlled by the Proponent requesting the changes.

002a-020

The vast majority of the Project Site is within 1/2-mile walking distance of the two existing MBTA Blue Line Stations for which a mix of commercial and residential uses are proposed. It is important that the Project Site has the uses interspersed rather than segregated to improve the mixed use nature and 18/7 activity on-site. Commercial uses are proposed either adjacent or in close proximity to both transit stations, as well as concentrated along the new Main Street Retail Corridor, which is within walking distance of both MBTA Stations. For the portion of the Project Site that is farther than the 1/2-mile, such as the "Panhandle" area, the residential and hotel uses are proposed. Also, the Proponent has proposed an on-site shuttle system that will further improve accessibility of all on-site buildings back to the two existing MBTA Blue Line Stations.

The project will require significant new construction and construction equipment, as well as utility work adjacent to the Blue Line Right of Way and stations. To do this work, safe operations of the transit lines as well as a safe environment for patrons and workers must be maintained at all times.

002b-021

As part of the DEIR, the MBTA requests a Construction Management Plan (CMP) that is designed to minimize impacts to MBTA service and its passengers. The MBTA recognizes that the developer is at an early stage of planning and design and as such, a CMP at this phase will be less detailed than it would be at a later stage. The MBTA requests that this CMP be updated for the FEIR and at all other stages as the project develops.

002b-022

The DEIR should contain a CMP that provides an outline of the program for the circulation and review of design plans to the MBTA for those elements of the project that directly affect or are in proximity to the MBTA stations and track structures. The proponent shall ensure that the MBTA has adequate time to review and comment on plans prior to construction and that if the MBTA has comments, these comments will be adequately addressed prior to work beginning.

002b-023

While it is too early to provide details on this information, the MBTA feels it is important at this point to highlight the construction period wayfinding and signage plans that continuously provide customers with clear direction on how to access the stations during construction. Construction is likely to result in some redirection of passengers so signage and wayfinding is needed to make sure customers understand how to access the station. In addition, these temporary paths must be fully accessible, well-lit and well maintained so as to not discourage transit access. The CMP should describe in the narrative how this will be done with more detailed information as the project progresses.

6. **Real Estate Acquisitions and Easements:**

002b-024

The EIR should provide a detailed explanation of any interests in real property that it will need to acquire from the MBTA. These property interests should be in the form of a narrative as well as graphics which are presented in an appropriate scale. The graphics and the narrative in the EIR should provide specificity, including dimensions, of these easements and the timing of the acquisition. This information is critical for the MBTA since it is this transfer in an interest in real estate that acts as the State Action pursuant to MEPA and forms the basis for the MBTA's MEPA responsibilities. It is this State Action that will trigger the need for the MBTA to issue its Section 61 Findings in conjunction with the overall MassDOT Section 61 Findings that will be required.

7. **Request for Phase 1 Waiver:**

The proponent is seeking a waiver of the EIR requirements for the Phase 1 component of the project which includes an approximately 520,000 square foot of office space. The ENF provides information on the transit demand generated by this component of the project. Overall, there is sufficient Blue Line

002b-021

Refer to Chapter 9, *Environmental Protection.*

002b-022

Refer to Chapter 9, *Environmental Protection.*

002b-023

Refer to Chapter 9, *Environmental Protection.*

002b-024

Refer to Chapter 2, *Regulatory Context and General Information.*

002b-025

capacity (in both the peak as well as off-peak periods) such that this project will not put an undue stress on the Blue Line. As described above, it is less clear if Suffolk Downs Station can accommodate the peak period ridership generated by the project given that the adjoining land use is so different than what the station was designed for. It is unclear as to what level of improvements would need to be made to accommodate this seven-fold increase in peak period ridership. We believe this issue can be addressed if the proponent were to agree to fund an engineering and architectural assessment of the station conditions and compliance with current codes (for both fire/life safety and accessibility), and determine what type of and the cost of improvements to the station that may be triggered by the Phase 1 proposal.

If the developer could agree to this proposal to fund this work, we believe that we could identify and implement the improvements to the station that would be needed to accommodate the ridership of the Phase 1 project. In addition, we would look for the developer's cooperation on implementing the changes to the Route #119 service while it is developing the overall plan for the site.

002b-026

002b-027

The MBTA believes a Phase 1 Waiver is appropriate given that the transit impacts to the project resulting from Phase 1, when taken alone, are insignificant and the MBTA has adequate service in place to accommodate it so long as the proponent provides the resources necessary to do the station assessment. We would ask that the proponent provide an update on this work in the EIR, both in terms of the findings of the report and the improvements agreed to by the MBTA. As indicated, the MBTA has worked extensively with this developer on projects directly linked to the transit network (e.g., NorthPoint at Lechmere, Government Center Garage at Haymarket, etc.) and have found the proponent to be highly cooperative and eager to integrate successful transit into its projects. We look forward to this cooperative relationship moving forward.

If you have any questions regarding these comments, please do not hesitate to contact me at 617-222-3126 or by email at abrennan@mbta.com.

Sincerely,

Andrew D. Brennan
Director of Energy & Environment

002b-025

The Proponent has funded an engineering and architectural assessment of the MBTA Suffolk Downs and Beachmont Blue Line Stations. Refer to Chapter 6, *Transportation*.

002b-026

The Proponent is supportive of transit service improvements that will benefit the surrounding community and will continue to coordinate with the MBTA to discuss these opportunities, including short-term and long-term modifications to the Route 119. Additional discussion of potential MBTA bus route and schedule modifications is provided in Chapter 6, *Transportation.*

002b-027

The Proponent has funded an engineering and architectural assessment of the MBTA Suffolk Downs and Beachmont Slue Line Stations. Refer to Chapter 6, *Transportation*.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Northeast Regional Office • 205B Lowell Street, Wilmington MA 01887 • 978-694-3200

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

January 19, 2018

Matthew A. Beaton, Secretary
Executive Office of Energy
& Environmental Affairs
100 Cambridge Street
Boston MA, 02114

RE: Suffolk Downs
Redevelopment
Boston and Revere
EEA # 15783

Attn: MEPA Unit

Dear Secretary Beaton:

The Department of Environmental Protection Northeast Regional Office (MassDEP-NERO) has reviewed the Expanded Environmental Notification Form (ENF) submitted by VHB on behalf of the McClellan Highway Development Company, LLC, c/o The HYM Investment Group, LLC to construct 16.5 million square feet of mixed use development in the cities of Boston and Revere within a 161 acre site. The Department provides the following comments.

Project Description

The Suffolk Downs Redevelopment project proposes construction of the first phase of the project under a Phase I Waiver from MEPA. The first phase of development is located within the City of Boston (East Boston) and includes the construction of approximately two 260,000-gross square foot office buildings with supporting corporate uses and amenities; approximately 520 structured parking spaces, a new internal access driveway, utility improvements and pedestrian and bicycle facilities.

Wetlands Impacts

Much of the site is designated as Land Subject to Coastal Storm Flowage (LSCSF), with a 100-year floodplain elevation of 11 feet NAVD88. Work on the Phase I project will alter approximately 9 acres of this resource area and will involve work within the 100-foot Buffer Zone to the Bank of Sales Creek, the infield pond, and an intermittent stream. The EENF states

This information is available in alternate format. Call the MassDEP Diversity Office at 617-556-1139. TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep
Printed on Recycled Paper

"key portions" of the site will be raised in order to protect structures from flooding. As part of permitting, the applicant will be required to analyze the off-site effects of filling of LSCSF to ensure that flooding on other properties and infrastructure, as well as the wetland resource areas on-site and offsite (including those within the ACEC), is not increased or exacerbated. Projected sea level rise should also be incorporated into the design life of the buildings and infrastructure. Proposed mitigation actions to address the effects of flood events on the site, including but not limited to protection of buildings and property, access for emergency response vehicles, and alternative parking areas if needed during storm events, should be provided as part of the project design

The EENF states that the stormwater management design will meet MassDEP's stormwater standards as well as City ordinances. The details of the design will be reviewed in the permitting process.

Wastewater

The Expanded ENF provides a description of two long-term development plans for the 161 acre project parcel which includes land in both the City of Revere and the City of Boston. Each of the two plans includes an extensive development with mixed uses, in both cases with estimated

003-001 increases in wastewater design flows exceeding 2 million gallons per day. The volume of new wastewater flows will need to be carefully reviewed and evaluated by the project proponent, working with staff from the City of Revere, and the Boston Water & Sewer Commission, so that connections to these sewer systems are properly designed and remain within the design capacity of the sewer system, and that any required system improvements to accommodate the design flows is incorporated into the project. Another element of the project must be to mitigate

003-002 impacts to the local and regional sewer system by providing for removal of infiltration and inflow (I/I). As per MassDEP regulations at 314 CMR 12.04(2)(d), the City of Revere, and the Boston Water & Sewer Commission, working with the proponent, must ensure that four gallons of I/I are removed for each gallon of new wastewater flow connected to the system. The I/I abatement work can be done in phases to correlate to the phasing of the redevelopment work. This work will be critical so that major capital improvements done by the Boston Water & Sewer Commission (in partnership with MWRA) to address combined sewer overflows, and major capital improvements to the Revere sewer system to address sanitary sewer overflows, are not compromised. The Expanded ENF acknowledges the requirement for I/I removal, and indicates that the 4:1 requirement will be met for new flows to be conveyed to the Boston Water & Sewer Commission system, and that the proponent will commit to a 10:1 I/I removal for flows to be connected to the Revere system.

Recycling Issues

The project may include demolition and significant construction, which will generate tons of

003-003 construction and demolition (C&D) waste. In addition, the proponent is advised that demolition activities must comply with both Solid Waste and Air Pollution Control regulations, pursuant to M.G.L. Chapter 40, Section 54, which provides:

"Every city or town shall require, as a condition of issuing a building permit or license for the demolition, renovation, rehabilitation or other alteration of a building or structure, that the debris

003-001

Refer to Chapter 10, *Infrastructure.*

003-002

Refer to Chapter 10, *Infrastructure.*

003-003

Refer to Chapter 9, *Environmental Protection.*

resulting from such demolition, renovation, rehabilitation or alteration be disposed of in a properly licensed solid waste disposal facility, as defined by Section one hundred and fifty A of Chapter one hundred and eleven. Any such permit or license shall indicate the location of the facility at which the debris is to be disposed. If for any reason, the debris will not be disposed as indicated, the permittee or licensee shall notify the issuing authority as to the location where the debris will be disposed. The issuing authority shall amend the permit or license to so indicate."

For the purposes of implementing the requirements of M.G.L. Chapter 40, Section 54, MassDEP considers an asphalt, brick, and concrete (ABC) rubble processing or recycling facility, (pursuant to the provisions of Section (3) under 310 CMR 16.05, the Site Assignment regulations for solid waste management facilities), to be conditionally exempt from the site assignment requirements, if the ABC rubble at such facilities is separated from other solid waste materials at the point of generation. In accordance with 310 CMR 16.05(3), ABC can be crushed on-site with a 30-day notification to MassDEP. However, the asphalt is limited to weathered bituminous concrete, (no roofing asphalt), and the brick and concrete must be uncoated or not impregnated with materials such as roofing epoxy. If the brick and concrete are not clean, the material is defined as construction and demolition (C&D) waste and requires either a Beneficial Use Determination (BUD) or a Site Assignment and permit before it can be crushed.

Pursuant to the requirements of 310 CMR 7.02 of the Air Pollution Control regulations, if the ABC crushing activities are projected to result in the emission of one ton or more of particulate matter to the ambient air per year, and/or if the crushing equipment employs a diesel oil fired engine with an energy input capacity of three million or more British thermal units per hour for either mechanical or electrical power which will remain on-site for twelve or more months, then a plan application must be submitted to MassDEP for written approval prior to installation and operation of the crushing equipment.

Asbestos removal notification on permit form ANF 001 and building demolition notification on permit form AQ06 must be submitted to MassDEP at least 10 working days prior to initiating work. Except for vinyl asbestos tile (VAT) and asphaltic-asbestos felt and shingles, the disposal of asbestos containing materials within the Commonwealth must be at a facility specifically approved by MassDEP, (310 CMR 19.061). No asbestos containing material including VAT, and/or asphaltic-asbestos felts or shingles may be disposed at a facility operating as a recycling facility, (310 CMR 16.05). In addition, the demolition project contain asbestos, the project proponent is advised that asbestos and asbestos-containing waste material are a special waste as defined in the Solid Waste Management regulations, (310 CMR 19.061). The disposal of the asbestos containing materials outside the jurisdictional boundaries of the Commonwealth must comply with all the applicable laws and regulations of the state receiving the material.

The demolition activity also must conform to current Massachusetts Air Pollution Control regulations governing nuisance conditions at 310 CMR 7.01, 7.09 and 7.10. As such, the proponent should propose measures to alleviate dust, noise, and odor nuisance conditions, which may occur during the demolition. Again, MassDEP must be notified in writing, at least 10 days in advance of removing any asbestos, and at least 10 days prior to any demolition work. The removal of asbestos from the buildings must adhere to the special safeguards defined in the Air Pollution Control regulations, (310 CMR 7.15 (2)).

Waste Ban Regulation – 310 CMR 19.017

003-004

Section 310 CMR 19.017 *Waste Bans* of the Massachusetts Solid Waste regulations prohibit the disposal of certain wastes in Massachusetts. These wastes include, but are not limited to, recyclable paper (including cardboard). On October 1, 2014, the Massachusetts Organics Waste Ban on the disposal of commercial organic wastes by businesses and institutions takes effect. It prohibits the disposal of organic wastes from businesses and institutions that generate a ton or more of organic materials per week, which necessitates the composting, conversion (such as anaerobic digestion), recycling or reuse of organic the waste.

As the lead state agencies responsible for helping the Commonwealth achieve its waste diversion goals, MassDEP and EEA have strongly supported voluntary initiatives by the private sector to institutionalize source reduction and recycling into their operations. Adapting the design, infrastructure, and contractual requirements necessary to incorporate reduction, recycling and recycled products into existing large-scale developments has presented significant challenges to recycling proponents. Integrating those components into developments such as this at the planning and design stage enables the project's management and occupants to establish and maintain effective waste diversion programs. For example, facilities with minimal obstructions to trash receptacles and easy access to main recycling areas and trash chutes allow for implementation of recycling programs and have been proven to reduce cleaning costs by 20 percent to 50 percent. Other designs that provide sufficient space and electrical services will support consolidating and compacting recyclable material and truck access for recycling material collection.

By incorporating recycling and source reduction into the design, the proponent has the opportunity to join a national movement toward sustainable design. Sustainable design was endorsed in 1993 by the American Institute of Architects with the signing of its *Declaration of Interdependence for a Sustainable Future.* The project proponent may be aware of organizations that provide additional information and technical assistance, including Reuse Marketplace (http://www.reusemarketplace.org/), USEPA's WasteWise Program (www.epa.gov/wastewise/), and MassRecycle (http://www.massrecycle.org/). The listed organizations and programs are notable for offering valuable and effective waste reduction and recycling assistance, web-based resources, case studies, and tools for C&D projects.

Massachusetts Contingency Plan (MCP)/M.G.L. c.21E

Contaminated Soil and Groundwater:

003-005

The project proponent is advised that excavating, removing and/or disposing of contaminated soil, pumping of contaminated groundwater, or working in contaminated media must be done under the provisions of MGL c.21E (and, potentially, c.21C) and all other applicable federal, state, and local laws, regulations, and bylaws. If permits and approvals under these provisions are not obtained beforehand, considerable delays in the project can occur. The project proponent cannot manage contaminated media without prior submittal of appropriate plans to MassDEP, which describe the proposed contaminated soil and groundwater handling and disposal approach,

003-004

Refer to Chapter 4, *Sustainability/Green Building.*

003-005

Comment noted.

and health and safety precautions. If contamination at the site is known or suspected, the appropriate tests should be conducted well in advance of the start of construction and professional environmental consulting services should be readily available to provide technical guidance to facilitate any necessary permits. If dewatering activities are to occur at a site with contaminated groundwater, or in proximity to contaminated groundwater where dewatering can draw in the contamination, a plan must be in place to properly manage the groundwater and ensure site conditions are not exacerbated by these activities. Dust and/or vapor monitoring and controls are often necessary for large-scale projects in contaminated areas. The need to conduct real-time air monitoring for contaminated dust and to implement dust suppression must be determined prior to excavation of soils, especially those contaminated with compounds such as metals and PCBs. An evaluation of contaminant concentrations in soil should be completed to determine the concentration of contaminated dust that could pose a risk to health of on-site workers and nearby human receptors. If this dust concentration, or action level, is reached during excavation, dust suppression should be implemented as needed, or earthwork should be halted. A Licensed Site Professional (LSP) must be employed or engaged to manage, supervise or actually perform the necessary response actions at the site.

Capping of Contaminated Soil:

If capping of contaminated soil is needed to achieve a level of No Significant Risk, MassDEP recommends the following capping design criteria. In unpaved areas, a minimum of three feet of clean soil should be placed over the contaminated soil. This protective layer of clean soil should be separated from the underlying contaminated soil by a geotextile or combination of materials, which will provide both a brightly colored visual marker and a permeable fabric to separate the clean soil from the contaminated soil. In paved areas, a minimum one-foot cap consisting of clean soil, road base and the pavement layer should be placed over the contaminated soil. Similar to unpaved areas, the contaminated soil should be separated from the clean soil or road base using a visual marker and geotextile. In such cases, an Activity and Use Limitation (AUL), prepared in accordance with 310 CMR 40.1012 would be necessary to identify the maintenance requirements of the cap. It should also be noted that a cap constructed as a Release Abatement Measure will not be considered a Permanent Solution until a Phase III completed in accordance with 310 CMR 40.0850 demonstrates the lack of a feasible alternative, as required by 310 CMR 40.0442(4).

Potential Indoor Air Impacts:

Parties constructing and/or renovating buildings in contaminated areas should consider whether chemical or petroleum vapors in subsurface soils and/or groundwater could impact the indoor air quality of the buildings. All relevant site data, such as contaminant concentrations in soil and groundwater, depth to groundwater, and soil gas concentrations should be evaluated to determine the potential for indoor air impacts to existing or proposed building structures. Particular attention should be paid to the vapor intrusion pathway for sites with elevated levels of chlorinated volatile organic compounds such as tetrachloroethylene (PCE) and trichloroethylene (TCE). MassDEP has additional information about the vapor intrusion pathway on its website at http://www.mass.gov/eea/agencies/massdep/cleanup/regulations/vapor-intrusion-and-indoor-air-contamination-waste-sites.html.

003-006

Refer to Chapter 9, *Environmental Protection.*

New Structures and Utilities:

Construction activities conducted at a disposal site shall not prevent or impede the implementation of likely assessment or remedial response actions at the site. Construction of structures at a contaminated site may be conducted as a Release Abatement Measure if assessment and remedial activities prescribed at 310 CMR 40.0442(3) are completed within and adjacent to the footprint of the proposed structure prior to or concurrent with the construction activities. Excavation of contaminated soils to construct clean utility corridors should be conducted for all new utility installations.

Activity and Use Limitations:

An Activity and Use Limitation (AUL) is a legal document that is recorded or registered at the appropriate Registry of Deeds and identifies site conditions that are the basis for maintaining a condition of No Significant Risk at a property where contamination remains after a cleanup. The AUL identifies permitted and allowable site uses and activities that may occur at a property while maintaining No Significant Risk. The AUL also identifies restricted uses and activities, which could result in the exposure of people at or near the disposal site to remaining contamination if such activities were to occur. The project proponent is advised that in cases where proposed activities would not be consistent with a level of No Significant Risk and/or an existing AUL, additional cleanup and the amendment or termination of the initial AUL and implementation of a revised AUL would be necessary before the proposed activities could occur.

Air Quality

003-006

Pre-installation approval from MassDEP, pursuant to regulation 310 CMR 7.02, is required if the project will include any boiler regulated under 310 CMR 7.26(30)-(37), inclusive. Natural gas or distillate fuel oil-fired boilers with an energy input capacity less than 10,000,000 British thermal units per hour (Btu/hr) are exempt from the above listed regulations. In addition, if the project will be equipped with emergency generators equal to or greater than 37 kW, then each of those emission units must comply with the regulatory requirements in 310 CMR 7.26(42).

The MassDEP appreciates the opportunity to comment on this proposed project. Please contact Rachel.Freed@state.ma.us or at (978) 694-3258 on wetlands issues. Please contact

Kevin.Brander@state.ma.us or at (978) 694-3236 for wastewater issues. If you have any general questions regarding these comments, please contact me at (978) 694-3304.

Sincerely,

This final document copy is being provided to you electronically by the Department of Environmental Protection. A signed copy of this document is on file at the DEP office listed on the letterhead.

John D. Viola
Deputy Regional Director
MassDEP Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

cc: Brona Simon, Massachusetts Historical Commission
Eric Worrall, MassDEP-NERO
Rachel Freed, MassDEP-NERO
Kevin Brander, MassDEP-NERO

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENERGY AND ENVIRONMENTAL AFFAIRS
OFFICE OF COASTAL ZONE MANAGEMENT
251 Causeway Street, Suite 800, Boston, MA 02114-2136
(617) 626-1200 FAX: (617) 626-1240

MEMORANDUM

TO:	Matthew A. Beaton, Secretary, EEA
ATTN:	Erin Flaherty, MEPA Unit
FROM:	Bruce Carlisle, Director, CZM
DATE:	January 19, 2018
RE:	EEA-15783, Suffolk Downs Redevelopment; Boston and Revere

The Massachusetts Office of Coastal Zone Management (CZM) has completed its review of the above-referenced Expanded Environmental Notification Form (EENF), noticed in the *Environmental Monitor* dated December 20, 2017, and offers the following comments.

Project Description

The proposed project is the Master Plan for the redevelopment of the existing Suffolk Downs site in Boston and Revere. The site includes approximately 161 acres (109 acres in Boston, 52 acres in Revere). Currently, the existing site includes a one-mile long oval horse race track, a vacant administration building, clubhouse, grandstand, maintenance buildings, horse barns, and supporting space for staff, as well as roadways and parking areas. Sales Creek runs through the project site along the municipal border between Boston and Revere, from the northwest corner of the site through the northern portion of the race track infield to east of the project site, where it connects portions of the Revere watershed to the Belle Isle Marsh. Both Sales Creek and the Belle Isle Marsh are within the Rumney Marshes Area of Critical Environmental Concern (ACEC). The site also includes a manmade pond and other resource areas. According to the EENF, the project will permanently alter 3,495,000 square feet (approximately 80 acres) of Land Subject to Coastal Storm Flowage (LSCSF) on the site. The Master Plan proposes approximately 11 million square feet of development in Boston, and 5.5 million square feet of development in Revere which will include a mix of commercial, residential, retail, and business spaces, as well as publicly-accessible open space. According to the EENF, 40 acres of the site are proposed to be developed and maintained as open space, with both active and passive recreation areas, including incorporation of the existing wetland areas on site.

The EENF requests a Phase 1 Waiver for the construction of two office buildings totaling approximately 520,000 square feet, with ground floor retail, a 520 space parking structure, supporting infrastructure, and open space improvements within the southeastern corner of the project site adjacent to the Suffolk Downs MBTA Blue Line Station. The Phase 1 portion of the project is entirely within LSCSF and adjacent to the existing manmade pond.

Project Comments

Phase One Waiver

According to the EENF, Phase 1 of the project is located within the one percent annual floodplain delineated on FEMA FIRM panel 25025C0038J and is subject to coastal flooding with a base flood elevation (BFE) of 11 feet NAVD88 (17.5 feet BCB). To address this current and future flooding threat, the EENF states that roadways to be constructed as part of Phase 1 will be designed with a minimum top curb elevation of 20.83 feet, which is 40 inches above the BFE, and that the finished floor elevation of Phase 1 buildings will be an additional 12 inches above that, for a finished

floor elevation of 22 feet BCB. As proposed in the EENF, the Phase 1 portion of the project will be

004-001

elevated out of the floodplain. However, the EENF does not include an analysis of the comparative function of the floodplain before and after the site is altered, or an analysis of how proposed fill might affect adjacent properties during a flooding event. CZM recommends that these analyses, as described in more detail below, are completed as part of agency review and permitting for the Phase 1 portion of the project.

Wetland Resource Areas

004-002

The EENF states that the existing resource areas on site will be incorporated into the proposed publicly accessible open space. The DEIR should describe how this will be accomplished, restoration activities proposed, and potential impacts to existing resource areas (temporary and permanent) as a result of the work within and adjacent to these areas.

Land Subject to Coastal Storm Flowage

The project site is located in an area of Boston and Revere that is impacted by coastal and inland flooding under current conditions. Coastal flooding sources include Belle Isle Inlet, Chelsea Creek and Broad Sound, and inland flooding affects the site via Sales Creek, which is associated with the adjacent Revere watershed. The proposed project will permanently impact 3,495,000 square feet of LSCSF (80 acres). LSCSF does not typically require flood storage because it generally drains unrestricted directly to the ocean source, however the proposed Suffolk Downs site does not have an unrestricted outlet for flood waters. This situation creates unique site characteristics that should be properly assessed.

004-003

The DEIR should include a detailed analysis specific to how the proposed fill, grading and solid project components (e.g., buildings, roads, infrastructure, etc.) proposed in the coastal floodplain will affect water flow and drainage patterns within and adjacent to the site, both during rain events as well as coastal storm events where there is a combination of rain and coastal flooding. To support this analysis, the DEIR should provide a detailed description and plans of a reasonable scale depicting topography and the sources, flow direction, and pathways of existing and proposed coastal and inland flooding onto, through, and off the site, and identify areas that pond under existing and proposed conditions. The analysis should include detailed information, including plans with topography, to demonstrate the existing versus proposed grading over the entire site, and indicate how the project may alter the flooding and drainage characteristics on the site and at adjacent properties.

004-004

While already developed, the site does possess functional characteristics of a coastal floodplain, including the ability to slow down, detain, retain, and allow absorption of both inland and coastal flooding. The DEIR should include an analysis of alternative designs to avoid, minimize and mitigate any impacts to the beneficial functions of the floodplain currently present on the site to ensure that the project will not exacerbate the flooding on site or in surrounding areas. A detailed description of the beneficial functions of LSCSF is contained in the guidance document *Applying the Massachusetts Coastal Wetlands Regulations: A Practical Manual for Conservation Commissions to Protect the Storm Damage Prevention and Flood Control Functions of Coastal Resource Areas*. Specifically, to assure that impacts to the floodplain characteristics on the site are minimized, the DEIR should demonstrate that:

- Buildings are designed so that the elevation of the residential and commercial spaces will be above projected flood elevations for the life expectancy of the building, taking projected sea level rise into account;

004-001

The EEA Secretary granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. A resiliency and adaptation study was conducted for the Phase 1 Project to support issuance of the waiver submitted to the MEPA office on February 18, 2018. The study demonstrated that the Phase 1 Project would not exacerbate flooding conditions of adjacent uses or properties.

004-002

Refer to Chapter 5, *Wetlands and Waterways.*

004-003

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

004-004

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

004-004

- Areas below all residential and commercial spaces are designed to be as open as possible to avoid displacing or redirecting floodwater;
- Where parking is proposed below the projected flood elevation such that the space is designed to flood, a communication and contingency plan to alert tenants is in place to minimize damage to property during flooding events;
- Impervious surfaces are minimized and open space is maximized to avoid displacing flood waters or changing the hydrology of the site so that adjacent neighborhoods and areas are not adversely affected with additional or redirected flood waters; and
- Flood storage opportunities on the site are fully provided whenever possible.

004-005

The EENF mentioned use of temporary barriers to reduce the risk of flooding to some areas of the project. The DEIR should provide an evaluation of the effectiveness of these options in protecting the proposed development from flooding and evaluate possible adverse effects those measures may have on adjacent structures, infrastructure or development, both within and outside the project area. The DEIR should include plans that show where the temporary barriers would be used, when they would be deployed, and who would be responsible for the deployment.

Climate Change Adaptation and Coastal Resilience

004-006

CZM commends the proponent for identifying sustainability as a key theme for the Master Plan. The EENF states that the Master Plan seeks to proactively plan for the effects of future climate change, including increases in sea levels and storm surge, and indicates that a number of sources have been consulted in determining climate change scenarios to inform resilience planning for the site. Among these is the analysis conducted for the MA Department of Transportation, which uses a dynamic hydrologic model to map future flood elevations, including sea level rise and coastal storms. CZM notes that this work is being expanded to the entire coast and recommends that these results are used for the analysis in the DEIR. The updated model incorporates the most recent downscaled projections for sea level rise and increased precipitation, which will also be available on the Massachusetts Climate Change Clearinghouse website. The DEIR should include a full description of climate change and sea level rise scenarios that will be used as the basis for the development design and justification for choosing this scenario with respect to the expected project design life and other criteria.

Stormwater

The project should make every effort to assure no adverse impacts to the water quality or habitat of either Sales Creek or the adjacent salt marsh within the Belle Isle Marsh, which are both
004-007 within the Rumney Marshes ACEC. While the project may qualify as a redevelopment, CZM recommends that the DEIR demonstrate that the project will meet or exceed the stormwater management standards for new development.

Federal Consistency Review

004-008

The proposed project may be subject to CZM federal consistency review, in which case it must be found to be consistent with CZM's enforceable program policies. For further information on this process, please contact Robert Boeri, Project Review Coordinator, at 617-626-1050, or visit the CZM web site at www.mass.gov/czm.

BKC/kg/rh

004-005

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

004-006

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

004-007

Refer to Chapter 10, *Infrastructure.*

004-008

Refer to Chapter 5, *Wetlands and Waterways.*

cc: Kathryn Glenn, CZM
Rachel Freed, DEP Northeast Regional Office
Revere Conservation Commission
Joy Duperault, DCR Flood Hazard Management Program

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Matthew A. Beaton
Secretary

Judith F. Judson
Commissioner

17 January 2017

Matthew Beaton, Secretary
Executive Office of Energy & Environmental Affairs
100 Cambridge Street
Boston, Massachusetts 02114
Attn: MEPA Unit

RE: Suffolk Downs Redevelopment, Boston and Revere, Massachusetts, EEA #15783

Cc: Ian Finlayson, Acting Director of Energy Efficiency Programs, Department of Energy Resources
Judith Judson, Commissioner, Department of Energy Resources

Dear Secretary Beaton:

We've reviewed the Expanded Environmental Notification Form (EENF) for the above project. The purpose of this this letter is to identify emission reduction measures, consistent with the objective of MEPA policy to avoid, mitigate, and reduce greenhouse gas emissions.

The proposed project consists of approximately 16.5M sf of mixed use space, including up to 10.4M sf of residential multifamily and 5M square feet of office. The balance of the space will be hotel and retail.

We wish to recognize the proponent's significant efforts and responsiveness to furnish and report various requested analysis, helping advance evaluations for this significant project.

Executive Summary

A summary of our review is as follows:

- The unique scale of the project will result in large, new emissions for both the City of Revere and City of Boston. If built to code, the project would result in 59,000 tpy of new emissions to these cities.

- New emissions can be reduced by 85% to 8,700 tpy (a reduction of more than 50,000 tpy) using readily available efficiency and renewable strategies.

- Key emission mitigation strategies include:

    - Envelope: Maintaining envelope integrity is a key strategy. Framed, insulated walls with continuous insulation should be used to the maximum extent possible, while glass curtain wall assemblies and excessive windows should be avoided to the extent possible.

    - Passive design: Passive design methods for the multifamily portion of the development would deliver significant emissions reduction and other benefits.

    - Solar PV: Roof-mounted solar PV on just 20% of the roof would result in significant mitigation.

    - HVAC and lighting: High efficiency HVAC systems and low energy lighting are effective strategies for mitigation.

Summary of Key Benefits

Emissions mitigation would deliver other benefits, as well, including:

- Potential financial benefits to the developer:

    - MassSave financial benefits for construction of high-performance, above-code buildings.

    - Alternative Energy Credits (AECs) for renewable heating. Use of renewable heating in 10M sf of Passively-designed multifamily would result in an estimated $30M in AEC value.

    - Roof top PV on 20% of the roofs would yield a net present value (NPV) of $28M using the Commonwealth's SMART plan.

- Potential financial benefits to the building tenants:

    - Annual utility cost reduction: $10.4M/yr

    - Average annual utility cost reduction for each multifamily unit: $810/yr

- Resilience benefits:

    - Passive-built multifamily apartments require near negligible heating and cooling and exhibit exceptional passive survivability: interior temperatures remain livable for extended periods during power outages.

Scope of Emissions Impact

Built to code[1] with no mitigation, the project will add an estimated 59,000 tpy of new emissions. (This breaks out to: about 23,600 tpy of new emissions in the City of Revere; and, 35,400 tpy of new emissions in the City of Boston). This scale of new emissions is large enough to cause an appreciable increase to city-wide emissions, counting emissions of all existing buildings in the cities' limits. The table below illustrates city-wide increase in emissions if this project is built to code with no mitigation.

City	City-wide emissions[2] (tpy)	New emissions – CODE[3] (tpy)	City-wide increase
Revere	224,000	23,600	10.5%
Boston	5,032,000	35,400	0.7%
Total New		**59,000**	

City-wide GHG Emissions - Built to Code

In summary, the project, unmitigated, will increase Revere's city-wide emissions by more than 10% and increase Boston's city-wide emissions by 0.7%.

Fortunately, a pathway exists that can **reduce new emissions by more than 50,000 tons per year** using readily-available efficiency and renewable strategies. City-wide GHG increase would be reduced to less than 0.1% for Revere and less than 2% for Boston.

City	City-wide emissions (tpy)	New emissions - MITIGATED (tpy)	City-wide increase
Revere	224,000	3,400	1.6%
Boston	5,032,000	5,200	0.1%
Total New		**8,700**	

City-wide GHG Emissions – with Mitigation

Pathway to more than 50,000 tpy less Emissions

Readily-available efficiency and renewable strategies can reduce emissions by more 50,000 tpy as follows:

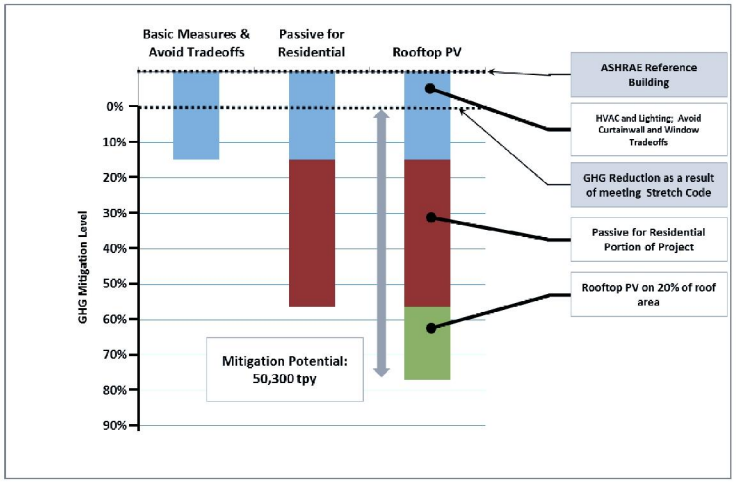
- Avoiding trade-offs caused by excessive windows and curtain wall construction while using commonly-used, basic HVAC and lighting improvements would reduce emissions by about 9,800 tpy. This would yield a Mitigation Level[4] of 15%;

[1] Both City of Boston and City of Revere are Green Communities, and thus "built to code" in this context means built to Stretch Code
[2] Source https://lead.mapc.org/cities
[3] Assigns 40% total new emission to Revere and 60% total emissions to Boston

- Using Passive design methods for the residential portion of the project would reduce emissions by another 27,000 tpy. In total, basic measures, avoiding tradeoffs, and passive residential together would yield a Mitigation Level of 56%;

- Addition of rooftop PV on 20% of the planned roof area would reduce emissions by another 13,500 tpy. In total, basic measures, avoiding tradeoffs, passive for residential, and PV together would yield a Mitigation Level of 77%.

Altogether, approximately 50,300 tpy of GHG mitigation would occur.



Basic Measures & Avoiding Envelope Trade-offs

Various routinely-used efficiency measures are available which provide effective mitigation. These measures include:

- Efficient heating equipment (condensing boilers and heat pumps)
- LED lighting
- dedicated outside air systems
- chilled beams
- heat recovery

[4] Mitigation Level is the percent GHG reduction beyond the reduction that would occur as a result of following code, including Stretch Code and other Massachusetts amendments. A Mitigation Level of 0% means no mitigation is proposed.

- Other equipment and system improvements.

As noted above, these basic measures would yield emissions reduction of about 10,000 tpy compared to the same buildings built to Stretch Code.

To preserve this emissions reduction, however, it is necessary to build the envelope as described by the code. Any relaxation of prescriptive code envelope results in **trading-off** the gains provided by HVAC and lighting improvements with the losses due to reduced envelope performance. Envelope performance is reduced by:

- Using more windows than prescriptively described by the code
- Using glass "curtain wall" assemblies, rather than the opaque wall assemblies described in the code

The thermal performance of windows and curtain walls is about **70 to 80% less** than the thermal performance of the opaque wall assemblies described in the code.

Accordingly, buildings which use any glass curtain wall construction and/or excessive windows have compromised envelope performance, compared to code building. This increases energy consumption and increases emissions. Other HVAC and lighting measures are required to compensate for this loss. The value of these measures, therefore, is not mitigation, but required to meet code. In short, the GHG mitigation value of these measures becomes neutralized.

Envelope tradeoffs also negatively effects resilience, swapping permanent, long lasting and durable asset (e.g. the envelope) for semi-permanent, shorter-life, less durable equipment and lighting.

In summary, envelope tradeoffs should be avoided to the extent possible. This will result in more durable construction and will avoiding neutralizing the positive gains delivered by basic HVAC and lighting improvements.

Passive Design

Passive design for the residential portion of the multifamily would result in an estimated 27,000 tpy less emissions and other benefits. Passive design uses an approach which minimizes heating and cooling demand (and thus energy use) by focusing on envelope, reducing air leakage, and optimizing heat recovery. Passive buildings use about 70 to 85% less energy than code buildings.

The Commonwealth of Massachusetts now allows two compliance pathways to accommodate Passive design methods when seeking building energy code compliance (see https://www.mass.gov/service-details/ninth-edition-of-the-ma-state-building-code.) In 2015, the United States Department of Energy (USDOE) and The National Renewable Energy Laboratory (NREL) released the Climate-Specific Passive Building Standards available here: https://www.nrel.gov/docs/fy15osti/64278.pdf. This climate-based approach (as opposed to "one size

fits all" passive design criteria used in the past) has resulted in a significant increase in adoption of passive design for large, multifamily projects.

Massachusetts code-recognized Passive design methods are available here: http://www.phius.org/home-page and http://www.passivehouse.com. Multifamily-specific information is available here: http://multifamily.phius.org/.

An extensive study conducted by New York State Energy Research and Development (NYSEDA) on the financial and architectural feasibility of Passive residential towers is available here: http://www.fxfowle.com/projects/182/feasibility-study-to-implement-the-passivhaus-standard-on-tall-residential-buildings/. See right for examples of Passive multifamily projects, including both low rise and high rise examples.

Second and Delaware Project – Passive Low Rise
http://multifamily.phius.org/case-study/second-and-delaware

Mott Haven Project – Passive High Rise
https://ny.curbed.com/2016/4/29/11540744/nyc-largest-passive-house-mott-haven-241-affordable-apartments

When evaluating Passive cost feasibility additional envelope costs (which typically increase) are netted against reduced HVAC costs (which typically decrease). The NYSERDA study above found a 2.5% net cost premium. In addition, any cost premium should be further netted against the following Commonwealth of Massachusetts-specific incentives:

- Alternative Energy Credits: Up to approximately $30M worth of AECs are potentially available for this project[5]. If the residential units use qualifying air source heat pumps for heating and cooling, the heating would be considered renewable heat eligible for Alternative Energy Credits. Additional bonuses and multipliers apply if the residential units are built to Passive standards. Further, if each unit uses its own independent heat pump smaller than 0.134 MMbtu/hr, the system would qualify as a "small" system and be eligible to receive 10 years' worth of AECs up front with no metering. (Rather than metered and paid over time.) See https://www.mass.gov/service-details/alternative-portfolio-standard-rulemaking

- Utility incentives: Although the utilities currently do not have an incentive program specific to Passive-built buildings, a Passive project may qualify for potentially significant savings via MassSave's *performance-based* incentive program: https://www.masssave.com/en/saving/residential-rebates/multi-family-high-rise-new-construction/

[5] Assumptions: 10,000 multifamily units built to passive standards; qualifying small-sized air source heat pump heating in each unit, alternative energy credit value of $20/AEC.

005-001

The utilities have expressed interest in Passive multifamily. We encourage the proponent to meet with the appropriate utility to discuss potential incentive level for the high performance enabled by Passive construction.

- Massachusetts Clean Energy Center (MCEC) has programs for heat pumps, as well which may be applicable. See http://www.masscec.com/business/clean-heating-and-cooling

Passive and City of Boston Goals: Resilience & Housing Affordability

In addition to greenhouse gas mitigation, Passive would also help advance the Boston's and Revere's goals for resilience and housing affordability:

- Resilience: Passive buildings require near-negligible active and heating and cooling, and thus perform well during power outages and extreme weather. In fact, residents of an existing Passive multifamily in South Boston report not having to turn on their heat through winter of 2016-2017.

- Affordability: Residents of a Passive designed building would experience up to 85% reduction in utility costs.

Rooftop Solar PV

Installation of solar PV on 20% of the roof area would result in an estimated 13,500 tpy less emissions. We anticipate a project of this nature with a mix of low-rise "podium" buildings and towers will enable diverse rooftop uses include: amenity spaces, HVAC spaces, and PV areas. Thoughtful advance planning would help make best use of each of these uses.

Of potential interest to the proponent is a new pathway for investing in PV through the upcoming SMART plan (http://www.mass.gov/eea/docs/doer/rps-aps/final-program-design-1-31-17.pdf). Using the cost input provided in the EENF, we estimate that PV on 20% of the roof would have an NPV of $28M.[6]

Under this plan, new options exist for owners of tenanted and "core and shell" buildings that allow the building owner to capture the value of PV independent of a building's tenants. Specifically, the Qualified Generator pathway allows the owner to sell the PV output directly to a utility with no tenant off-takers. This pathway helps solve the "split incentive" that otherwise can exist.

Phase I Office:

A detailed analysis of approximately 520,000-sf office was provided (the "Phase I" office). In summary, this portion of the project is planning significant HVAC improvements which will

[6] Appendix E of the EENF: $3.26/watt installed cost and 30% ITC. Additional assumptions: 20% marginal tax rate, MACRS 5-year depreciation schedule, and cost of money of 5%. Reported NPV is at year 20. Note that we use a SMART plan incentive of $0.19/kWhr compared to the EENF assumption of $0.23/kWhr as our analysis is using larger PV systems which receive less incentive;

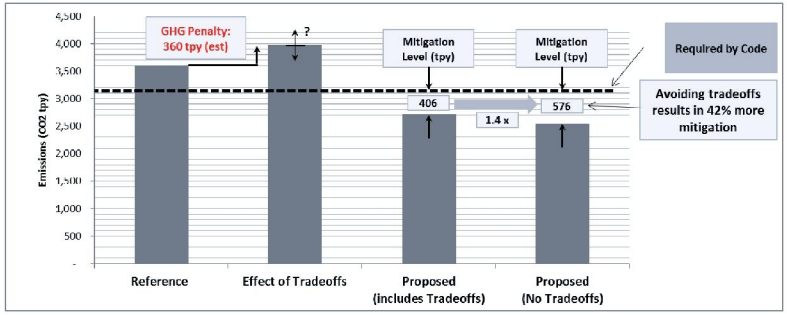
005-001

Refer to Chapter 7, *Greenhouse Gas Assessment.*

reduce GHG emissions. However, also proposed is curtain wall construction and significantly more window area than prescriptive code allows. As a result, 80% of the vertical envelope will have thermal performance 70 to 80% less than the thermal performance of a prescriptive Code wall. This reduced envelope performance neutralizes the benefits of some of the HVAC improvements.

Emissions reduction can be improved by **more than 40%** if the vertical envelope is built to code performance.

The plot below illustrates this effect: the left most bar is the emissions associated with a reference building starting point. Reduced vertical envelope performance results in a GHG penalty, illustrated with the higher second bar labeled "effect of tradeoffs" [7]. Numerous HVAC and other improvements are required to reverse this effect, and bring the build to code (in this case, Stretch Code). The currently proposed design (third bar) has a GHG mitigation of 406 tpy. If the vertical envelope is built to code with no tradeoffs, GHG mitigation would increase to 576 tpy, a more than 40% improvement.



005-002

In the above, the proponent is including roof insulation mitigation. (Code requires R-30, the proponent is proposing to improve that to R-40.) Modeling demonstrates that roof mitigation helps GHG reduction significantly for this building. We encourage the proponent to investigate R-50 roof as well as improved lowest level conditioned floor insulation. (The first two floors are un-conditioned parking levels and thus the floor of the third level is exposed to outside air temperatures.)

[7] The size of GHG penalty is estimated, the proponent is presently modeling the effect.

005-002

The Secretary of EEA granted the Phase 1 Waiver for the Phase 1 Project, which included a building energy performance improvement of R-50 roof insulation.

Recommendations for Future Submissions

Our recommendations for future submissions are as follows:

005-003

1. Passive design for the residential portions of the project should be thoroughly evaluated. This single measure would deliver the most impactful mitigation, delivering emissions reduction of 27,000 tpy.

   As part of Passive evaluations, we recommend that additional envelope costs be netted against reduced HVAC costs, as well as Alternative Energy Credits, utility benefits, MCEC grants, and other incentives. We recommended meeting with the utilities to discuss incentives, including incentives for the high performance enabled by Passive.

005-004

2. For the office, retail, hotel, and other uses, reduced envelope performance due to excessive windows and curtain walls should be avoided. Analyses demonstrate that avoiding tradeoffs can improve Mitigation Level by 40%.

005-005

3. If reductions in envelope performance are being contemplated, the GHG impact of such reductions should be quantified and the measures required to reverse impact should be classified as a "measure traded-off" and should not be classified as GHG mitigation.

005-006

4. Intra-envelope tradeoffs should be given higher priority over other tradeoffs. For example, to reverse GHG impacts due to reduced vertical wall performance, improved roof insulation should be prioritized over HVAC and lighting improvements. This helps ensure that traded off measures have similar durability and resiliency.

005-007

5. Rooftop PV should be thoroughly evaluated. Applied to 20% of the rooftop area, this measure would provide 13,500 tpy of GHG mitigation.

   Evaluations should include a thorough analysis of roof area and anticipated rooftop uses. Set asides for amenity space, rooftop HVAC space, etc should be estimated and cross referenced with anticipated shadowing. From that, PV set-aside areas can be developed. Incorporate a review of the requirements of the 9th edition of the building code which requires PV readiness in some circumstances.

   Financial evaluations should incorporate the benefit structure embodied in the solar SMART plan.

005-008

6. For the hotel and residential space, evaluate CHP.

005-009

7. Rather than providing scores of model results for the 50+ actual, planned buildings, we encourage the use, as this stage, of representative prototype models which can be easily modified to investigate various scenarios and mitigation choices.

8. In advance of the next submission, we recommend providing a summary of planned scenarios to be invested for DOER review, comment, and input.

005-003

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-004

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-005

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-006

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-007

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-008

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-009

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-010

9. Ensure that model results are provided which disaggregate consumption by both end use and energy input (e.g. fuel and electricity).

005-011

10. Continue to evaluate and take advantage of the effective HVAC and lighting strategies currently being proposed for the Phase I office (e.g. highly efficiency heating and cooling, dedicated outside air, chilled beams, heat recovery, improved lighting, and other measures).

We look forward to subsequent submissions and wish to recognize the efforts put forth by the team to date which have already helped advance evaluations.

Sincerely,

Paul F. Ormond, P.E.
Energy Efficiency Engineer
Massachusetts Department of Energy Resources

005-010

Refer to Chapter 7, *Greenhouse Gas Assessment.*

005-011

The EEA Secretary granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. Based on feedback from the DOER, the Proponent evaluated increasing roof insulation (to R-50), which resulted in additional energy usage reductions and stationary source GHG emissions benefits. In addition, building system improvements for the Phase 1 Project include:

- High efficiency condensing boilers ;
- Dedicated outside air system with energy recovery;
- Floor-by-floor VAV reheat units service active chilled beams;
- High efficiency air-cooled chiller plant with variable frequency drives; and
- LED lighting and lighting control systems.

Overall, the Phase 1 Project design is estimated to result in a 27% energy savings and 24% GHG emissions reductions compared to a conventional building design.

dcr
Massachusetts

January 19, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: Page Czepiga, MEPA Office
100 Cambridge Street, Suite 900
Boston, Massachusetts 02114

Re: EOEEA #15783 Suffolk Downs Redevelopment EENF

Dear Secretary Beaton:

The Department of Conservation and Recreation ("DCR" or "Department") is pleased to submit the following comments in response to the Expanded Environmental Notification Form ("EENF") submitted by The McClellan Highway Development Company LLC c/o HYM Investment Group LLC (the "Proponent") for the Suffolk Downs Redevelopment project (the "Project") in Revere and Boston.

The EENF describes a Master Plan for the Suffolk Downs facility, a 161-acre site located in Revere and Boston. The EENF provides two development options for the site. Program A would construct 8 million gross square feet of commercial space, 7,500 residential units, 550,000 square feet of retail space and 830 hotel rooms. Program B would construct 5.25 million square feet of office space, 10,000 residential units, 450,000 square feet of retail space, and 670 hotel rooms. The amount of commercial space in Program A was sized to respond to the request for responses from Amazon, Inc. for a second headquarters. The Proponent is seeking a Phase One Waiver to allow the Amazon Headquarters project to proceed without further MEPA review, should Boston be selected.

DCR has care, control, and custody over Revere Beach Parkway, a section of which would provide direct access to the northern part of the facility. DCR also has care, custody, and control over Belle Isle Reservation, a 162-acre property that contains salt marsh, wildlife habitat, and recreational pathways. A portion of the site includes Sales Creek that is located in the Rumney Marshes Area of Critical Environmental Concern ("ACEC"). The Project will require a Construction and Access permit for any proposed alterations to DCR roadways, and may require a Vehicular Access permit for construction vehicles.

As proposed, the Project involves activities within a 100-year floodplain as delineated on the current effective Flood Insurance Rate Map ("FIRM") for Suffolk County, dated March 16, 2016. DCR's Flood Hazard Management Program ("FHMP"), under agreement with the Federal Emergency Management Agency ("FEMA"), is the state coordinating agency for the NFIP. As such, the FHMP provides technical assistance to communities that participate in the NFIP related directly to the program and also related to floodplain management in general. Communities that participate in the NFIP are required by FEMA, as a condition of their participation, to regulate development within the 100-year floodplain in a manner that meets or exceeds the minimum standards established by FEMA, located at 44 CFR 60.3. Participating communities such as

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Karyn E. Polito, Lt. Governor
Matthew A. Beaton, Secretary, Executive Office of Energy & Environmental Affairs
Leo Roy, Commissioner, Department of Conservation & Recreation

Boston and Revere are required to adopt the NFIP requirements through locally enforceable measures. In Massachusetts, many of the requirements contained in 44 CFR 60.3 are enforced through existing state regulations such as the State Building Code (780 CMR) and Wetlands Protection Act regulations (310 CMR 10.00). Communities typically adopt the remainder of the requirements as part of a zoning ordinance or other locally enforceable measure. Boston and Revere both have zoning ordinances that include Floodplain District sections which have been accepted by FEMA as meeting their requirements under the NFIP.

DCR offers the following comments for the EIR scope, and for the portion of the Project that is seeking a Phase One Waiver.

Rumney Marshes ACEC

The Rumney Marshes ACEC, designated in 1988, comprises approximately 2,800 acres in the municipalities of Boston, Lynn, Revere, Saugus, and Winthrop. The area provides an expansive recreational and ecological sanctuary in an urban setting. The salt marshes and wetlands within the ACEC are critical to the surrounding human population in their capacity to prevent flood damage by providing flood water storage. The water bodies and wetlands of the Rumney Marshes ACEC are classified as Outstanding Resource Waters (ORW) in the Massachusetts Surface Water Quality Standards. Much of Rumney Marshes is publicly owned by DCR and the surrounding municipalities. However, the area and the flood protection functions it provides to the surrounding communities are threatened by development along the entire length of its perimeter. In its DEIR, DCR requests the Proponent demonstrate how the Project design will avoid degradation and enhance ACEC resources, and comply with regulatory standards. The Proponent should consider the feasibility of daylighting a portion of Sales Creek to improve water quality and wildlife habitat, while enhancing flood control capacity.

006-001

Transportation

The EENF states that for the Transportation Impact Assessment, eight intersections that affect DCR roadways will be evaluated:

- Winthrop Avenue at Route 1A SB Ramp
- Route 16 at Garfield Avenue/Webster Avenue
- Route 1/Route 16 interchange
- Winthrop Avenue at Revere Beach Parkway/Harris Street
- Winthrop Avenue at North Shore Road
- Winthrop Avenue at Suffolk Downs/Tomasello Way
- Ocean Avenue at State Road/Revere Beach Parkway
- Eliot Circle

Three of these intersections (Winthrop Avenue at Revere Beach Parkway/Harris Street, Winthrop Avenue at North Shore Road, and Route 16 at Garfield Avenue/Webster Avenue), would be subject to a Roadway Safety Audit ("RSA").

In its Phase One traffic assessment, the Proponent included five DCR intersections in its traffic impact assessment. Table 5-14 of the EENF shows the intersection capacity analysis of these intersections. The analysis shows an improvement in Level of Service between the 2017 present conditions and the 2024 No-Build condition at two intersections: Winthrop Avenue at North Shore Road and Winthrop Avenue at Suffolk Downs/Tomasello Way. These improvements were assumed to occur based on proposed mitigation at these intersections by a nearby development project (MEPA #15411 205 Revere Beach Parkway). DCR notes that the improvements for the 205 Revere Beach Parkway project at the North

006-002

006-001

Refer to Chapter 5, *Wetlands and Waterways.*

006-002

Refer to Chapter 6, *Transportation.*

006-002 Shore Road intersection relate to pedestrian improvements and do not improve traffic operation. In its EIR, DCR requests that the Proponent provide an update on the improvements at these intersections and indicate how these improvements were incorporated into their traffic capacity analysis. DCR also

006-003 requests that the Proponent identify alternatives to improve level of service at the Winthrop Avenue / Tomasello Way intersection, as the benefits of the Phase One mitigation seem limited at this location.

006-004 DCR requests that, as part of its Transportation Demand Management ("TDM") Program for Phase One, the Proponent consider monitoring the effectiveness of its TDM program on an ongoing basis. DCR also

006-005 requests the EIR include a construction management plan that includes proposed routes of construction equipment, the anticipated weights of such equipment, and the number of trips.

Recreational Connectivity

006-006 DCR's Belle Isle Reservation is located across from Bennington Street and the MBTA Blue Line from the proposed Project site. As part of its DEIR, DCR requests the Proponent evaluate the feasibility of provide safe and convenient access from the proposed Central Common across Bennington Street and the MBTA Blue Line to the Belle Isle Reservation trails.

Sales Creek

006-007 The Commonwealth of Massachusetts, under the care and control of DCR, holds easements on the Project site, obtained from Suffolk Downs in 1980, related to the inspection and maintenance of three culverts. The Commonwealth also holds slope and vegetation easements for flood control purposes on the property site as well. Sales Creek ultimately flows through the three culverts, below the MBTA Blue Line to Bennington Street, where a pump station is operated by DCR. Tide gates are operated by DCR that prevent tidal backflows into Sales Creek.

As part of the EIR, DCR requests that the Proponent include a map that shows the extent of these easements, as shown on their development plan, to confirm these easements are not located in areas proposed for development. DCR also requests the Proponent conduct a thorough analysis in its DEIR on

006-008 methods to provide adequate compensatory flood storage for any proposed fill.

Flood Hazard Management

In our role as NFIP coordinator, DCR's FHMP offers comments on the proposed Project's relationship to many of the above regulations and requirements. The FHMP does not directly administer any of these requirements and therefore does not provide official determinations as to compliance with them; rather, our comments are provided as an overview of the requirements and the documentation necessary to demonstrate compliance with these requirements.

The Project includes construction of several commercial and mixed-use structures, some with underground parking. Based on information submitted with the EENF, the proposed structures are within the 100-year floodplain, mostly zone AE with a base flood elevation of 10 feet above North American Vertical Datum ("NAVD") and zone AE with a base flood elevation of 11 NAVD. The Massachusetts State Building Code (780 CMR) Ninth Edition, includes specific standards for structures newly constructed or substantially improved in the floodplain.

Typically, basements (enclosed areas below grade on all sides) are not permitted within the floodplain, except for nonresidential structures and only within A zones. For nonresidential structures they can only be allowed if they are "designed so that below the base flood level the structure is watertight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting

006-003

Refer to Chapter 6, *Transportation.*

006-004

The Proponent will monitor the effectiveness of its TDM program. The frequency/schedule and components of the monitoring program will be more clearly defined as part of its Transportation Access Plan Agreement (TAPA) with the City of Boston, and other mitigation agreements to be codified with the City of Revere, the DCR and MassDOT.

006-005

Refer to Chapter 9, *Environmental Protection.*

006-006

Refer to Chapter 6, *Transportation.*

006-007

Refer to Chapter 10, *Infrastructure.*

006-008

Refer to Chapter 10, *Infrastructure.*

hydrostatic and hydrodynamic loads and the effects of buoyancy." (See 44 CFR 60.3 (c) (3), and also State Building Code, Section 1612 and ASCE 24-14, Section 6.2.) They may also be permitted for engineered mixed-use structures where below the base flood elevation the use is strictly nonresidential. In order to ensure compliance with these standards, a registered professional engineer or architect must certify on construction plans that these specific requirements of the State Building Code are met. These plans must be submitted to the local building department prior to issuance of a building permit. This is important in order to prevent structural and environmental damage from future flooding. Additionally, guidance on floodproofing requirements may be found in FEMA Technical Bulletins 3-93, Non-Residential Floodproofing - Requirements and Certification, and 6-93, Below-Grade Parking Requirements.

006-009

006-010

The FHMP also notes that projects within the 100-year floodplain which involve any federal action must comply with federal Executive Order 11988, Floodplain Management. This executive order requires an eight-step decision-making process which includes analyses of alternatives, avoiding impacts when possible, and minimizing impacts when avoidance is not possible. Because the Project requires a NPDES permit, E.O. 11988 is applicable.

006-011

DCR requests that as the proposed Project continues through the EIR process, the Proponent keep in mind expected climate change / sea level rise impacts, and make design decisions to both ensure resiliency and avoid exacerbating flooding to neighboring properties.

As a steward of the Commonwealth's natural resources, and in light of anticipated climate change impacts, DCR questions the advisability of constructing the full Project buildout within the 100-year floodplain.

Thank you for the opportunity to comment on the EENF. If you have questions related to our comments, please contact Nat Tipton, DCR's MEPA Review Coordinator at (617) 626-1341 or nathaniel.tipton@state.ma.us. If you have questions regarding DCR's flood control efforts in this area, please contact William Gode at (617) 727-0488 or William.gode@state.ma.us. If you have any questions regarding our comments regarding flood hazard management, please contact Eric Carlson at (617) 626-1362 or eric.carlson@state.ma.us. If you have questions related to transportation, please contact Val Soroka at (617) 626-4942 or val.soroka@state.ma.us.

Sincerely,

Leo Roy
Commissioner

cc: Eric Carlson, William Gode, Norm Orrall, Val Soroka (DCR)

006-009

Comment noted.

006-010

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

006-011

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

Massachusetts Port Authority
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January 19, 2018

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office
Page Czepiga, EEA No. 15783
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: **Suffolk Downs Redevelopment/EEA 15783, Boston and Revere, MA**
Expanded Environmental Notification Form/Phase I Waiver Request

Dear Secretary Beaton and Director Buckley:

On behalf of the Massachusetts Port Authority (Massport), I am submitting comments on the *Expanded Environmental Notification Form (EENF)* submitted by HYM Investment Group/McClellan Highway Development Company for redevelopment of the 161-acre Suffolk Downs site in East Boston and Revere. Due to the magnitude of the project and range of issues, the project is required to prepare a full EIR under MEPA. The EENF seeks a Phase I Waiver to allow the initial construction phase to advance based on the EENF analyses, with future phases subject to full MEPA review. The initial project phase will include a 520,000 square foot office building with ground floor retail within the City of Boston. The stated intent of the waiver request is to allow this first building to be constructed by 2019 should Amazon select this site for an East Coast headquarters. HYM is also seeking local zoning relief as to height limitations for Phase 1, though as stated in the EENF, they intend to fully comply with Federal Aviation Administration (FAA) airspace restrictions.

The phased project development includes approximately 11 million square feet (MSF) of development on the approximately 109 acres in the City of Boston, including a mixed-use neighborhood, a 40-acre publicly accessible open space system, and two retail squares at the Suffolk Downs and Beachmont Blue Line stations. Approximately 5.5 MSF is planned for the 52-acre portion of the site in Revere, including a similar mix of uses. The Master Plan Project is expected to be developed in stages over a range of approximately 15 to 20 years depending on market conditions.

As owner and operator of Boston Logan International Airport and as a property owner of parcels along Route 1A directly abutting the proposed redevelopment site, Massport is keenly interested in any potential development proposed for Suffolk Downs and the impacts on present and future traffic and congestion on the roadways. As proposed, this project has the potential to create significant employment opportunities, economic activity and tax revenue and to be a major asset to the city and the neighborhood. Massport fully supports efforts to secure Amazon's 2nd headquarters in Boston.

Massport's principal interest related to this site and the proposed development are focused on the continued safe and efficient operation of Logan Airport with a high level of customer service and effective ground access. To be successful for everyone, the Suffolk Downs development must be integrated into other area activities and economic generators, and be designed to be an overall benefit to

the region and to minimize any potential negative impacts. As outlined below, our comments focus on (1) project-related transportation/traffic impacts, (2) building heights, and (3) potential overflight impacts from site lighting/glare.

Transportation/Traffic

The EENF indicates that with either development alternative the proposed project would add more than 30,000 adjusted trips per day to the roadway network. Due to the location of the Suffolk Downs site on Route 1A, this scale of development has the potential to impact traffic congestion both locally and on this important connection to Logan Airport. We look forward to more information in the DEIR on the transportation and traffic impacts on both roadway and transit infrastructure and how this development can contribute to transportation solutions. Below is a list of transportation related issues of most importance to Massport:

Gateway Tunnel Access

007-001 The three harbor tunnels (Ted Williams, Callahan, and Sumner) and the project's impacts on their operations during existing and future conditions will be of great interest to Massport. Currently all three tunnels suffer from traffic congestion/capacity issues during the AM and PM peaks. The trip generation, site access mode split (with an emphasis on transit access), and the future assigned traffic increase will need to be detailed so that Massport and other agencies and the public can adequately comment on the impact of the development on Logan Airport ground access and overall regional traffic flow.

007-002 Massport would further recommend that the proponent undertake a feasibility study in order to investigate Route 1A northbound improvements through the East Boston corridor to reduce future traffic impacts. The feasibility studies should be conducted as part of the DEIR analysis and the results of the study will help to quantify the development's impact on operations directly surrounding Logan Airport.

Boardman St/Route 1A Intersection

007-003 This intersection is a key node for passengers and employees from north shore communities who are accessing the airport and points south. In light of this, for many years a state police detail has been needed to help manage traffic at this intersection when necessary. Previous development proposals for the Suffolk Downs site have proposed a partial flyover at this location to address the anticipated traffic generated by the project; we understand that MassDOT will be reviewing the proposed traffic operations at Boardman Street and must approve the final design. A flyover could potentially result in improved operations and reduced traffic at this intersection.

Study Area, Trip Generation, and Mode Share

007-004 Massport looks forward to additional information on the estimated trip generation of the proposed development. Detailed information on the access modes for the site (employees, residents and visitors) and transportation management program elements will be helpful for Massport to fully evaluate the project's likely traffic impacts. Considering the transit access to the

007-005 site via two MBTA Blue Line Stations (Suffolk Downs and Beachmont) we hope that special attention is paid to transit to help alleviate the added pressure on the roadways.

007-001

Refer to Chapter 6, *Transportation.*

007-002

Refer to Chapter 6, *Transportation.*

007-003

Refer to Chapter 6, *Transportation.*

007-004

Refer to Chapter 6, *Transportation.*

007-005

The proposed Project is designed to apply transit-oriented development (TOD) principles, including integration of the two existing adjacent MBTA Blue Line stations, other transit opportunities, and alternative travel modes. Please refer to Chapter 6, *Transportation,* for more details.

Building Heights. At its closest point, the project site is located approximately 1 mile from the end of Runway 22R at Logan Airport. As illustrated on EENF Figure 2.9 Building Height Strategy, the maximum proposed building heights range from 50 feet to 220 feet. The EENF states that "*The proposed heights of all future buildings will be in compliance with the height requirements of the Federal Aviation Administration associated with Boston-Logan International Airport*". In order for all proposed structures to remain below the airport surfaces as depicted in the *Logan Airport Composite Map of Critical Airspace Surfaces* ("Composite Map" copy attached), the building location must be consistent with the map surfaces, heights must reflect mean seal level and the tallest point of the structure (e.g. mechanical and or architectural top of structure features). Also attached is an overlay of the *Composite Map* and the EENF's Building Height Strategy figure, which indicates that the allowable maximum building heights range from 120 feet above mean sea level (AMSL) to 220 feet AMSL.

007-006

As development plans advance, the Proponent will be required to file 7460 *Notice of Proposed Construction or Alteration* forms with the Federal Aviation Administration (FAA). The Proponent's filing with the FAA should reflect the heights as provided by the *Composite Map*. Massport encourages that this process begins as early as possible; note that separate forms have to be filed for the individual buildings and the associated construction cranes. Massport would be pleased work with the Proponent during the design process and during construction to minimize the impact of the cranes on Logan airspace.

Solar Technologies and Glare. Because the site is located close to Logan Airport and under an arrival flight corridor, extensive exterior lighting, glass facades, significant solar panel arrays, or other architectural features have the potential to be hazards to safe air navigation. The DEIR will need to evaluate these potential impacts to the extent they are being considered for the proposed buildings. Massport would be pleased to work with the Proponent on selecting appropriate points of study. We also encourage the project team to review FAA's *Technical Guidance for Evaluating Selected Solar Technologies on Airports* (Nov. 2010) as they advance building design.

007-007

Thank you for the opportunity to comment on the EENF, we look forward to reviewing the Draft EIR when it becomes available. Feel free to contact me if you have any questions.

Sincerely,

Massachusetts Port Authority

Gordon M. Carr
Deputy Director
Strategic & Business Planning

Attachments

cc: J. Doolin, S. Dalzell, F. Leo, H. Morrison, C. McDonald, L. Becker
MassDOT/Highway and Aeronautics (Attn: Dr. Jeff DeCarlo, David Mohler, Lionel Lucien)
City of Boston (Attn: David Sweeney)
Boston Planning & Development Agency (Attn: Brian Golden)

007-006

Refer to Chapter 2, *Regulatory Context and General Information.*

007-007

Chapter 7, *Greenhouse Gas Emissions Assessment*, includes an evaluation of rooftop solar PV systems to determine the potential for additional energy savings and stationary source GHG emissions benefits beyond building design measures, as required by the MEPA GHG Policy and Protocol. Lighting and solar reflectance of exterior building materials will be studied as the design for individual development phases and/or buildings is advanced under future design review. The Proponent is committed to coordinating and reviewing these design details with Massport at that time to ensure compliance with FAA guidance.

MASSACHUSETTS WATER RESOURCES AUTHORITY
Charlestown Navy Yard
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Boston, MA 02129

Frederick A. Laskey
Executive Director

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January 19, 2018

Matthew A. Beaton, Secretary
Executive Office of Energy and Environmental Affairs
100 Cambridge St, Suite 900
Attn: MEPA Office, Page Czepiga
Boston, MA 02114

Subject: EOEEA #15783– Expanded Environmental Notification Form
Suffolk Downs Redevelopment, Boston and Revere, MA

Dear Secretary Beaton:

The Massachusetts Water Resources Authority (MWRA) appreciates the opportunity to comment on the Expanded Environmental Notification Form (EENF) submitted by McClellan Highway Development Company, LLC (the "Proponent"), an affiliate of HYM Investment Group, LLC for the Suffolk Downs Redevelopment (the "Project"). The Project involves the construction of a new transit-oriented mixed-use community at the former Suffolk Downs horse racing facility (the "Master Plan Project") within the neighborhood of East Boston and the City of Revere. The full-build Master Plan Project consists of approximately 11 million square feet ("MSF") of development in Boston and approximately 5.5 MSF in Revere, within many buildings to be constructed individually or in development phases over a 15- to 20- year period.

The Project Site has been identified by the City of Boston and the City of Revere as a suitable potential location for Amazon's second corporate headquarters, and the Master Plan Project includes an initial development phase ("Phase I") which is responsive to the requirement in Amazon's Request for Proposals that a portion of its needed space be available for occupation by the end of 2019. Phase I includes an approximately 520,000-square foot office building with ground floor supporting retail and 520 structured parking spaces, along with related infrastructure and open space improvements, all within the southeastern corner of the Project Site near the Suffolk Downs MBTA Blue Line Station.

MWRA comments focus on issues related to wastewater flows and the need for Infiltration and Inflow ("I/I") removal, discharge permitting from the Toxic Reduction and Control (TRAC) Department, and Section 8 (m) Permitting from the Water and Wastewater Operations Departments.

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Wastewater

Phase I

The EENF reports that Phase I will generate a wastewater flow of approximately 39,000 gallons per day (gpd), which the Proponent reports is an increase of 12,000 gpd over the estimated existing wastewater flow of 27,000 gpd generated within the Phase I site. The EENF also reports that the Phase I wastewater flows will be directed to an existing 24-inch Boston Water and Sewer Commission (BWSC) sanitary sewer near the Suffolk Downs MBTA Blue Line Station on Walley Street. The 24-inch BWSC sanitary sewer appears to connect to a series of BWSC sanitary sewers that convey flows to BWSC's East Boston Low Level Sewer, which collects wastewater from lower elevation neighborhoods as it passes through East Boston to MWRA's Caruso Pumping Station, which lifts the flows into MWRA's North Metropolitan Trunk Sewer for conveyance to the Deer Island wastewater treatment plant.

The East Boston Low Level Sewer is subject to surcharging in large storms due to existing high volumes of (I/I). In addition, MWRA's Caruso Pumping Station also handles wastewater from the large central area of East Boston bounded by Logan Airport and Boston Inner Harbor. Much of this central area is served by BWSC combined sewers that contribute large volumes of stormwater to the Caruso Pumping Station in wet weather, and there are several combined sewer overflow (CSO) outfalls along the edges of Boston Harbor and the Chelsea Creek that provide hydraulic relief to the system and protection of neighborhoods in large storms. To ensure that the Project's new wastewater flow does not increase surcharging of the East Boston Low Level Sewer or CSO discharges in large storms, the Proponent should work with BWSC to develop a plan for ensuring an offset of the Phase I flows by removing I/I from the BWSC subsystem that serves the Suffolk Downs property.

008a-001

Master Plan Project

The EENF reports that the Master Plan Project at full-build (considering alternative Program B, which has the greater density and wastewater generation) will generate wastewater flow of approximately 2,476,000 gpd, which the Proponent reports is an increase of 2,299,000 gpd over the estimated existing wastewater generation of 177,000 gpd. The EENF also reports that coordination with applicable agencies will be undertaken as the Master Plan Project is advanced. The EENF reports that continued coordination with BWSC and the Revere Water and Sewer Division will occur as the Master Plan Project is advanced, in part to evaluate the hydraulic capacities of the existing collection systems. Capacity evaluations should be presented in a Draft Environmental Impact Report (DEIR) and should consider the potential for wet weather surcharging and overflows from the East Boston Low Level Sewer and the potential impact to CSO discharges in the central area of East Boston.

008a-002

The EENF reports that the Master Plan Project will include I/I mitigation at a minimum removal ratio of 4:1 (four gallons of I/I removal for every gallon of new wastewater flow) in Boston and 10:1 in Revere for each gallon of new wastewater flow. Massachusetts Department of Environmental Protection regulations require a minimum 4:1 I/I removal. The Proponent anticipates funding or undertaking I/I mitigation projects as the Master Plan Project advances.

008a-001

Refer to Chapter 10, *Infrastructure.*

008a-002

Refer to Chapter 10, *Infrastructure.*

008a-003 For the flow offset to effectively mitigate the potential system impacts, I/I should be removed from hydraulically related sewer subsystems serving the same areas of East Boston and Revere. The Proponent should describe the approach to wastewater flow mitigation in more detail in a DEIR.

TRAC Discharge Permitting

008a-004 The MWRA prohibits the discharge of groundwater to the sanitary sewer system, pursuant to 360 C.M.R. 10.023(1) except in a combined sewer area when permitted by MWRA and the local municipalities. The Project site has access to a storm drain; therefore, the discharge of groundwater to the sanitary sewer system associated with this Project is prohibited. The Project Proponent will need to secure a USEPA-NPDES General Permit for Storm Water Discharges associated with this Project.

If a laboratory or a commercial company will be part of the future project, and if they intend to discharge laboratory or industrial wastewater to the MWRA sanitary sewer system, it must apply for an MWRA Sewer Use Discharge Permit. For assistance in obtaining this permit, the Proponent should contact Mr. Ken Cunningham, Industrial Coordinator in the TRAC Department at (617) 305-5623. The Proponent is required to have an MWRA Sewer Use Discharge Permit prior to discharging any industrial or laboratory wastewater into the MWRA sanitary sewer system.

Once the hotel is completed on the site, and if the hotel intends to operate a laundry on the premises, an MWRA Sewer Use Discharge Permit is required for the discharge of laundry effluent into the sanitary sewer system. For assistance in obtaining this permit, the Proponent should contact Mr. Cunningham at the number mentioned above. This permit must also be issued prior to discharging any laundry effluent into the MWRA sanitary sewer system.

The Proponent must also comply with 360 C.M.R. 10.016, if it intends to install gas/oil separator(s) in the structured parking garages proposed for site. In addition to complying with 360 C.M.R. 10.000, the Proponent must conform to the regulations of the Board of State Examiners of Plumbers and Gas Fitters, 248 C.M.R. 2.00 (State Plumbing Code), and all other applicable laws. The installation of proposed gas/oil separator(s) will require MWRA approval and may not be back filled until inspected and approved by the MWRA and the Local Plumbing Inspector. For assistance in obtaining an inspection for each structured parking facility, the Proponent of each facility should contact Mr. Stephen Howard, Source Coordinator in the TRAC Department at (617) 305-5675.

Section 8 (m) Permitting

008a-005 Section 8 (m) of Chapter 372 of the Acts of 1984, MWRA's Enabling Legislation, enables the MWRA to issue permits to build, construct, excavate, or cross within or near an easement or other property interest held by the MWRA, with the goal of protecting Authority-owned infrastructure. The City of Revere has an existing MWRA Section 8(m) permit in support of the Suffolk Downs project, however, it appears that the existing permit will need to be amended to broaden the Scope of Work needed for full build-out. The City of Revere is

008a-003

Refer to Chapter 10, *Infrastructure.*

008a-004

Refer to Chapter 10, *Infrastructure.*

008a-005

Refer to Chapter 10, *Infrastructure.*

008b-005 | coordinating with the City of Boston on this project. MWRA encourages the Proponent to continue to work with Mr. Ralph Francesconi in the Water Operations Permitting Group at (617) 350-5827 and Kevin McKenna in the Wastewater Operations Permitting Group at (617) 305 – 5956. If you have any questions or need additional information, please do not hesitate to contact me at (617) 788-1165.

Sincerely,

Marianne Connolly
Senior Program Manager
Environmental Review and Compliance

cc: Solomon Wondimu, MWRA E&C
David Kubiak, MWRA E&C
Ralph Francesconi, MWRA Water Permitting
Kevin McKenna, MWRA Wastewater Permitting
Kattia Thomas, TRAC
Adam Horst, BWSC
Frank Stringi, City Planner, Revere

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008b-005

Comment noted.

Division of Marine Fisheries
251 Causeway Street, Suite 400
Boston, Massachusetts 02114
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fax (617)626-1509

David E. Pierce, Ph.D.
Director

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Karyn E. Polito
Lieutenant Governor
Matthew A. Beaton
Secretary
Ronald Amidon
Commissioner
Mary-Lee King
Deputy Commissioner

January 19, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs (EEA)
Attn: MEPA Office, Page Czepiga
100 Cambridge Street, Suite 900
Boston MA 02114

Re: Suffolk Downs Redevelopment, EEA#15783

Dear Secretary Beaton:

The Division of Marine Fisheries (MA DMF) has reviewed the Expanded Environmental Notification Form submitted by HYM Investment. The proposal is to redevelop the Suffolk Downs site in East Boston and Revere, MA to include residential, retail, office, lab, hotel, parking, open space and other uses. New developments will include approximately 45 to 49 acres of new building footprint, and permanent impacts to 3.5 million square feet of Land Subject to Coastal Storm Flowage. The site has been previously heavily disturbed.

The project is located on filled tidelands between Belle Isle Inlet and Chelsea River. A portion of the Rumney Marshes Area of Critical Environmental Concern (ACEC) extends into the Suffolk Downs site along Sales Creek, which crosses the site and connects with the Chelsea River. The adjacent Belle Isle Inlet contains soft shell clam (*Mya arenaria*) and blue mussel (*Mytilus edulis*) resources and is within the GBH5.12 shellfish growing area, which is currently prohibited for shellfish harvest. The inlet is also potential habitat for winter flounder (*Pseudopleuronectes americanus)* spawning and juvenile development, is utilized for forage and shelter by juvenile striped bass (*Morone saxatilis*) and tomcod (*Microgadus tomcod),* and is a migratory pathway for rainbow smelt (*Osmerus mordax*) and American eel (*Anguilla rostrata*).

The project would result in the improvement to the stormwater management systems and therefore the water quality entering Boston Harbor, as compared to existing conditions. The application indicates that a mix of LID and conventional stormwater management techniques will be used to provide water quality treatment. MA DMF recommends that the proponent make every effort to treat stormwater using the best available stormwater management techniques, specifically designed to treat the pollutants and sediments at the site. Biofiltration swales, green roofs and rain gardens, should be explored as possible ways to improve infiltration and flood control as well as filtration and pollution attenuation. Finally, Sales Creek and the Rumney Marsh ACEC should be protected from further degradation. Therefore, we recommend that the applicant explore ways to improve the ecological function of Sales Creek, such as improvements to the tidal restriction to allow tidal inundation into the wetlands on the project site, additional daylighting, bank improvements, or other mitigating measures.

009-001

009-002

009-001

Refer to Chapter 10, *Infrastructure.*

009-002

Refer to Chapter 5, *Wetlands and Waterways.*

Thank you for addressing our comments. Please contact Jill Carr of my staff at 978-282-0308 x. 108 if you have any questions about our review.

Sincerely,

David E. Pierce, PhD
Director

DP/jc/sd

cc:
Ed Reiner EPA
Lisa Engler CZM

The Commonwealth of Massachusetts
William Francis Galvin, Secretary of the Commonwealth
Massachusetts Historical Commission

January 18, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street
Boston, MA 02114

ATTN: Page Czepiga, MEPA Office

RE: Suffolk Downs Redevelopment, 525 McClellan Highway, Boston (East Boston) and Revere, MA; MHC# RC.63586; **EEA# 15783**

Dear Secretary Beaton:

Staff of the Massachusetts Historical Commission (MHC) have received the Expanded Environmental Notification Form (EENF) submitted for the above referenced project. After review of the information submitted, MHC staff have the following comments.

The proposed project, referred to as the 'Master Plan Project' in the submission, consists of the development and construction of a new neighborhood with a mix of uses (including residential, retail, office, lab, hotel, parking and other uses) with new roadways and open space configuration. The Master Plan Project is to be implemented over a period of 15-20 years. Phase 1, of the Master Plan Project, consists of the construction of two approximately 260,000-gross square foot office buildings with supporting corporate uses, a structured parking garage, and site improvements. The proposed project includes demolition of all of the existing structures on the Suffolk Downs site. Phase 1 of the project will require the demolition of a portion of the Racetrack.

The Suffolk Downs Complex (BOS.ABQ/REV.J), including the Clubhouse (BOS.209), Grandstand (BOS.16592), Administration Building (BOS.16593), Racetrack (BOS.9754/REV.968), Pony Barn (REV.87), Stables (REV.86), Pumphouse (REV.969), and Maintenance Building (REV.88), is included in the MHC's *Inventory of Historic and Archaeological Assets of the Commonwealth*. It is the opinion of the staff of the MHC that the Suffolk Downs Complex meets the criteria of eligibility for listing in the State and National Registers of Historic Places under Criteria A and C at the local and state levels of significance (36 CFR 60). Suffolk Downs is the earliest thoroughbred racing track in Massachusetts, and the last surviving of at least eight that opened, and closed, from the late 1930s into the late 20th century. It opened in July 1935, shortly after the creation of the State Racing Commission and the legalization of pari-mutuel wagering in Massachusetts. Suffolk Downs continues in operation exclusively for thoroughbred racing, the only one of its type surviving in the state. Most of the original buildings and structures associated with the racetrack's operation survive, including the Administration Building, the Art Deco-style Clubhouse, the Grandstand, which also displays elements of the Art Deco style, several horse barns, the curved Pony Barn, and the mile-long racetrack, all constructed in 1935. Between 1962 and 1965, a substantial International Style addition was erected between the clubhouse and the grandstand; a half-mile harness racing track and a 14-stall paddock, both added in the same time period, also survive. Portions of the original track's landscaped setting remain, including the entrance court on the west side of the clubhouse.

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The project site, Suffolk Downs Complex, is located adjacent to a portion of the Revere Beach Parkway (REV.H), which is listed in the State and National Registers of Historic Places.

The MHC has determined that the proposed demolition and new construction will have an "adverse effect" (950 CMR 71.05(a) & 950 CMR 71.05(c)) on the historic Suffolk Downs through the demolition of all or part of the property and the introduction of visual elements that are out of character with and will alter the setting of the property.

It is unclear at this time if the build out of the project will require modifications to the Revere Beach Parkway in the future, as the Master Plan Project is projected to take 15-20 years.

010-001 Only the "no build" alternative in the EENF considers the retention of historic structures on the site. Pursuant to 950 CMR 71.07(3), the MHC looks forward to receiving information on additional alternatives that would eliminate or minimize the impacts to historic structures. For instance, buildings such as the Clubhouse and Administration Buildings among others should be evaluated for adaptive reuse.

010-002 The MHC recommends that the scope of the EIR for the project include a description and assessment of potential impacts to Revere Beach Parkway.

These comments are offered to assist in compliance with Section 106 of the National Historic Preservation Act of 1966 (36 CFR 800), M.G.L. Chapter 9, sections 26-27C (950 CMR 71.00), and MEPA (301 CMR 11). Please do not hesitate to contact Elizabeth Sherva of my staff if you have any questions.

Sincerely,

Brona Simon

Brona Simon
State Historic Preservation Officer
Executive Director
Massachusetts Historical Commission

xc: Thomas N. O'Brien, The McClellan Highway Development Company, LLC c/o HYM Investment Group, LLC
Lauren DeVoe, VHB
Patrice Kish, DCR
MassDOT District 6
Marianne Connolly, MWRA
Boston Landmarks Commission

010-001

Refer to Chapter 11, *Historic Resources.*

010-002

Refer to Chapter 11, *Historic Resources.*

Czepiga, Page (EEA)

From: Robert O'Brien <robrien@revere.org>
Sent: Friday, January 19, 2018 7:37 AM
To: Czepiga, Page (EEA)
Cc: Brian Arrigo
Subject: 01 19 18 city of revere comments on 11 30 17 eenf filing for suffolk downs development.pdf
Attachments: 01 19 18 city of revere comments on 11 30 17 eenf filing for suffolk downs development.pdf; ATT00001..htm

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CITY OF REVERE COMMENTS RE: THE 11.30.17 EENF FILING ON THE REDEVELOPMENT OF SUFFOLK DOWNS IN REVERE AND EAST BOSTON

What follows are the initial comments of the City of Revere regarding the Expanded Environmental Notification Form (EENF) filed on November 30, 2014 by HYM Investment Group for the proposed Suffolk Downs Redevelopment. As noted in the HYM cover letter to EOEEA Secretary Beaton, this document represents only the first step in agency and public review of this major project, which is expected to take 15 to 20 years to be completed. In that context, we expect these comments to be just the beginning of a continuing and increasingly detailed dialogue with HYM, with the City of Boston and with MEPA and other regulatory authorities as this project is further refined and ultimately implemented over time.

GENERAL PRINCIPLES: We would begin by stating a few basic principles that are worth noting at the outset:

Fundamental Support for the Proposed Redevelopment of Suffolk Downs: Approximately 52 acres of 161-acre Suffolk Downs property are located within the City of Revere; and for most of the 20th Century, thoroughbred horse racing at Suffolk Downs in the afternoon and greyhound dog racing at Wonderland in the evening represented an important element of the economic and social life of the Revere community. And in response to the gradual but significant decline of Suffolk Downs by the turn of the century, the City of Revere has been proactive in its support for redevelopment strategies that would restore its social vitality and economic potential. That effort was given new impetus by the 2011 legalization of casino gambling in the Commonwealth, which resulted in two separate efforts by Sterling Suffolk Racecourse in collaboration with the City of Revere to compete for the Boston-area casino license, one with the City of Boston and another independently. In both cases, it was Revere's expectation that a casino license would also revitalize the Suffolk Downs racing operation, thereby maintaining and expanding the 800 local jobs that it still represented. Those pursuits ultimately proved unsuccessful when the Massachusetts Gaming Commission announced in 2014 that the license had been awarded to Wynn Resorts in Everett.

Since then, the City of Revere has been actively exploring and encouraging other more diversified and sustainable development possibilities for Suffolk Downs; and the mixed-use development strategy outlined in this EENF meets those essential criteria. That conviction is widely shared among the Mayor and the members of the Revere City Council and within the Revere community as a whole. While much work remains to be done for the vision outlined in this document to be fully and finally realized, there is no doubt that this vision is an excellent way to begin that process.

Commendation for the HYM Development Team: As Sterling Suffolk Racecourse considered its options after the failure of its casino bid, the City of Revere became aware of the possible interest of HYM Investment Group in the purchase and redevelopment of the Suffolk Downs property; and we very much encouraged that prospect. We were well aware of HYM's professional reputation and their many development accomplishments at North Point in Cambridge and at Boston Landing, Bulfinch Crossing and Waterside Place in Boston – all of which seemed relevant and promising in terms of Suffolk Downs possibilities.

Once the purchase/sale was actually completed in May of 2017, HYM wasted no time in validating our confidence. They announced an outstanding development team with an exemplary breadth and depth of professional expertise and experience; and they quickly reached out to the Revere community – to the Mayor and his planning and development staff, to the Revere City Councilors, to neighborhood organizations and to the community media. Serious discussions began almost immediately not only about the nature and scope of HYM development vision for the property but also about how it would compare with other projects in and around Boston – both theirs and those of others.

Those were followed by conversations about how the project would best be planned and permitted in Revere and how those same processes would best be coordinated with the comparable processes in Boston. Technical meetings were held with the City Engineer, the Chair of the Revere Conservation Commission, and the Directors of the Public Weeks and Water and Sewer Departments, among others, to validate assumptions and verify conclusions about the infrastructure capacity and environmental impacts of their plans and proposal for Suffolk Downs.

In September, those discussions were accelerated and preempted by the concerted effort to respond to the HQ2 Request for Proposal from Amazon, a process in which Revere was fully involved with both HYM and the City of Boston. Throughout that process, HYM met regularly with public officials and other interested parties in Revere to keep the community fully abreast of related developments.

In sum, the experience of the City of Revere with the HYM development team gives us confidence not only in the thoughtfulness and credibility of the plans and projections in the EENF itself but also in the readiness, willingness and ability of HYM to work with the city and the community to address and resolve the impacts and implications of those plans and projections as they are further detailed and refined over time.

Positive Perspective the Proposed Mix and Integration of Uses: HYM has consistently and publicly emphasized from the outset that the kind of varied and vital urban community envisioned for the redeveloped Suffolk Downs property would involve a mix of uses – retail, restaurant, hotel, office, recreational, transportation, civic and community uses as well as a variety of residential options. All of which would require an attractive and accessible context of active and passive open spaces and a public realm of attractive and accessible streets, sidewalks and pathways, both within the site and between the site and the existing neighborhoods that surround the site in Revere and in East Boston. The City of Revere appreciates and supports this broad mix of uses and the kind of urban environment that HYM envisions for Suffolk Downs.

From our perspective, equally important as the mix of uses is the integration of those uses, which is what will create the kind of truly urban character of the neighborhoods that are described in the EENF. Residences, offices and hotels that are combined with first-floor retail, restaurant and recreational spaces; commercial and residential uses that are combined with civic and community uses; and all fully incorporated into the public realm of streets, sidewalks, pathways, playgrounds, parks and open space as well as public and private transportation options. What is envisioned for Suffolk Downs has been described by HYM as more like Assembly Row in Somerville, where these uses are designed and built to function together, rather than like Market Street in Lynnfield, where such residential and commercial uses are designed and built as separate sectors. Both have been quite successful in their respective urban and suburban contexts; and the City of Revere supports the HYM conclusion that the urban model – a series of neighborhoods -- is more relevant and appropriate in the case of Suffolk Downs.

Priority on Commercial Uses: The City of Revere commends HYM for their clear commitment to a multi-faceted community with a broad range of integrated uses. More specifically, we endorse for their explicit and unequivocal commitment to 25% of the site being devoted to open space and to a high standard of quality in the public realm generally. But with regard to the other planned uses – i.e., the balance between residential and commercial uses; the City is on record as strongly preferring commercial uses. In our conversations to date, Revere has requested and HYM has agreed that the proposed Suffolk Downs Overlay District, which will establish new zoning for the Revere portion of the site, will require that the quantity of commercial development -- retail, restaurant, hotel, office, entertainment – will at least equal the quantity of residential development in Revere. This commercial preference reflects the fact that much of the recent development in Revere has been residential and that the community wants and needs new retail, restaurant and entertainment options. It also recognizes the need for more jobs in Revere. As previously noted, when Suffolk Downs and Wonderland were effectively closed, Revere lost its historical economic and employment base; and that has yet to be replaced. We are making significant progress in that direction; but there is no question but that redevelopment of Suffolk Downs must play an important part in that strategy.

Priority on Civic and Community Uses: There is another priority that has received less attention in the City of Revere's conversations with HYM and in the EENF as well; but it will undoubtedly be a subject of future discussion. That involves civic and community facilities, particularly those for Revere's young people. Unlike most of the surrounding communities, Revere has no Boys or Girls Clubs, no YMCA or YWCA; and we also need more updated library and school facilities. Any and all of these kinds of facilities could/should be part of a well-rounded community of the type that HYM is certainly planning to create; but we do understand that the cost of such amenities could be significant and the burden of their development is a fundamentally a public, rather than a private, responsibility.

But we would propose to explore with HYM a collaborative approach to these ongoing challenges, a public/private partnership, that might result in HYM providing appropriate space for such amenities within the complex; planning, designing, financing and building-them-to-suit, and then leasing the finished or near-finished premises to the City of Revere or a suitable non-profit organization at HYM's cost. Perhaps such a collaboration could also include civic or community facilities shared by the City of Boston and its non-profit sector. This approach would take advantage of the experience, expertise and resources of the HYM development team, thereby reducing problematic capital cost requirements for the public and/or non-profit sectors; and it would ultimately transfer that burden to operating costs that could be financed from operating revenues and/or from the increased property taxes that would be generated by the Suffolk Downs development itself. This is by no means the only model for financing the kinds of civic and community facilities that the City of Revere consider to be an unaddressed priority; and we are confident that HYM will bring to these issues and opportunities the same level of creativity and commitment that has been evident in everything else that they have done on this project.

Revere Support for the Amazon Bid: Although it is not yet clear whether or not Amazon will choose Suffolk Downs as its HQ2 location, there is no doubt that the City of Revere would certainly welcome that prospect. As is evident from the details of the Option A and Option B development scenarios, not only would Amazon result in a greater proportion of commercial v. residential uses, clearly consistent with Revere's development priorities; but Amazon would both immediately and permanently transform Revere's economic and employment status and prospects. That would be consistent with Revere goals for Suffolk Downs development; but whether or not Amazon comes to Boston or not Amazon come to Suffolk Downs, the process of attracting Amazon has focused local, regional, national and international attention of the development potential of Suffolk Downs. It has also accelerated the planning and permitting process, including the production of the EENF now under consideration; and for that we have Amazon to thank no matter what the outcome of their HQ2 search.

Affirmative Position on the Phase 1 Waiver: The Phase 1 Waiver being requested by HYM is intended to support the development schedule required by the Amazon bid response; and it primarily involves two initial Amazon office buildings on the Boston section of the property farthest from Revere. It is our understanding that what is requested is expedited environmental review of those two Phase 1 buildings, allowing them to proceed on that basis before the DEIR process is concluded. Since this is consistent with our support for the Amazon bid as a whole, the City of Revere has no objection to MEPA approval of such a waiver, assuming that it has the support of the City of Boston and the East Boston Impact Advisory Group for this project. We would, however, condition that support on an expansion of the traffic impacts of the Phase 1 proposal as further detailed in the specific traffic-related comments below.

Commitment to Cooperation and Collaboration with the City of Boston: Revere believes that it is advantageous that Suffolk Dows in located in both Revere and Boston; and we are committed to work in cooperation with the City of Boston and with HYM to optimize those benefits for all concerned. Conversations with our Boston counterparts were underway soon after the announcement of the HYM purchase; and the Revere/Boston/HYM working relationship was accelerated and strengthened by and throughout the collaborative response to the Amazon HQ2 RFP.

In approaching this collaboration, we readily acknowledge the superior experience, expertise and professional resources that Boston brings to bear in terms of the planning and permitting of major development projects, particularly including their transportation and environmental analysis and evaluation. For that reason, we look to Boston to complement Revere's more limited assets in those areas; and we will rely on their findings and conclusions to guide our own. We would also expect that the professional standards and practices that the City of Boston establishes for the Boston portion of Suffolk Downs will also be applied, as relevant and appropriate, to the Revere portion of the property as well.

In terms of equity between Revere and Boston, we are confident based on conversations to date with both HYM and the City of Boston, that the impacts and benefits of this project will be equitably and proportionately allocated between the two cities. It is worthy of note that that this was definitely not so in the case for the ill-fated Revere/Boston casino proposal; but we have all learned from that experience and do not expect that it will be repeated. In this instance, we expect that equity will prevail in terms of the quantity, quality and phasing of development, in terms of the infrastructure burdens and property taxes generated, and in terms of the allocation of uses in each community. With regard to the latter issue in particular, we are hopeful that the Revere preference for commercial over residential uses will dovetail with the reported Boston preference for residential over commercial uses in a manner that will accommodate both preferences in the planning and phasing of the development of Suffolk Downs as a whole.

Finally, we would note that the community benefit requirements of development projects are much more specific and formalized in Boston that they are in Revere. These include significant affordable housing requirements as well as jobs and other linkage requirements that have no counterparts in Revere. These represent a quantifiable economic differential between the cost of development in each community; and those differences need to be acknowledged and compensated for to assure an equitable balance of community benefits across the board.

MORE SPECIFIC COMMENTS: In the context if the general principles outlined above, what follows are more specific comments on the various environmental identified and addressed in the EENF, with particular attention to those issues and opportunities that will require more detailed and substantive attention in the DEIR, which is expected to follow in the foreseeable future:

With Regard to Traffic and Transportation: There is little doubt that the most significant expected Revere impacts of the proposed redevelopment of Suffolk Downs involves its traffic and transportation consequences. The existing traffic situation, particularly at AM and PM peak periods, is already problematic, with regional traffic congestion having an increasingly negative effect on local traffic circulation by residents and visitors as well as on the scope and schedule of local development elsewhere in Revere. To a somewhat lesser extent at present, the same is true of public transportation, including but not limited to the capacity of the Blue Line. For that reason, the following are among the issues and opportunities that should be more fully and finally addressed in DEIR:

- **Regional v. Local Traffic:** One of major contributors to existing traffic congestion in Revere is the volume of regional traffic that uses both our roadways, particularly at peak commuting periods. The negative impact of such regional traffic on local circulation is a daily source of frustration that could be exacerbated by the additional traffic demand that this project will generate. Traffic volumes need to be identified and addressed in the DEIR based on a clear distinction between local and regional traffic, which was not the case in the EENF. These are two separate issues and they need to be distinguished if they are each to be optimally solved. If they are not, local traffic impacts get lost and ignored in the overall picture, and improvements to regional circulation may have little or no impact on local traffic circulation. Improvements to local traffic circulation should be a separate and distinct priority in the DEIR, not just because it involves the convenience of Revere residents and visitors by also because it complicates and constrains our local economic development potential. It is Revere's expectation that the redevelopment of Suffolk Downs will improve both the local and regional traffic congestion that we are now experiencing; but no solution will be optimal for Revere if these two challenges are not seen as separate and distinct challenges.

011-001

011-001

Refer to Chapter 6, *Transportation.*

011-002

- **Study Area Scope:** As outlined on pages 5.6-7 and 5-20 of the EENF and referenced elsewhere in the EENF document, there are several major omissions in the scope of the traffic study area that need to be rectified in the DEIR:

  - Revere Beach Boulevard from Eliot Circle to Carey Circle and the Lynn city-line.
  - Ocean Avenue between Eliot Circle and Revere Street.
  - North Shore Road from Revere Beach Parkway to Butler Circle.
  - The crossroads between linking Revere Beach Boulevard and Ocean Avenue to each other and to North Shore Road, Bell Circle, Lee Burbank Highway and Squire Road.

The fact is that these roadways are an integral component of the regional traffic network that is otherwise included in the scope; and they are the preferred alternative to North Shore Road for many commuters to/from Lynn, Swampscott, Marblehead and the North Shore beyond.

This is another example of the impact of regional traffic on local circulation, development and quality of life in Revere. Revere Beach Boulevard, for example, routinely has stop-and-go traffic between Carey Circle and the Lynn line and Revere Street – southbound in the morning and northbound in the evening. This waterfront residential district and the adjacent Point of Pines neighborhood become practical inaccessible to local residents; and that situation will only get worse as Ocean Avenue and the southern sector of the Boulevard continue to be developed for residential and hotel purposes. The situation is even worse for North Shore Road between the Parkway and Butler Circle since this roadway cuts through a very dense residential neighborhood that includes an elementary school. Again, these are examples of why the distinction and conflict between regional and local traffic circulation is so critically important to the City of Revere.

011-003

- **Development Assumptions:** The list of five planned development projects in Revere shown on page 5-32 of the EENF greatly underestimates the scope and schedule of economic development in Revere. It does not mention the development potential of the 34-acre Wonderland site or the 28-acre Caddy Farms site, both of which are vacant and being planned for development with the timeframe of the Suffolk Downs build-out. Beyond those quite significant omissions, there is also a significant scale of TOD development elsewhere in Revere, specifically on and around the Revere waterfront. This includes Waterfront Square on Ocean Avenue, which has already brought over 400 new residential units on line and will soon be adding to its full build-out 800 more residential units and a 172-room hotel with restaurant, retail and function space. Elsewhere in Revere, there are 25 additional projects in the construction, permitting or advanced planning stages – including the five listed -- with a combined investment of almost $500M, which will produce more than 600 more hotel rooms and almost 1,400 new residential units.

011-002

Refer to Chapter 6, *Transportation.*

011-003

Refer to Chapter 6, *Transportation.*

011-003

Many of these projects are located on Ocean Avenue or Revere Beach Boulevard, which is why those roadways need to be added to the DEIR traffic study scope, along with a more complete and accurate description of the schedule of development projects now known. In doing so, we should acknowledge that what has been described above only corresponds to the timeframe of the initial phases of Suffolk Downs redevelopment; and it does not include projects further down the line. Nor does it take into account for the additional development that the proposed Suffolk Downs complex itself will stimulate elsewhere in Revere.

011-004

We would finally note that the background development trends that into account for traffic and transportation planning purposes are not limited to Revere and East Boston alone. Quite the contrary, also relevant is the significant impact of ongoing and accelerating development in the surrounding communities – e.g., Chelsea, Malden, Saugus, Lynn, not to mention the new casino in Everett. All of these other developments will also tax the capacity of the regional roadways that provide access to Suffolk Downs from the north. On all of those counts, the EENF is at best incomplete and somewhat misleading; and that needs to be rectified in the DEIR.

- **Traffic Origins/Destinations and Traffic Convergence**: The trip distribution chart on page 5-14 of the EENF shows the directional flows of traffic to/from the two major components of the planned Suffolk Downs development. This is useful information, but it fails to address three more important variables for Revere that should be addressed in the DEIR:

011-005

  - **Residential v. Office Uses:** In combining these two uses into one category, the EENF fails to acknowledge the important distinctions between them; and given the range of residential options planned, there might also be significant distinction within that use category as well. In the DEIR, it will be important to acknowledge and address these distinctions.

011-006

  - **Trip Origins/Destinations:** This would provide a better measure of regional v. local traffic circulation, as well as some indication of the expected beneficiaries of the projected on-site employment opportunities.

011-007

  - **Traffic Convergence:** Beyond traffic destinations and directions, the critical variable for Revere is how much of that traffic ultimately converges in a limited number of Revere locations to access/egress the redeveloped Suffolk Downs. Of the five projected points of site access and egress, four are in Revere. And regardless where Suffolk Downs traffic comes from and which direction it is headed, the critical question is the capacity and congestion of the final access/egress points through which it must pass. And the DEIR needs to better address that variable for planned office, retail, hospitality, recreational and hospitality uses.

011-004

Refer to Chapter 6, *Transportation.*

011-005

Refer to Chapter 6, *Transportation.*

011-006

Refer to Chapter 6, *Transportation.*

011-007

Refer to Chapter 6, *Transportation.*

011-008

- **Public Transportation Improvements:** The EENF appropriately emphasizes the Blue Line, with its two stops immediately adjacent to Suffolk Downs, as the transit foundation on which the TOD quality of the site depends. It also makes the case that there is sufficient capacity to handle at least for Phase 1 of the project without too much difficulty. Given the projected 15-20-year build-out schedule for this project, however, the DEIR needs to more fully address longer term issues and opportunities on the Blue Line as well as the relevance of other public transportation systems not referenced in the EENF. These should include:

  - **For the Blue Line:** Among needed improvements are:

    - Extension of the Blue Line from Bowdoin Station to connect with the Red Line at Charles/MGH Station, which would afford more direct transit connections between Suffolk Downs and important sites in Boston, Quincy and Cambridge, not least Kendall and Harvard Squares and MIT and Harvard University.

    - Increasingly urgent signalization system upgrades, which will allow for shorter headways and more throughput.

    - The option of adding for peak AM/PM commuting periods an additional train-set, which is now being held in reserve.

  - **For the Purple Line:** Among proposed projects that are relevant and timely in term of Suffolk Downs redevelopment:

    - A commuter rail station in Revere, with intermodal connections to the Blue Line, f or which there was a $25M authorization in the 2014 Transportation Bond Bill.

    - A North/South Rail Link, which would convert the existing commuter rail systems into an integrated regional rail network with direct links to the Northeast Corridor interstate system – both of which would beneficial to Suffolk Downs local and regional accessibility.

  - **For the Silver Line:** Making a Silver Line connection to or through the Suffolk Downs site, which would afford direct public transit links to the Seaport District and beyond.

011-009

- **Seasonal Traffic/Transit Variations:** A variable not explicitly referenced in the EENF, but clearly relevant in the DEIR, are the exceptional seasonal variations in traffic and transit patterns in both Revere and East Boston. In Revere, those are primarily due to the patronage of Revere Beach; in East Boston, they are primarily due to the patronage of Logan Airport; and both have implications for both peak and off-peak travel.

011-008

Refer to Chapter 6, *Transportation.*

011-009

Refer to Chapter 6, *Transportation.*

❖ **The Reverse Commute:** The EENF makes the point that access to Suffolk Downs from the south, whether on the Blue Line or via the William and Callahan Tunnels or the Tobin Bridge, represents in effect a reverse commute – i.e., it takes advantage of underutilized transit and roadway capacity in the revere direction of normal commuting flows and does not significantly exacerbate existing peak period congestion. We do not dispute that assumption or projection for Boston; but we would note that this is not the case for Revere and traffic from the north. Regional commuting traffic from the North Shore will be using regional commuting corridors that are already quite congested; and it must pass through all or most of Revere to access Suffolk Downs. The benefit of the reverse-commute effect does not extend to Revere that should be acknowledged and addressed in the DEIR.

011-010

011-011

❖ **Multi-Modal Connections to and Through the Site:** The EENF makes clear the HYM commitment to multimodal connections on-site and a desire to link Suffolk Downs to the surrounding Revere and East Boston neighborhoods, both of which we commend. We would suggest that the DEIR needs to be more detailed and specific as to how and where the intermodal links – pedestrian, bicycle, transit, vehicular – will extend into the Revere and East Boston communities, how they will expand and enhance existing multi-modal systems in those communities; whether or not there will be MBTA bus service into and through the site; whether or not there will be other HOV facilities – e.g., public or private shuttle buses – that would like Suffolk Downs to the Revere and East Boston communities beyond the immediately adjacent neighborhoods. These are the kinds of variables that will determine the degree to which the proposed Suffolk Downs will be truly integrated in the surrounding communities.

❖ **The Relevance of Complete Streets and Other Boston Standards/Requirements**: The City of Revere recognizes and respects the fact Boston's standards for transportation engineering and design are more explicit, precise and comprehensive than are those in Revere. The EENF refers, for example, to the Complete Streets requirements in Boston, among other standards to which HYM pledges compliance. We would again emphasize that Revere expects that the same level of compliance commitment that applies to Boston should apply equally to our community – e.g., Complete Streets protocols. We see that equitability as among the many advantages of the Revere/Boston/HYM collaboration on this project; and we believe that this expectation and commitment should be made explicit and specific in the DEIR.

011-012

011-013

❖ **On-Site Parking:** The City of Revere is very supportive of the plan to provide on-site parking in structures that are integrated into proposed residential and office buildings, thereby completely avoiding surface except perhaps on an interim basis. We also support the plan for on-street parking to provide convenience access to first-floor retail and restaurant uses, which is consistent with the urban neighborhood character of the proposed development. Finally, we support the

011-010

Refer to Chapter 6, *Transportation.*

011-011

Refer to Chapter 6, *Transportation.*

011-012

Refer to Chapter 3, *Urban Design.*

011-013

Refer to Chapter 6, *Transportation.*

011-013

strategy of shared parking, particularly between office and retail/restaurant uses given their largely complementary usage patterns, thereby minimize the total need for on-site parking. To the extent possible, the DEIR should clarify and amplify how these basic approaches will be implemented.

Beyond that, we generally defer to HYM as to how much parking they will require. In our view, this is largely a marketing rather than a transportation consideration, which can be tested and modified over time as the project evolves. We are not unduly concerned that an error of judgement in this regard will result in adverse community impacts since they are few convenient on-street parking alternatives in Revere and East Boston and resident parking stickers will not be issued to Suffolk

011-014

Downs addresses. Nonetheless, it is important for the DEIR to address how and why the projected parking ratios would be adequate and should be acceptable to all concerned.

- **Political Coordination and Support:** The principal obstacle to improved regional roadway circulation in and north of Revere has not been identifying solutions, but in getting those solutions approved through the state transportation planning and environmental evaluation process. This is due in part to the fact that Revere competes with Boston for such project approvals; and it is quite

011-015

difficult for Revere to match Boston's professional resources and political leverage. Given our working relationship with Boston on this project, we are hopeful that the traditional Revere/Boston competition will be converted to complementary strategy to advance the projects north of Boston that will be necessary to minimize and mitigate the potential adverse effects of this project. We would further suggest that such cooperation in the environmental review and approval process is worthy of discussion in the DEIR.

- **The Casino Precedent:** This is by no means the first time that a major redevelopment of the Suffolk Downs property has been proposed and evaluated; and the two casino proposals to the Massachusetts Gaming Commission contained valuable information about expected traffic and transportation impacts and mitigation measures. Those can reasonably be considered a starting point for the current analysis. We do not mean to suggest that every element of the traffic and transportation analysis for the proposed casinos is relevant or credible for DEIR purposes. Quite the contrary, some major elements of those proposals – e.g., the Boardman Street flyover – are no longer in favor; and the cost projections for the proposed mitigation measures were less than rigorous and likely well overstated. Nonetheless, the nature and scope of proposed mitigation measures themselves were instructive; and local roadway improvements in Revere and East Boston and regional highway improvements along and around Routes 1, 1A, 16 and 60 corridors are still relevant, timely and required. At a minimum, these measures, separate from their projected costs, should be approached a base case, from which elements can and should be added or subtracted, to formulate a new set of mitigation commitments for this project.

011-014

Refer to Chapter 6, *Transportation.*

011-015

Refer to Chapter 2, *Regulatory Context and General Information.*

- **A Relevant Model:** It is abundantly clear from the EENF that the traffic and transportation issues and opportunities for this project both complicated and have an extended timeframe. They involve virtually every available mode of transportation and they will require public and private sector input and oversight, cooperation and collaboration, planning and implementation. Indeed, they will continue to be a work-in-progress for many years beyond the publication of the DEIR.

  But again, this project is by no means the first time such a complex task has been undertaken; and in our view, a recent, relevant and instructive example of dealing with such complexity over long timeframes is provided by the Kendall Square development experience. In that case, a partnership mechanism was created that allowed the interested and impacted parties from the public and private sectors to work together on longer term transportation solutions in the context of evolving development.

  It was the Kendall Square Transportation Enhancement Program that served this critical purpose. https://static1.squarespace.com/static/51f173a6e4b04fc573b07c0c/t/580132b0e58c6267bff0734c/1476473520523/KSTEP_MOU_final_9-29-2016.pdf. We would suggest that such a mechanism would be even more useful in this case because Suffolk Downs redevelopment involves a larger site with a lengthier development timeframe and – perhaps most importantly as compared to Kendall Square – it involves two municipalities and related complications of state jurisdiction. We recommend that something like the Kendall Square Transportation Enhancement Program would be appropriate and advisable in the case of Suffolk Downs redevelopment and we propose that this approach be explored, explained and evaluated in the DEIR.

011-016

With Regard to Infrastructure: Physical, Safety, Social: The EENF addresses the issues and the opportunities related to physical infrastructure in a positive and generally reassuring manner. The new streets and sidewalks will be constructed by HYM in accordance with the highest public standards in Revere and Boston; and they will be maintained by the developer on the same basis. Likewise, with on-site water and sewer facilities, all of which will constructed to contemporary standards and will be by far the best in Revere. Based on initial consultations between the City of Revere and the HYM development team, it appears that the City of Revere has the required water and sewer capacity to adequately service the site; and I&I payments will enhance that capability. In sum, it appears that the physical infrastructure variables were well addressed in the EENF; and we anticipate that they will be considered in even more detail and with greater precision in DEIR.

011-017

The same cannot be said for the issues and opportunities related the public safety and social infrastructure questions that arise; and in the view of the City of the Revere, the following are the areas that were not acknowledged and addressed in the EENF and need to be in the DEIR:

011-016

Refer to Chapter 6, *Transportation.*

011-017

Refer to Chapter 10, *Infrastructure.*

❖ **Public Safety Infrastructure:** Since the proposed construction at Suffolk Downs will all be new and state-of-the-art, the demands on public safety resources at the outset are not expected to be unduly burdensome, particularly given the fact that the both the new Revere Police Headquarters and some of the newest Revere Fire Department facilities are located at the primary Revere entrance to Suffolk Downs.

011-018

Nonetheless, with regard to police protection, for example, there needs to be a much better understanding of whether and to what extent the new complex will be providing its own security staff; and if so, how will they be coordinated with the Revere Police Department. Depending on the answers to those questions, the resource and response burdens on Revere Police Department will vary according; and that is a matter that should be addressed in the DEIR from both logistical and a financial perspective.

Likewise, with regard to fire protection and emergency medical response, any plans for on-site capabilities need to be addressed, as well as how they would be coordinated with the Revere Fire Department. If such private capabilities are or should be contemplated, they would likely involve emergency medical response – at present, RFD responds to all medical emergencies in Revere,

011-019

which not be necessary or advisable within the planned Suffolk Downs complex. With regard to basic fire protection, however, which will be provided by RFD, some of the buildings proposed for Suffolk Downs will be the tallest in the City of Revere and would likely exceed the capability of current RFD equipment. If so, the DEIR should address what new RFD staff and equipment would be required to address any current deficiencies our basic fire protection -- and at what cost.

011-020

Finally, the DEIR should address how public safety responsibilities would best be coordinated between Revere and Boston and what, if any, mutual aid agreements should be put in place for this purpose. These matters should be addressed and resolved in consultation and cooperation between the HYM development team and the Revere Police and Fire Departments – not unlike the discussions already underway on physical infrastructure matters with the City Engineer and the Public Works and Water Departments.

❖ **Social Infrastructure:** Also of major concern to the City of Revere and the Revere community as a whole is the impact of the proposed residential development on our social infrastructure. The planned number of new residential units, likely between 2500 to 3000 over time, would increase the Revere household count between 10% and 15%; and that would certainly impact the already

011-021

burdened Revere Public School system. The DEIR must explicitly address this critical and costly matter, clearly identifying, quantifying and evaluating the scope and schedule of the impact on school enrollment of the thousands of new residential units planned for the complex over time, including how those impacts can best be minimized/mitigated. And the schools are not alone.

011-018

The Proponent has undertaken an analysis of municipal services impacts of the Master Plan Project for both the City of Revere and Boston. This study concluded the Master Plan Project at full build out will generate a positive net fiscal impact totaling approximately $29.6 million annually for Revere. This accounts for the estimated cost of police, fire, and public works costs in Revere.

011-019

The Proponent has undertaken a municipal fiscal impacts assessment for both the City of Revere and Boston. The Master Plan Project at full build out is estimated to require approximately $2.7 million in police services and $2.4 million in fire services annually. Accounting for these costs and other municipal costs, the Master Plan Project at full build out is estimated to generate a positive net fiscal impact of approximately $29.6 million annually to Revere.

011-020

The Proponent has met with Revere public safety representatives on the Master Plan Project.

011-021

The Proponent has undertaken an analysis of municipal services impacts of the Master Plan Project for both the City of Revere and Boston. This study concluded the Master Plan Project at full build out will generate a positive net fiscal impact totaling approximately $29.6 million annually for Revere. This accounts for the estimated $992,000 in annual education costs in Revere.

011-022

Due regard should be given to the differing impacts of the many different sizes and types of housing that are being planned for the site as outlined in the EENF itself – e.g., apartments, condominiums and townhouses of various sizes; singles and family housing; millennial and older adult residences, etc. This process will require communication and consultation between HYM and the Revere Public Schools, the Revere Library Department, the Revere Youth & Recreation Department and possibly Revere Elder Services, any and all of which are likely to be impacted by a significant increase in residential population, depending on the demographic profile of these new residents. In any case, this is a critical issue and opportunity that deserves substantive attention in the DEIR.

With Regard to Open Space: There is much to be commended and little to be criticized in the open space strategy outlined in the EENF. The commitment to 25% open spaces for the project as a whole is remarkable; and the manner in which the open space system is integrated into the storm water management system is both creative and efficient. Also commendable is the degree to which the on-site greenspace is intended to provide a variety of active and passive recreational experiences; and those are integrated into all aspects of the development through active and attractive pathways and a corresponding greenspace approach to individual buildings and districts. Finally, the explicit goal of extending and integrating the on-site system into the off-site open space networks in the surrounding

011-023

communities is a worthy and timely one. In sum, the open space approach outlined in the EENF is clearly on the right track, literally and figurative; and we look forward to its further amplification and clarification in the DEIR as the details and specifics of the plan continue to evolve.

To that end, we would offer one specific suggestion at this stage: an ADA accessible playground. Advocates in both Revere and Boston having been working to create an inclusive playground that would be available and accessible for all, but would be designed and equipped to anticipate and accommodate those with special needs. Such facility would be the first in our area and an appropriate distinction for Suffolk Downs; and it could be an inter-jurisdictional effort that would involve interested parties from the public, private and not-for-profit sectors. In our view, an ADA playground is an option well worth pursing in the DEIR and beyond.

With Regard to Energy Efficiency and Carbon Footprints: It is clear from the EENF, as well as from the breadth and depth of the HYM development team, that serious attention is being paid to energy conservation and efficiency throughout the complex, in accordance with new building codes and LEED standards. That is clearly commendable and should obviously be amplified in the DEIR; but it should also be considered necessary given the relative impact of Suffolk Downs development for the Revere community as a whole.

011-022

The Proponent has sought a zoning amendment that has created a new Suffolk Downs Overlay District ("SDOD"), which was approved by the Revere City Council and was signed by the Mayor of Revere on March 27, 2018. The rezoning results in a 50/50 split between commercial and residential uses resulting in an estimated 2,898 units (assuming an average unit size of 1,002 SF) the majority of which are studios and 1-bedroom units.

011-023

Refer to Chapter 3, *Urban Design.*

To put this in perspective, if built to code, the carbon footprint of a projected 16Msf of new development at Suffolk Downs is 66Ktpy. For the 5.5Msf on the Revere portion of the site, this represents an increase of almost 12% above the current carbon footprint for all existing buildings in Revere -- residential, commercial, industrial, etc. This burden would be further reduced by the systems and equipment energy efficiency strategies referenced in the EENF, including compliance with the stretch building code. But we would suggest that further consideration should also be given in the DEIR to inherently more efficient strategies in the design and construction of the office and residential buildings being proposed for development – i.e., the building envelopes themselves.

011-024

These would include minimizing the use of curtain-wall construction for office buildings with its extensive and expensive glazing, which is notably energy-inefficient, in favor of more traditionally framed and insulated structure; and adopting passive designs for residential properties, which are increasingly feasible and attractive. According to the Massachusetts Department of Energy Resources, such approached, combined with energy efficient systems and equipment, could reduce the carbon footprint of the Suffolk Downs project by as much as 80% and reduce utility costs by $15M annually in utility costs.

These strategies are increasingly used in Boston and elsewhere; and the Commonwealth has quite recently implemented substantial developer incentive programs -- Alternative Energy Credits (AECs) – to further encourage their use. In addition to what is outlined in the EENF, such comprehensive and coordinated approaches, which focus on basis building methodologies as well as systems and equipment, should be identified, quantified and evaluated in the DEIR.

With Regard to Climate Change and Environmental Resiliency: The EENF clearly acknowledges and addresses the importance of climate change and environmental resiliency in the redevelopment of Suffolk Downs. It is a pressing issue given the proximity of the site to the Atlantic Ocean and to Chelsea Creek and their associated on-site and off-site wetlands; and the redevelopment of Suffolk Downs provides an almost unprecedented opportunity to design environmental resiliency strategies from the ground up – and down. It is quite clear from the EENF that the HYM development teams recognizes this issue and intends to take advantage of this opportunity, by not just meeting minimum compliance requirements, but by setting new design, engineering, construction and operational standards for others to follow.

011-025

We would urge HYM and MEPA to use the DEIR to explore what others have done throughout the world, to educate the community as to how these approaches do or do not apply in this case, and to fully describe how and why the environmental strategies proposed for Suffolk Downs have been formulated for the edification of all concerned, now and in the future.

011-024

Refer to Chapter 7, *Greenhouse Gas Assessment.*

011-025

Refer to Chapter 8, *Climate Change Resiliency.*

To develop an understanding of potential future conditions and inform site design and building elevations, the Project Team considered publications relevant to the City of Boston and the Commonwealth of Massachusetts that reference a variety of scientific and philosophical approaches from around the country and the world. The resilience approaches selected for the Project are described in Chapter 8.

The Suffolk Downs project is not the first to confront these challenges; but it may well the first to have the opportunity address and resolve them so comprehensively, systematically and fundamentally – i.e., doing right the first time. There are also many interested parties from our academic intuitions, to our federal and state governments to our environment advocacy community and beyond who could both contribute to and learn from this process and could otherwise offer invaluable support and assistance to this effort. MEPA should encourage their engagement through the DEIR in a collaborative and an educational enterprise that would benefit not just the communities impacted by Suffolk Downs, but for similarly situated communities around the region, the country and beyond. It is a singular opportunity that the DEIR could only enhance.

With Regard to Urban Design: In the elements of the EENF devoted to urban design, the issues and opportunities of connections to the surrounding community are addressed; and the City of Revere concurs with HYM's emphasis on avoiding any possibility that Suffolk Downs will function as a new community within an existing community rather than an extension and expansion of those existing communities in East Boston and Revere.

011-026

In that regard, we would make two points of clarification that could be more fully developed in the DEIR:

- **The Scope of the Existing Community:** It should be emphasized that the links between the Suffolk Downs project and the abutting communities of Beachmont and Orient Heights are obviously among the most critical and multi-dimensional; but also important are the physical, social and economic links to the Revere and East Boston communities as a whole. The former has received significant attention in the EENF; but both will need attention in the DEIR.

011-027

- **Issues and Opportunities in the Longer Run:** Also worthy of note in the DEIR, to a greater extent than was afforded in the EENF, are new community connection possibilities that will likely emerge over the up to 20-year timeframe of the planned project build-out. For example, on the eastern perimeter of the property in Revere, this could include the potential re-use or redevelopment of the existing shopping center and oil tank farms to the east of Lee Burbank Highway and the potential redevelopment of Chelsea Creek and its banks west of Lee Burbank Highway. These are complicated matters that involve existing private property interests; but it should be acknowledged that the development of Suffolk Downs could be a catalyst for the physical and function transformation of this increasingly anomalous district; and in our view, that is an appropriate and advisable topic for further discussion in the DEIR.

011-026

Refer to Chapter 3, *Urban Design*.

011-027

The Master Plan Project site layout has been thoughtfully designed to not preclude future extension and connection to the shopping center and oil tank sites to the west of the Project Site via the on-site streets that run east-west from the Main Street Retail Corridor to Tomasello Drive if/when they are redeveloped in the future.

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

January 4, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
Page Czepiga EEA No. 15783
100 Cambridge Street, Suite 900
Boston MA 02114

And

Mr. Timothy Czerwienski, Project Manager
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Re: Suffolk Downs Redevelopment Project
East Boston and Revere

Dear Secretary Beaton and Mr. Czerwienski:

The Boston Water and Sewer Commission (Commission) has reviewed the Expanded Environmental Notification Form (EENF) and the Expanded Project Notification Form (EPNF) for the proposed redevelopment of Suffolk Downs Race Track located at 525 McClellan Highway in the East Boston. This letter provides the Commission's comments on the EENF/EPNF.

The project site is 161 acres of land located in East Boston and Revere. Approximately 109 acres of the site is in East Boston and approximately 52 acres is in Revere. The sites present use is a thoroughbred horse racing facility. Building on the site include a clubhouse, grandstand, horse barn and administration, maintenance and support buildings. The project proponents, HYM Investment Group, LLC and The McClellan Highway Development Company, LLC (HYM/MHDC) master plan proposes to develop the site in stages over the next 15 to 20 years. The overall master plan project consists of constructing approximately 11 million square feet (msf) of transit oriented mixed use facilities in Boston and 5.5 msf in Revere.

Phase I of the project is anticipated to be the home of Amazon's second headquarters. The second headquarters will include two 260,000 square foot (sf) buildings, 520 marked parking spaces in the existing paved parking lot, utility and other site improvements. The two buildings, are to be located at the southeast corner of the race track. Details on subsequent phases of

development were not defined in the EENF/EPNF, but are planned to be a combination of commercial, retail and residential buildings and public open space. As future phases of the project are advanced, HYM/MHDC coordinate with the Commission

Water to the site is provided by both the Commission and the City of Revere. The connections to the Commission water distribution system are an 8-inch water main in Waldemar Avenue and 12-inch water in the rear access road to Suffolk Downs at the end of Walley Street behind the MBTA station. The water main in Waldermar Avenue is served by the Commission's northern high pressure zone and serves the grandstand and utility building. The water main in Walley Street is served by the Commission's northern low pressure zone and provides water to the horse barn area.

Sewer and drain service from the site discharges to the Commission's sewers at two locations. The grandstands and other utility buildings discharge to a 12-inch sewer in Waldemer Avenue through a private 12-inch sewer and pump station. A private gravity combined sewer collects sewerage and surface drainage form the barn area and flows to a retention pond. Flows from the retention pond are pumped to the Commission's wastewater system through a private force main that connects to a manhole at the end of Wally Street behind the MBTA station. A separate private storm drainage system collects water from roofs in the horse barn area and discharges to Sales Creak near the southwest corner of the barn area.

The EENF/ EPNF states that water demand for the proposed project, for all phases, will be 2.73 million gallons per day (mgpd) and wastewater generation will be approximately 2.48 mgpd

The Commission has the following comments regarding the proposed project as they relate to Commission facilities and the portion of the site in the City of Boston:

General

012a-001 1. Prior to demolition of any buildings, all water, sewer and storm drain connections to the buildings must be cut and capped at the main pipe in accordance with the Commission's requirements. The proponent must then complete a Termination Verification Approval Form for a Demolition Permit, available from the Commission and submit the completed form to the City of Boston's Inspectional Services Department before a demolition permit will be issued.

012a-002 2. All new or relocated water mains, sewers and storm drains must be designed and constructed at HYM/MHDC's expense. They must be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use Regulations, and Requirements for Site Plans. To assure compliance with the Commission's requirements, the proponent must submit a site plan and a General Service Application to the Commission's Engineering Customer Service Department for review

2

012a-001

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-002

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-002 and approval when the design of the new water and wastewater systems and the proposed service connections to those systems are 50 percent complete. The site plan should include the locations of new, relocated and existing water mains, sewers and drains which serve the site, proposed service connections as well as water meter locations.

3. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority and its member communities, is implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/inflow (I/I)) in the system. In April of 2014, the Massachusetts DEP promulgated new regulations regarding wastewater. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of infiltration and inflow (I/I) for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, a minimum ratio of 4:1 for I/I removal to new wastewater flow added is used. The Commission supports the policy, and will require proponent to develop a consistent inflow reduction plan. The 4:1 requirement should be addressed at least 90 days prior to activation of water service and will be based on the estimated sewage generation provided on the project site plan.

012a-003

012a-004 4. The design of the project should comply with the City of Boston's Complete Streets Initiative, which requires incorporation of "green infrastructure" into street designs. Green infrastructure includes greenscapes, such as trees, shrubs, grasses and other landscape plantings, as well as rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces. The proponent must develop a maintenance plan for the proposed green infrastructure. For more information on the Complete Streets Initiative see the City's website at http://bostoncompletestreets.org/.

012a-005 5. For any proposed masonry repair and cleaning HYM/MHDC will be required to obtain from the Boston Air Pollution Control Commission a permit for Abrasive Blasting or Chemical Cleaning. In accordance with this permit HYM/MHDC will be required to provide a detailed description as to how chemical mist and run-off will be contained and either treated before discharge to the sewer or drainage system or collected and disposed of lawfully off site. A copy of the description and any related site plans must be provided to the Commission's Engineering Customer Service Department for review before masonry repair and cleaning commences. HYM/MHDC is advised that the Commission may impose additional conditions and requirements before permitting the discharge of the treated wash water to enter the sewer or drainage system.

012a-003

Refer to Chapter 10, *Infrastructure.*

012a-004

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-005

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-006 6. The Commission will require HYM/MHDC to undertake all necessary precautions to prevent damage or disruption of the existing active water and sewer lines on, or adjacent to, the project site during construction. As a condition of the site plan approval, the Commission will require HYM/MHDC to inspect the existing sewer lines by CCTV after site construction is complete, to confirm that the lines were not damaged from construction activity.

012a-007 7. It is HYM/MHDC's responsibility to evaluate the capacity of the water, sewer and storm drain systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan HYM/MHDC must include a detailed capacity analysis for the water, sewer and storm drain systems serving the project site, as well as an analysis of the impacts the proposed project will have on the Commission's water, sewer and storm drainage systems.

012a-008 8. Activities within the proposed Facility may have Standard Industrial (SIC) Codes that the Environmental Protection Agency (EPA) has designated as requiring a Multi-Sector General Stormwater Permit for Industrial Facilities (MSGP). The project proponent or owner of the facility is responsible for determining whether a MSGP is required. If a MSGP is required the project proponent or owner is responsible for submitting to EPA a Notice of Intent (NOI) for coverage under the MSGP, and for submitting to the Commission a copy of the NOI and Pollution Prevention Plan prepared pursuant to the NOI. If the MSGP designated SIC Codes apply to the project and the project obtains "No-Exposure" Certification from EPA for the activities, a copy of the No-Exposure Certification must be provided to the Commission.

Water

012a-009 1. HYM/MHDC must provide separate estimates of peak and continuous maximum water demand for residential, commercial, industrial, irrigation of landscaped areas, and air-conditioning make-up water for the project with the site plan. Estimates should be based on full-site build-out of the proposed project. HYM/MHDC should also provide the methodology used to estimate water demand for the proposed project.

012a-010 2. If HYM/MHDC proposes interconnections between the Commission's and City of Revere's water distribution system, the Commission will require HYM/MHDC to install backflow prevention devices at all connections to the Commission's water distribution system. Any interconnections must be coordinated with the Commission and the City of Revere.

012a-011 3. The Commission supports HYM/MHDC commitment to explore opportunities for implementing water conservation measures in addition to those required by the State Plumbing Code. In particular HYM/MHDC should consider outdoor landscaping which requires minimal use of water to maintain. If HYM/MHDC plans to install in-ground

4

012a-006

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-007

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-008

Refer to Chapter 10, *Infrastructure.*

012a-009

Refer to Chapter 10, *Infrastructure.*

012a-010

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012a-011

Refer to Chapter 10, *Infrastructure.*

012b-011 sprinkler systems, the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should be considered.

012b-012 4. HYM/MHDC is required to obtain a Hydrant Permit for use of any hydrant during the construction phase of this project. The water used from the hydrant must be metered. HYM/MHDC should contact the Commission's Meter Department for information on and to obtain a Hydrant Permit.

5. The Commission is utilizing a Fixed Radio Meter Reading System to obtain water meter readings. For new water meters, the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs, HYM/MHDC should contact the Commission's Meter Department.

Sewage / Drainage

012b-013 1. The project's plan must show the sewer system for the development that will be installed, the plan must show size, location and connections to the Commission's systems. If HYM/MHDC proposes to discharge sewerage from the Revere portion of the project development to the Commission's wastewater collection system, this must be indicated on the development plan and coordinated with the Commission and the City of Revere.

012b-014 2. The existing drainage system discharges to Commission storm drains in Waldermer Avenue and Sales Creek. The DCR has a NPDES permit for the drainage system that discharges to Sales Creek. The proposed storm drains for Phase I at the northern portion of the site appear to connect into the DCR's drainage system. HYM/MHDC must coordinate the connection with the DCR.

012b-015 3. In conjunction with the Site Plan and the General Service Application HYM/MHDC will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

- Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.
- Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control structures or treatment structures to be utilized during the construction.
- Specifically identify how the project will comply with the Department of Environmental Protection's Performance Standards for Stormwater Management both during construction and after construction is complete.

012b-011

Refer to Chapter 10, *Infrastructure.*

012b-012

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-013

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-014

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-015

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-016 4. Developers of projects involving disturbances of land of one acre or more will be required to obtain an NPDES General Permit for Construction from the Environmental Protection Agency and the Massachusetts Department of Environmental Protection. HYM/MHDC is responsible for determining if such a permit is required and for obtaining the permit. If such a permit is required, it is required that a copy of the permit and any pollution prevention plan prepared pursuant to the permit be provided to the Commission's Engineering Services Department, prior to the commencement of construction. The pollution prevention plan submitted pursuant to a NPDES Permit may be submitted in place of the pollution prevention plan required by the Commission provided the Plan addresses the same components identified in item 3 above.

012b-017 5. The Commission supports HYM/MHDC commitment to protect stormwater quality. HYM/MHDC should as part of the stormwater management plan consider minimizing sanding and the use of deicing chemicals, pesticides, and fertilizers. Structural components of the plan should include the feasibility of constructing green infrastructure and BMP's designed to reduce the nutrient loadings and peak discharge rates to receiving waters.

012b-018 6. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. HYM/MHDC is advised that the discharge of any dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products HYM/MHDC will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge.

012b-019 7. HYM/MHDC must fully investigate methods for retaining stormwater on-site before the Commission will consider a request to discharge stormwater to the Commission's system. The site plan should indicate how storm drainage from roof drains will be handled and the feasibility of retaining their stormwater discharge on-site. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer.

012b-020 8. The Massachusetts Department of Environmental Protection (MassDEP) established Stormwater Management Standards. The standards address water quality, water quantity and recharge. In addition to Commission standards, HYM/MHDC will be required to meet MassDEP Stormwater Management Standards.

012b-021 9. Sanitary sewage must be kept separate from stormwater and separate sanitary sewer and storm drain service connections must be provided. The Commission requires that existing stormwater and sanitary sewer service connections, which are to be re-used by the proposed project, be dye tested to confirm they are connected to the appropriate system.

6

012b-016

The Proponent acknowledges this comment and will factor it into the Master Plan Project as the design and permitting progresses.

012b-017

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-018

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-019

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-020

Refer to Chapter 10, *Infrastructure.*

012b-021

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-022 | 10. The Commission requests that HYM/MHDC install a permanent casting stating "Don't Dump: Drains to Boston Harbor" next to any catch basin created or modified as part of this project. HYM/MHDC should contact the Commission's Operations Division for information regarding the purchase of the castings.

012b-023 | 11. If a cafeteria or food service facility is built as part of this project, grease traps will be required in accordance with the Commission's Sewer Use Regulations. HYM/MHDC is advised to consult with the Commission's Operations Department with regards to grease traps.

012b-024 | 12. The enclosed floors of a parking garage must drain through oil separators into the sewer system in accordance with the Commission's Sewer Use Regulations. The Commission's Requirements for Site Plans, available by contacting the Engineering Services Department, include requirements for separators.

012b-025 | 13. The Commission requires installation of particle separators on all new parking lots greater than 7,500 square feet in size. If it is determined that it is not possible to infiltrate all runoff from the new parking lot, the Commission will require the installation of a particle separator or a standard Type 5 catch basin with an outlet tee for the parking lot. Specifications for particle separators are provided in the Commission's requirements for Site Plans.

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/ra

cc: T. O'Brien, MHDC
M. Connolly, MWRA
M. Zlody, BED
M. Nelson, BWSC
P. Larocque, BWSC

012b-022

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-023

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012b-024

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

012b-025

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

MAPC
METROPOLITAN AREA PLANNING COUNCIL

SMART GROWTH AND REGIONAL COLLABORATION

January 19, 2018

Matthew A. Beaton, Secretary
Executive Office of Energy & Environmental Affairs
Attention: MEPA Office – Page Czepiga, MEPA #15783
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: Suffolk Downs Redevelopment, MEPA #15783

Dear Secretary Beaton:

The Metropolitan Area Planning Council (MAPC) regularly reviews proposals deemed to have regional impacts. The Council reviews proposed projects for consistency with *MetroFuture*, the regional policy plan for the Boston metropolitan area, the Commonwealth's Sustainable Development Principles, consistency with Complete Streets policies and design approaches, as well as impacts on the environment.

MAPC has a long-term interest in alleviating regional traffic and environmental impacts, consistent with the goals of *MetroFuture*. Furthermore, the Commonwealth encourages an increased role for bicycling, transit and walking to meet our transportation needs while reducing traffic congestion and vehicle emissions. Additionally, the Commonwealth has a statutory obligation to reduce greenhouse gas emissions (GHG) by 25% from 1990 levels by 2020 and by 80% from 1990 levels by 2050. In addition, MassDEP issued new regulations last year to meet the GWSA's emission reduction requirements. This ruling and issuance of MassDEP's regulations reasserts the state's obligation to meet these goals.

The HYM Investment Group (the Proponent) proposes to develop 16.5 million square feet (sf) at the former Suffolk Downs horse racing facility. Of the 161 acres that make up the Suffolk Downs Redevelopment's Master Plan Project (the Project), approximately 109 are in Boston and approximately 52 are in Revere. The Project includes approximately 11 million sf of development in Boston and 5.5 million sf of development in Revere. Full-build out of the site is anticipated to occur over a period of 15-20 years.

The Project also includes an initial development phase (Phase 1) which is responsive to the Request for Proposals from Amazon for a second corporate headquarters. The Proponent has requested a Phase 1 Waiver that will allow the Proponent to proceed with this portion of the Project prior to completing the MEPA process for the entire Project. Phase 1 includes construction of two office buildings (each 260,000 sf, or 520,000 sf total), an internal access driveway, and 520 structured parking spaces. Phase 1 would be located within the southeastern corner of the Project Site near the Suffolk Downs MBTA Blue Line station.

MAPC has reviewed the Expanded Environmental Notification Form (EENF) and has concerns that primarily address provision of an on-site shuttle service, a program that outlines monitoring of mode share goals and a mitigation timeline. Furthermore, we have comprehensive comments addressing wetlands and climate adaptation, climate mitigation and building resilience, housing, urban design, and specific comments addressing the Phase 1 waiver.

These issues, proposed recommendations, and questions are detailed as an attachment to this letter. MAPC respectfully requests that the Secretary incorporate our comments as part of the Certificate issuance for the Draft Environmental Impact Report (DEIR).

Thank you for the opportunity to comment on this project.

Sincerely,

Marc D. Draisen
Executive Director

Metropolitan Area Planning Council | 60 Temple Place | Boston, Massachusetts 02111 | 617–933–0700 | 617–482–7185 fax | **mapc.org**

Metropolitan Area Planning Council (MAPC) comments on
Suffolk Downs Redevelopment, Expanded Environmental Notification Form, MEPA #15783

Transportation

At full-build, the Project's two Master Plan alternatives are forecast to generate between 33,320 and 33,760 vehicle trips per day. In order to determine the full transportation impacts of the Project and how best to mitigate those impacts, we have outlined areas for further study and proposals to reduce the number of single-occupancy vehicles (SOVs) trips to/from the site.

Transportation Analysis

013-001 MAPC recommends that the Proponent use the services of the Central Transportation Planning Staff (CTPS) to estimate future traffic volumes for the study area based on the CTPS regional model. The modeling effort can be designed to depict the actual transportation network as closely as possible, including attributes such as capacity and travel speeds along with roadway links. With factors in the model such as socio-economic projections, CTPS will be able to accurately estimate the number of vehicle trips anticipated to be generated by the project and assign vehicle routes based on roadway capacity and travel speeds. In addition, the model will be able to derive an internal capture rate for the site and to make assumptions for transit and non-motorized trips. There is precedence for utilizing the regional travel model as it is being applied for the Union Point development in Weymouth.

013-002 MAPC also recommends including Revere Beach Boulevard and Ocean Avenue as part of the study area.

Blue Line Impacts

013-003 The Draft Environmental Impact Report (DEIR) should analyze whether the Project will impact service on the Blue Line, especially during the peak morning and evening commute hours. The Proponent should work with the MBTA to determine whether service may need to be augmented in order to maintain appropriate levels of peak hour service (e.g., signalization).

MBTA Bus Impacts

013-004 The DEIR should include a summary of the specific MBTA bus routes that will be impacted by the Project, the estimated increase in trips by route, and whether those routes will experience over-crowding. The Proponent should work with the MBTA to determine whether service levels need to be increased to address crowding, and if so, those efforts should be added to the mitigation plan.

013-005 The DEIR should also study the need for new MBTA bus stops either within or adjacent to the Project site to provide enhanced access. This should include improved bus connections to and from the Suffolk Downs and Beachmont Blue Line stations.

On-Site Shuttle Service

013-006 The Proponent should commit to operating an on-site shuttle service for the Project's employees, residents, and visitors to the site. Specifically, the on-site shuttle would run as a continuous connection providing access to the various buildings within the Project. The shuttle service should be designed to enhance connectivity with existing MBTA subway and bus connections. To ensure significant mode shift, strong connectivity among these transportation options is critical. The DEIR should include a conceptual map of the shuttle service area and provide information about anticipated routes, stops, and schedules. MAPC recommends the shuttles use alternative fuels (e.g., Compressed Natural Gas, Liquefied Natural Gas) or be electric. By comparison, the previous development proposal for this same site, the Mohegan Sun Casino, committed to a robust shuttle system connecting the site to the Suffolk Downs Blue Line station. This Master Plan proposal is yet a larger development in terms of square footage and traffic generation, so a shuttle should be all the more necessary.

Street Connectivity

013-007 New street connections to the east and west of the site are difficult, with the Blue Line tracks to the west and the oil tanks to the east. However, new connections to the north and south may be possible, such as a potential connection to Walley Street in the southeast corner near Suffolk Downs station, or a connection to Waldemar Avenue to the south. The Proponent should explicitly study these possibilities and report on them in the DEIR.

013-001

Refer to Chapter 6, *Transportation.* The Proponent has worked with Central Transportation Planning Staff to estimate future traffic volumes.

013-002

Refer to Chapter 6, *Transportation.*

013-003

Refer to Chapter 6, *Transportation.*

013-004

Refer to Chapter 6, *Transportation.*

013-005

As an preliminary improvement, the Proponent has invested in a new stop and turnaround on Tomasello Drive for the MBTA #119 bus route and will continue to work with the MBTA to explore potential future bus routing and stops within the Project Site as the demand is warranted by the Master Plan Project. s

As discussed in Chapter 3, *Urban Design*, the Project includes a privately-operated shuttle bus system on-site for direct links to the MBTA Blue Line Stations. The establishment of new, privately-operated shuttle services that would provide direct transit connections between the Project Site and the commuter rail service at North Station, South Station, and Chelsea Station, as well as to the Seaport District are also proposed. Please refer to Chapter 6, *Transportation*, for more details.

013-006

Refer to Chapter 6, *Transportation.*

Mode Share Goals, Mitigation Commitments and Timeline, Monitoring and Reporting

Mode Share Goals

013-008 The DEIR should delineate a program that ensure specifically defined mode share goals are accomplished over a specified time frame related to the phases of project development. Along with specific steps to achieve these goals, the Proponent should provide annual updates, publicly sharing the results. Mode share goals should result in an increase of public transportation, shuttles, walking, and bicycling, and a decrease for single-occupancy vehicle (SOV) use.

013-009 Developing and monitoring mode share goals is a central component of TIA preparation as outlined in the *EOEEA/MassDOT Guidelines for Traffic Impact Assessments (TIAs)*. Specifically, the TIA Guidelines state: *"The TIA should include an assessment of the mode split assumptions, as well as the Proponent's plan to maximize travel choice, promote non-SOV modes, and achieve the assumed mode shares (p 17)."* The Proponent needs to define mode share goals clearly, with specific targets for automobiles (SOV and shared), bicycle, pedestrian, Blue Line (Suffolk Downs and Beachmont Stations), and bus.

Monitoring and Reporting

013-010 The scope should require the Proponent to develop a monitoring program for all modes. The monitoring program should have measurable milestones and serve as a benchmark for progress in meeting the mode share goals and other transportation objectives, including changes in parking, local and regional traffic, and public transportation. It should outline contingency measures that will be undertaken if these benchmarks are not met. The Proponent should provide annual updates, publicly sharing the results. The intent of the transportation monitoring program is to confirm that actual changes are consistent with forecasted changes. With a monitoring program, the actual impacts of a project can be determined and additional mitigation measures identified, if necessary. Shortfalls in meeting mode share or other targets can be identified and remedied. The need and schedule for the implementation of additional mitigation measures will depend on the results of the transportation monitoring program.

Mitigation Commitments and Timeline

013-011 The scope for the DEIR should require the Proponent to outline specific mitigation commitments, plus a timeline that will address the Proponent's contributions to programming for infrastructure and roadway improvements. A scope and timeline of mitigation commitments should also be included in the Section 61 findings as a basis for subsequent permitting.

013-012 Plans for the long-range maintenance and upkeep of infrastructure improvements (e.g., new and existing roadways, transit improvements, and bicycle/pedestrian infrastructure) should also be included. The Proponent needs to ensure that significant off-site transportation improvements are completed prior to the opening of project phases that are expected to generate impacts that will be mitigated by those improvements.

For the Boston portion of the development, these transportation mitigation and monitoring measures can be most effectively implemented by coordinating with the Boston Planning and Development Agency's (BPDA) Cooperation Agreement and the Boston Transportation Department's (BTD) Transportation Access Plan Agreement. These will address the details of how the transportation monitoring program will be implemented in Boston.

Transportation Demand Management (TDM)

013-013 MAPC applauds the Proponent for proposing an extensive Transportation Demand Management (TDM) program (e.g., car-sharing, Hubway, on-site transportation coordinator) and we look forward to reviewing strategies to reduce SOV travel and encourage use of alternative transportation modes in the DEIR. While the Project site is well served by public transportation, public transit needs to be strongly promoted for employees, residents, and visitors. We recommend the TDM program also include:

- A greater commitment from the Proponent to promote future employer/resident incentives such as employer/resident subsidized transit passes (e.g., through tenant lease arrangements).
- Electric vehicle charging stations where appropriate in parking areas. Infrastructure should be built-in to accommodate additional charging stations.

013-007

Refer to Chapter 6, *Transportation*, for a description of the off-site bicycle and pedestrian connections proposed. Off-site vehicular connections at the southern end of the Project Site through Wally Street or Waldemar Avenue are not desired by the local community and there is currently n.o vehicular access in this area today.

013-008

Refer to Chapter 6, *Transportation.*

013-009

Refer to Chapter 6, *Transportation.*

013-010

Refer to Chapter 6, *Transportation.*

013-011

Refer to Chapter 6, *Transportation.*

013-012

Refer to Chapter 6, *Transportation.*

013-013

Refer to Chapter 6, *Transportation.*

Parking

Although the EENF states that the Phase 1 component of the Project will require 520 parking spaces (1 space per 1,000 sf) and that the site currently has an existing 3,028 parking spaces, the document does not identify the total number of spaces or any preliminary numbers for the Master Plan as a whole. The total number and allocation of proposed parking spaces by land use type needs to be provided in the DEIR as a baseline for full build-out.

013-014

Shared Parking

MAPC was pleased to read that the Proponent proposes implementing a shared parking program. A shared parking program that does not overbuild parking would encourage and reinforce the use of available alternative modes of transportation to access the Project, including Blue Line, bus, shuttle service, as well as walking and bicycling. We look forward to reviewing a more comprehensive parking analysis that quantifies how shared parking will be developed and meets the projected parking needs of the Project in the DEIR.

013-015

Structured Parking

While EENF mentions that the majority of parking proposed for the Project's Master Plan will be structured, the document neither identifies the number of spaces nor indicates where these spaces will be located. The distinction between below-grade and at-grade parking needs to be clearly outlined in the DEIR. Also, plans for future adaptability of structured parking should be explored for the potential productive reuse of the space, should parking demand decrease in the future due to emerging technologies.

013-016

Parking Management Strategies

In addition to shared parking, other parking management strategies the Proponent should consider applying to reduce and manage the supply of available parking include, but are not limited to unbundling parking for residents, and offering parking cash-out incentives for employees. We ask the Secretary to require the Proponent to evaluate these alternatives in the DEIR.

013-017

Pedestrian/Bicycle Access

MAPC is pleased the Proponent intends to develop multi-use paths to and through the site. A complete sidewalk system will allow full pedestrian and bicycle access and connectivity. Existing and proposed bicycle and pedestrian routes, both within and connecting the site to nearby areas should be clearly identified in the DEIR. To promote pedestrian and bicycle usage, the Project should include appropriately placed crosswalks, signage, short and long-term bicycle parking spaces, and Hubway stations, as well as amenities such as benches, lighting, and landscaping.

013-018

The pedestrian and bicycle plan should strengthen pedestrian and bicycle connections to and within the site, particularly to the Suffolk Downs and Beachmont MBTA stations. Pedestrian and bicycle access should also improve connections to adjacent neighborhoods through the Project site, including open space.

013-019

The Suffolk Downs Project provides a unique opportunity to connect our trail systems with an "open space ribbon" through the site and connecting to the Blue Line and regional trails beyond. We request that the following trail connections be studied as part of this Project:

Suffolk Downs Site

The Project should provide a roughly East/West shared use path through the site, connecting the Suffolk Downs MBTA station with Belle Isle Marsh to the east and Chelsea Creek to the West.

013-020

East Boston Greenway Extension

The East Boston Greenway (EBG) Extension is a continuous shared use path from the Boston Harbor near Maverick Station in East Boston and currently terminates at Constitution Beach, just short of Orient Heights Station. This Project should develop concepts to extend the EBG from its terminus through Orient Heights Station area to the Suffolk Downs station and the Project site. Routing shall be investigated in two alternatives: 1) along the Blue Line and 2) to the east through Belle Isle Marsh.

013-021

Chelsea Creek

The west end of the Project site should be connected by a waterfront trail along Chelsea Creek. The potential trail would use an MBTA owned unused railroad right-of-way that extends north from Chelsea Street (and the bridge)

013-022

013-014

Refer to Chapter 6, *Transportation.*

013-015

Refer to Chapter 6, *Transportation.*

013-016

Refer to Chapter 6, *Transportation.*

013-017

Refer to Chapter 6, *Transportation.*

013-018

Refer to Chapter 6, *Transportation.*

013-019

Refer to Chapter 6, *Transportation.*

013-020

Refer to Chapter 3, *Urban Design.*

013-021

Refer to Chapter 6, *Transportation.* The Proponent is committed to implementing a comprehensive mitigation plan that considers improvements to multiple modes of travel including auto, public transit, walking and bicycling.

013-022

Refer to Chapter 3, *Urban Design.*

013-022 along Chelsea Creek to just west of the Project site. The trail could continue along the creek to Revere Beach Parkway. We recommend that the Proponent study the feasibility of this trail.

Construction Impacts

According to the Proponent, the estimated volume of fill within LSCSF (Land Subject to Coastal Storm Flowage) for the Phase 1 Project is approximately 19,000 cubic yards. Assuming a commercial dump truck holds between 10-14 cubic yards, that equates between 1,357 to 1,900 dump truck loads of fill just for Phase 1.

013-023 The DEIR should provide additional information regarding the estimated number of truck trips, the proposed routes, duration, and trip frequency for the entire Project, particularly for adding fill within LSCSF. The Proponent should also address steps they will take to minimize truck traffic and noise disruption to surrounding neighborhoods. Given the large amount of fill needed for the buildout of the Master Plan, the DEIR should also discuss the alternative sources of fill as well as any potential impact on the source area(s).

Environment

Wetlands

013-024 The Proponent should provide greater detail regarding wetlands encroachments and efforts to minimize temporary and permanent impacts. The Proponent should also describe and delineate changes in grade in the buffer zone to the Bordering Vegetated Wetland (BVW), Sales Creek, and for the Riverfront Area. Phase I grading shows fill to the edge of the infield pond and indicates that the limit of work extends to the wetlands flags for the

013-025 intermittent stream. The Proponent should consider alternatives to lessen buffer zone encroachment. The DEIR should evaluate the impact of moving Tomasello Road, the primary site access road, closer to the BVW marked by "Flag Series A," and consider alternatives to relocating Tomasello Road.

ACEC (Areas of Critical Environmental Concern)

013-026 The Proponent should provide greater detail on activity in the ACEC and explain how they meet the standard of no adverse impact to the wetlands interests identified for the Rumney Marsh ACEC (flood control, prevention of storm damage, protection of land containing shellfish, and fisheries; prevention of pollution, protection of wildlife habitat, and protection of public and private water supplies). The DEIR should consider alternatives to proposed roadways crossing the ACEC, including daylighting Sales Creek and utilizing bridges over the creek where crossings are necessary. This would improve flood storage and the health of the creek, as well as provide potential assets to the site design.

013-027 Mitigation for wetlands impacts should focus on wetlands restoration within the Rumney Marsh ACEC, particularly Sales and Green Creeks and the Belle Isle Marsh. Given that the Project will be constructed in phases over a 15 to

013-028 20 year period, the timing of the implementation of natural resource and open space improvements should be coordinated with the development phases.

Stormwater Treatment

MAPC commends the Proponent for using the Boston Water and Sewer Commission's projections for the 10 and 100-year design storms in 2100 under a medium emissions scenario. The Department of Environmental Protection

013-029 (DEP) has issued a draft Pathogen Total Maximum Daily Load (TMDL) for the Boston Harbor Watershed. As this project presents relatively few constraints on stormwater management, and the site drains to Outstanding Resource Waters and includes an ACEC, the Project should therefore meet the highest standards of stormwater treatment. The Proponent should utilize stormwater Best Management Practices (BMPs) that maximize treatment of pathogens. The DEIR should include evaluation of Low Impact Development and Green Infrastructure Best Management Practices, and the Project should incorporate these to the maximum extent feasible.

Climate Adaptation

The site has a complex hydrology, as it contains Land Subject to Coastal Flooding, and is also subject to flooding from rain events. Sales and Green Creeks drain stormwater from Revere. A Department of Conservation and Recreation (DCR) operated tidegate closes during high tides. The DCR also pumps stormwater from Sales Creek

013-030 when high tides prevent the release of stormwater. Failure to follow this regime results in flooding in Revere. The Proponent proposes significant fill in order to accommodate 40 inches of sea level rise and allow occupants of the site to shelter in place. The Proponent should provide proposed contours and elevations for all fill. The DEIR should

013-023

Refer to Chapter 9, *Environmental Protection.*

013-024

Refer to Chapter 5, *Wetlands and Waterways.*

013-025

Tomasello Drive has been realigned and purposely shifted in several sections to better serve and improve the Master Plan Project. Both the on-site wetlands and Tomasello Drive were carefully considered during the design of the proposed site layout.

013-026

Refer to Chapter 5, *Wetlands and Waterways.*

013-027

Refer to Chapter 5, *Wetlands and Waterways.*

013-028

Refer to Chapter 3, *Urban Design.*

013-029

Refer to Chapter 10, *Infrastructure.*

013-030

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

013-030

consider the impact of the loss of flood storage on the site and its surroundings. The Proponent should evaluate the impact of a significant hurricane or northeaster that combines high tides, coastal flooding, and heavy rain. Considerations should include 1) whether the existing pumping system is adequate to prevent flooding under the proposed conditions, 2) how proposed drainage changes will affect drainage from the channel associated with Flag Series A, 3) off-site impacts associated with redirecting coastal flooding, and 4) whether stormwater from large rain events will be redirected, particularly to the lower elevation Beachmont area, and to the directly adjacent residences at Waldemar Avenue.

Climate Mitigation and Building Resilience

The EENF includes some plans for energy efficiency, but can go much further to realize deep carbon reductions and long-term cost savings. The proposed Project has a large footprint and would lead to a significant increase in greenhouse gas emissions if only built to stretch code standards. The cities of Revere and Boston, as part of the Metro Mayors Coalition, have a net-zero by 2050 goal, and this Project could significantly set back efforts to reach this goal if not built to high-efficiency standards.

013-031

The Project should take full advantage of the greenhouse reduction strategies such as passive design, having a tight envelope and avoiding excessive windows and curtain walls, using highly efficient lighting and HVAC technologies, and adding solar PV and renewable thermal technologies. According to an analysis conducted by the MA Department of Energy Resources, by implementing these strategies, the development could cut emissions by up to 85 percent. They will also enhance the buildings' resilience to severe climate events. For example, with passive design, buildings may remain habitable even during a power outage.

Housing

In a number of locations, the Proponent notes that the proposal is consistent with MetroFuture, the regional plan for the Boston metropolitan area. We concur that the mix of uses to create several new neighborhoods, complete with residential, retail, restaurant, office, and outdoor public recreational spaces and plazas, all in a dense transit-oriented location, supports the overall goals of MetroFuture. However, we would note that there are several areas where alterations to, or clarifications of, the proposal would improve consistency with the regional plan, and we

013-032

encourage the Proponent to address these in the DEIR. In addition to the transportation, environmental, and site design issues raised elsewhere in this letter, the Proponent should be encouraged to address the affordable housing elements of the Project in the DEIR, since a greater proportion of affordable housing tends to reduce the number of cars owned, the number of auto trips, and VMT. Specifically, we would like the Proponent to include the number of affordable units, their level of affordability, tenure (ownership v. rental), and the bedroom distribution.

The Transportation Analysis (page 5-9 of the EENF) lists the number of units in the mid-rise, high rise, and senior unit types, for purposes of trip generation analyses. However, there is no listing anywhere in the report noting the details on the number of units by building type including the townhomes (not detailed in the transportation

013-033

analysis), the number of units by bedroom number, and the details of affordability. MAPC encourages the Proponent to incorporate the following changes or clarifications into the DEIR for the Project:

- In addition to meeting the Inclusionary Zoning requirements of the City of Boston (13% of total proposed units), the Proponent should commit to increasing the total number of affordable units through use of the linkage payments for the commercial space to be built, or by other means. MAPC feels that a higher goal of 15% or 20% is more appropriate for a development of this scale. Considering the City's goal of minimizing displacement in the adjacent East Boston community, and also considering similar concerns in neighboring Revere, a higher percentage of affordable units is appropriate.

- There should be a similar commitment for affordable units in the City of Revere (currently at 8.1% affordable on the state's Subsidized Housing Inventory), even though that City does not have a required inclusionary percentage.

013-031

Refer to Chapter 4, *Sustainability/Green Building & Chapter 7, Greenhouse Gas Assessment.*

013-032

Refer to Chapter 1, *Project Description and Alternatives*.

013-033

Refer to Chapter 2, *Regulatory Context and General Information*.

013-034 • The affordable units should be constructed on site, and incorporated into structures/neighborhoods throughout the proposed development in such a way as to prevent the segregation of lower-income households.

013-035 • The development should include a mix of 1-, 2-, and 3-bedroom units, to ensure that there is housing for all types of households, including families, and these units should be distributed throughout the site in both municipalities. The bedroom mix in the market and affordable units should be the same.

013-036 • As noted elsewhere in this comment letter, in order for the transit-oriented nature of this proposal to be successful, an internal shuttle system is critical to provide the residents with access to the Blue Line stations. The DEIR should outline this commitment to such a shuttle.

Master Plans

013-037 The EENF includes a review of the relevant sections of the Imagine Boston 2030 Master Plan. For the DEIR, the Proponent should consider Revere's planning efforts as they relate to the project site. First, Revere is working on an update to its Open Space and Recreation Plan (OSRP), which should be completed by the Spring of 2018. The plan will include a discussion of the environmental and open space resources on site. Additionally, the city is about to embark

013-038 on a full citywide Master Plan, which should commence sometime in early 2018. Thus, the timeline for the preparation of that plan is concurrent with the production of the DEIR. MAPC urges the proponent to work with Revere in understanding the relevancy of city's Master Plan as it relates to the Suffolk Downs site. MAPC is working closely with Revere on both the OSRP and Master Plan.

Urban Design

Transit-Orientation

013-039 The transit-orientation of the district is a primary feature and of critical importance to the function and connection of the future uses. The proposed transit-oriented squares at Suffolk Downs and Beachmont are a great concept for placing transit at the center of the district. However, the major shortcoming of these squares is that the transit station will not be located in them. Major effort in design, configuration and amenity must be focused on minimizing the perceived and real gap in distance from the transit-oriented squares to the transit stations. As designed, this gap at Suffolk Downs is approximately 1,000 feet and approximately 600 feet at Beachmont. The transit-oriented squares must also accommodate transfers and connections between other modes and function as transit hubs. This accommodation should include Hubway stations, integrating shuttle bus pick-up and drop-off areas, private vehicle, taxi, and ride share pick-up and drop-off areas, and other amenities such as a seating, shelter, and lighting.

013-040 Additionally, the transit-orientation of the district is unique with transit access offered by two stations. The Master Plan approaches both stations in a similar manner with the transit-oriented squares and similar street and building configurations and offerings for uses and amenities. Flexibility should be retained in the Master Plan to explore the potential for the two stations to have a differentiated approach. If one station were positioned more as the front door and the other as the back door, they may attract different uses and support transit-users to use the stations differently. For example, district residents or office workers may prefer one station over the other if they were approached differently from a land use and urban design perspective.

Massing and Context

013-041 The Proponent should explore variations in the overall Master Plan building heights and massing that may place additional building height at the center of the site where it is buffered from the surrounding context or place additional building height near the transit stations to strengthen the transit-orientation of the district. Placing the lowest buildings at the perimeter is also beneficial to the surrounding context and reduced wind impacts. The context sensitivity appears to be most out of alignment at the southern edge and southwestern "tail" of the district. These areas may benefit from a building type that provides more of a transition than currently illustrated. This new building type would offer a middle step between the extension of the Waldemar Avenue context and the large scale podium buildings shown along the southern edge in the current Master Plan. A smaller building type in

013-034

The Proponent intends to provide the affordable housing units on-site, in compliance with the Boston Inclusionary Development Policy requirement.

013-035

Refer to Chapter 1, *Project Description and Alternatives*.

013-036

Refer to Chapter 6, *Transportation.*

013-037

Refer to Chapter 1, *Project Description and Alternatives*.

013-038

Refer to Chapter 2, *Regulatory Context and General Information.*

013-039

Refer to Chapter 6, *Transportation.*

013-040

Refer to Chapter 3, *Urban Design.*

013-041

Refer to Chapter 3, *Urban Design.*

the southwestern "tail" of the Project may allow the entry roadway to be double-loaded with buildings on both sides adding to the district walkability and vitality as discussed in additional detail in the comment below.

Walkability and District Vitality

013-042 The Proponent should explore maximizing the opportunity for vitality in the district through the design of the street network, disposition of active ground floor uses, and connections to transit and open space. For example, would the district be more vital and walkable if the retail uses were concentrated near one station rather than anchoring both stations? In the Master Plan, the two Blue Line stations are treated as equal amenities with the surrounding development similarly designed. In practical use, Suffolk Downs may be the favored station of the district as many users will prefer to walk in the direction of their train trip, which is likely to be inbound for most trips. District vitality and walkability may also benefit from further definition and differentiation of the two Blue Line stations and their relationship to the district.

013-043 The Master Plan street network also includes streets with buildings on only one side of the street. These one-sided streets may not provide the sense of district vitality and pedestrian-friendliness that is desired. It appears the street network could be adjusted in some of these locations to create streets with buildings on both sides. Nearly the entire length of Tomasello Drive is one-sided with buildings and the other side open to the oil tank farm frontage. The roadway on the eastern edge of the central open space is also one-sided. This may not provide the most optimal relationship between open space and development for walkability and district vitality.

Street Network and Connectivity

013-044 The Proponent should explore additional opportunities for street connections to the surrounding street network and maintain flexibility in the street network. Future connections may be vehicular or pedestrian, but the layout should support the future addition of new connections. For example, future connections to Walley Street or Waldemar Avenue may create new benefits for connectivity in and around the site. Additionally, streets that are

013-045 pedestrian-only as part of the Master Plan, such as the "Sporty Spine" should be designed with adequate width to provide flexibility for possible conversion to be part of the vehicular circulation network in the future. Flexibility in the street network and connections with allow the Project to adapt to future traffic patterns.

Transition to Neighborhood Developments

013-046 The design of the structures should ensure that there is a good transition between existing neighborhoods and the higher density areas of the proposed development. We would encourage additional low-rise structures such as townhomes along a greater extent of the boundaries of the development (there is only one small section of townhomes along the southern Project border in the EENF). The Proponent should be required to prepare an additional development scenario that includes significantly lower-scale development near existing abutting neighborhoods and an increased density in the core of the site.

Neighborhood Impacts Open Space Connectivity

013-047 Impact of the proposed development on abutting residential neighborhoods should be analyzed, including impacts of shadow, loss of views, wind, and access to open space. The Proponent has indicated that a benefit to the

013-048 surrounding residential neighborhoods would be the ability to access the open spaces within the proposed development; the DEIR should include details of the guarantee that the open spaces within the site will be open to the general public, and that the access to, and connections to, existing neighborhoods will be designed in a welcoming fashion.

District Comparisons

013-049 The Proponent should provide examples of comparable districts in order to better communicate the scale of the district and to show that the new district is context sensitive within Boston and Revere. These district comparisons should include characteristics such as average block size, street hierarchy and street types, open space types and sizes, building types, average building height, density, total units, total building area, length of Main Street district, and amount of retail area. This direct comparison of the proposed Master Plan characteristics to other recognizable local districts, or relevant examples nationwide, would clarify the similarities and differences that may exist between the Master Plan and its context.

013-042

Refer to Chapter 3, *Urban Design.*

013-043

Refer to Chapter 3, *Urban Design.*

013-044

Refer to Chapter 6, *Transportation.*

013-045

Refer to Chapter 3, *Urban Design.*

013-046

Refer to Chapter 3, *Urban Design.*

013-047

Refer to Chapter 9, *Environmental Protection*, for wind and shadow analyses, and Chapter 3, *Urban Design*, for access to public open space.

013-048

Refer to Chapter 3, *Urban Design.*

013-049

Refer to Chapter 3, *Urban Design.*

Phase 1 Waiver

While MAPC does not oppose the requested Phase 1 waiver, we request the Secretary to include the following three conditions as part of a waiver approval:

013-050

- The Phase 1 development should allow for direct shuttle access to Suffolk Downs Station. It appears in the illustrations that the intent is that this area provide pedestrian-only access. Note that Figure 5.1 Phase 1 Project Access/Circulation Plan does indicate that the existing access drive to the Suffolk Downs station remains; however, it is not clear whether this will be maintained as a potential shuttle access route for the full Master Plan buildout. The approval of a Phase 1 waiver should be conditioned to allow a direct connection between the Suffolk Downs station and a potential future shuttle route.

013-051

- The street network for Phase 1 should provide continuous sidewalks and bicycle accommodations to reinforce street vitality and walkability, and access to the Suffolk Downs station. This connection sets the stage for advancing the Master Plan as a true Transit Oriented Development. As illustrated in the EENF, the Phase 1 proposal does not appear to create the critical multi-modal connection that will serve as the transit-oriented front door of the development.

013-052

- The Proponent should provide additional information about the connectivity from the development to the Suffolk Downs station. In the EENF, a gap of approximately 1,000 feet exists between the development and the Suffolk Downs station. The EENF's design illustration appears to depict a disconnected gateway in which transit is not well-connected to the development.

013-050

Refer to Chapter 6, *Transportation.*

013-051

Refer to Chapter 6, *Transportation.*

013-052

Refer to Chapter 6, *Transportation.*

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January 19, 2018

Via email: page.czepiga@state.ma.us

The Honorable Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Attn: MEPA Office, Page Czepiga
Boston, MA 02114

Subject: Suffolk Downs Redevelopment Expanded Environmental Notification Form

Dear Secretary Beaton:

Thank you for the opportunity to comment on the Expanded Environmental Notification Form (EENF) for the proposed Suffolk Downs Redevelopment. This project involves 16.5 million square feet of development at the former Suffolk Downs horse racing facility. Full build out of the site is anticipated to occur over a period of 15-20 years. The redevelopment of this 161-acre site located within East Boston and Revere represents an incredibly rare and unique opportunity to create an entirely new neighborhood. As such, it is important that this project be cohesive and compatible with the surrounding neighborhoods and seamlessly folded into the existing fabric of the area. This site is also under consideration as a potential location for Amazon's second corporate headquarters (HQ2) – a significant economic development opportunity for these cities and the region.

CLF submits these comments to help inform the scope of the Draft Environmental Impact Report (DEIR) that the proponent is required to complete pursuant to the Massachusetts Environmental Policy Act (MEPA). We look forward to working with your office, the proponent, and community stakeholders to ensure that this project embodies an innovative, vibrant, and inclusive vision for the site through transit-oriented development (TOD) principles, environmental protection, climate resiliency, and appropriate public activation and benefit.

I. Phase I Project Proposal

Phase I of the project will include 520,000 gross square feet (GSF) of commercial office space development with ground floor retail and up to 520 structured parking spaces. The proposed amount of commercial development is responsive to the requirements of Amazon's HQ2 Request for Proposal (RFP) and requires a Phase I Waiver to ensure timely construction. Standards for a Phase I Waiver pursuant to 301 CMR 11.11(4) include:

- Potential environmental impacts of phase one, taken alone, are insignificant;
- Ample and unconstrained infrastructure facilities and services exist to support phase one;
- The project is severable, such that phase one does not require the implementation of any other future phase of the project or restrict the means by which potential environmental impacts from any other phase of the project may be avoided, minimized, or mitigated; and
- The Agency Action on phase one will contain terms such as a condition or restriction in a permit, contract, or other relevant document approving or allowing the agency action, or other evidence satisfactory to the Secretary, so as to ensure compliance with MEPA and 301 CMR 11.00 prior to commencement of any other phase of the project.

While CLF does not oppose the proponent's request for a Phase I Waiver, we request clarification on the severability of this project from the master plan proposal. In particular, the proponent states that Amazon has an eight million square-foot commercial office requirement should Boston be selected as the location for Amazon's HQ2. We would like to better understand how selection for Amazon's HQ2 might impact the build out of the remainder of this site, including:

1. If selected, how will the proponent be responsive to Amazon's current requirements for the remainder of the site while preserving flexibility in the site's future programming to avoid and minimize environmental impact; and
2. If selected, how will the proponent address future requirements or agreements made with Amazon that require commitments that impact the build-out of the remainder of the site.

In addition to this general inquiry, we offer the following comments on Phase I project components and impacts.

Transportation

The project site is currently well-served by public transportation including two MBTA Blue Line stations and three bus lines (450, 459, 119) that are all within one-half mile of the site. The proponent has indicated that the project will employ TOD principles to leverage and maximize the existing public transportation infrastructure and encourage non-automobile transportation. As part of Phase I, the proponent has committed to installing a public bicycle share station, offering preferred parking or discounted parking rates for low-emitting/fuel-efficient vehicles, and electrical vehicle ("EV") supply equipment in two percent of parking spaces. There are 520 structure parking spaces proposed as part of Phase I.

CLF agrees that the existing public transportation networks that serve this site present a tremendous opportunity to maximize TOD principles and curb single occupancy automobile use. It is also compatible with Amazon's desire for a HQ2 with on-site access to mass transit and vibrant urban landscape. However, CLF is concerned by the current proposed number of parking spaces, which equate to a parking ratio of one parking space per square foot of commercial office space. In addition, based on the number of estimated vehicle trips in the EENF, the number of provided parking spaces would equate to more than one space per driver.

The proponent states that 520 existing surface parking spaces will be taken out of service when the 520 structure parking spaces are added to the site and therefore no net new parking spaces will result from Phase I of the Project. CLF is concerned that this statement oversimplifies the exchange and fails to acknowledge the change in use of the site. The surface parking spaces on this site were primarily used for event parking when the horse racing facility was in operation. A portion of surface parking has also been periodically used as overflow parking from Logan Airport. In contrast, the proposed use of the 520 structured parking spaces are for office and retail use. It is likely that these spaces will be used on a more regular basis and at a higher capacity than the previous surface parking spaces.

014-001

014-002

CLF requests that the proponent explore ways to minimize on-site parking and take advantage of the existing public transportation infrastructure and existing off-site parking capacity, including ample parking capacity at Wonderland. We further request that the proponent explore ways to increase the percent of spaces with EV supply equipment to meet growing demand. At least fifty percent of the spaces should be EV-ready (wired for later plug-in installation of a charging station) and the proponent should commit to reevaluating and incorporating additional EV infrastructure as demand increases.

014-001

Refer to Chapter 6, *Transportation*, for the shared parking approach. The use of existing off-site parking facilitates were not considered in the development of the parking plan as the Proponent does not control these facilities.

014-002

The Secretary of EEA granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. For the Phase 1 Project, the Proponent is committed to the implementation of an EV charging program that provides 100 spaces consisting of 30 EV charging spaces, 35 EV-ready charging spaces (as demand warrants), and 35 preferred parking spaces for low-emitting/fuel-efficient vehicles.

014-003

014-004

We are encouraged by the proponent's commitment to promoting alternative modes of transportation though bicycle and pedestrian infrastructure. In particular, the proponent has committed to installing a public bicycle share station (Hubway station). CLF requests that the proponent consider supplementing Hubway stations with dockless bicycle share stations. Dockless stations already exist in Revere (Hubway stations do not) and the combination of the two types of stations would better facilitate bicycle use for residents of both municipalities. Finally, we request that the new internal access driveway that is proposed as part of Phase I include a protected cycle track to encourage bicycle travel.

Open Space and Wetlands

The EENF indicates that under Phase I approximately 12 acres of existing open space will remain as-is and an additional 1.2 acres of open space will be improved including pedestrian access to the Suffolk Downs MBTA station. Phase I will result in approximately six acres of new impervious area and involve the permanent alteration of nine acres of Land Subject to Coastal Storm Flowage (LSCSF).

014-005

014-006

CLF requests that the proponent commit to constructing the proposed pedestrian plaza near the Suffolk Downs MBTA station (Bell Isle Square) as part of Phase I. Including this amenity at the onset of site build-out will help facilitate pedestrian flow at the site and encourage public transportation use early on. We also request that the proponent explore ways to reduce the amount of LSCSF that will be altered during Phase I construction and buffer zone encroachment. While not strictly regulated under the Massachusetts Wetland Protection Act (WPA), LSCSF are an invaluable natural resource in areas with present and future flood risk. With climate change expected to increase the intensity and frequency of flood impacts at this site, it is important to minimize and avoid alteration of LSCSF to the maximum extent feasible.

II. Master Plan Proposal

The master plan for this site includes nearly 17 million GSF of proposed commercial, residential, and retail development. The build-out of this site will have a significant impact on the existing neighborhoods and residents as well as the region – particularly if this site is selected as the location for Amazon HQ2. It is essential that this project adequately assess and mitigate the potential impacts of this extraordinary amount of new development.

CLF's priorities for the build-out of this site include maximizing open space and pedestrian amenities and networks, enforcing a strong transportation demand

014-003

Refer to Chapter 3, *Urban Design.*

014-004

Refer to Chapter 3, *Urban Design.*

014-005

The Phase 1 Project includes construction of the portion of the on-site Belle Isle Square public plaza that enhances the pedestrian connection to the Suffolk Downs MBTA Station, as shown in Figure 1.7 of the EENF/EPNF.

014-006

The Secretary of EEA granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. As required, the Proponent prepared a Resiliency Adaptation Study for the Phase 1 Project, which demonstrated the proposed development would not exacerbate flooding conditions of adjacent uses or properties.

management program and encouraging public transportation use to the maximum extent possible, appropriate stormwater management, incorporation of climate resiliency measures, and minimal impact or encroachment on existing wetland resources.

Transportation

As previously discussed, this site is currently well-served by public transportation infrastructure and presents a prime opportunity for transit-oriented development. The proponent has acknowledged the importance of bicycle and pedestrian connections to the two existing MBTA Blue Line stations as well as throughout the site. As the site approaches full build-out, access to public transportation from the inner portions of the site may become more difficult – particularly for those with mobility impairments or challenges. The EENF indicates that the proponent will explore opportunities to expand MBTA bus service and provide internal site transportation/shuttle service to improve access to public transit.

014-007 CLF strongly supports the use of on-site shuttle services to facilitate greater access and public transit use. We request that the DEIR include a commitment from the proponent to: (1) provide on-site shuttle services to the MBTA Blue Line stations and (2) exclusively utilize an electric fleet for shuttle services. Additionally, to the extent

014-008 that the proponent is considering adding bus stops to existing bus routes the DEIR should analyze whether additional stops would reduce the existing frequency or reliability of other stops on the route and the proponent should seek an alternative that avoids or minimizes these impacts.

014-009 CLF requests that the DEIR provide more detail on mode share and parking. The proponent has not indicated the total number of parking spaces that will be required for full build-out. Given the existing public transportation infrastructure, CLF requests that the proponent minimize parking spaces to the maximum extent feasible, prioritize EV infrastructure to account for increasing demand, and employ a strong TDM program. In particular, the proponent should consider TDM strategies

014-010 including bundling parking for residents, cash-out incentives for employees, and free or subsidized transit passes for employees. The DEIR should also analyze how the proponent will enforce a strong TDM program once the site reaches full build out and there are changes in ownership and operation.

Open Space and Climate Resiliency

CLF is generally pleased with the thoughtfulness of the proponent's proposal and the consideration given to open space and pedestrian networks. It is of critical importance that open space be preserved and maximized at this site given its

014-007

As described in Chapter 3, *Urban Design*, the Proponent is committed to implementing a privately-operated on-site shuttle bus system. The Proponent will explore the feasibility of providing an electric internal shuttle bus fleet to eliminate scope 1 emissions and reduce air quality emissions associated with the Project Site.

014-008

The Proponent has invested in a new stop and turnaround on Tomasello Drive for the MBTA #119 bus route and will continue to work with the MBTA to explore potential future bus routing and stops within the Project Site as the demand is warranted by the Master Plan Project. Refer to Chapter 6, *Transportation*, for more detail.

014-009

Refer to Chapter 6, *Transportation.*

014-010

Refer to Chapter 6, *Transportation.*

location adjacent to the Belle Isle Marsh, its role as a flood buffer for surrounding neighborhoods, and its vulnerability to climate change.

014-011 014-012 014-013

The master plan proposal currently includes a 40-acre open space network that includes both existing wetland features and active and passive recreation areas. We request the proponent provide more detail in the DEIR about the breakdown of open space including a differentiation in the open space that will be accessible for passive and active recreation versus existing wetlands features (in percentage and GSF). CLF also requests that the proponent commit to project phasing that prioritizes the development of open spaces and public amenities including the public plazas and the central 15-acre central common in the early stages of the site build-out. While we applaud the proponent for the incorporation of a robust 40-acre open space network on this site, we encourage further exploration in the DEIR of ways to increase the amount of open space on-site and configure structures so that there is minimal addition of impervious surface along the edges of existing wetland features, buffer zones, and floodplain borders.

014-014

The proponent has indicated that while the structures will be elevated significantly above FEMA BFE to account for climate impacts and flooding, some of the open spaces will be at a lower elevation. We request that the proponent provide more detail in the DEIR about the distribution of elevations on the site including a map depicting elevation contours and a description of how the open space will function to absorb and buffer flood waters.

014-015 014-016

We also request that the DEIR provide more detail about the "civic and cultural" nodes that are proposed for the site. In particular, the proponent should consider how community facilities can be used as emergency shelters during extreme weather and incorporate measures for passive survivability into those structures to maximize their effectiveness for sheltering in place.

Wetlands and Stormwater

The Suffolk Downs site is uniquely located adjacent to the Belle Isle Inlet and the Rumney Marsh Area of Critical Environmental Concern (ACEC). The EENF indicates that the project will result in activity within the Riverfront Area, possible encroachment into the buffer zone, and 3.5 million GSF of permanently altered LSCSF.

014-017

The proponent should provide greater detail on proposed activity within the ACEC and describe how the standard of no adverse impact will be met. The DEIR should consider alternative site design that would minimize activity within the ACEC.

014-011

Refer to Chapter 3, *Urban Design.*

014-012

Refer to Chapter 3, *Urban Design.*

014-013

As described in Chapter 3, *Urban Design*, 25% of the Project Site will be set-aside for usable green open space accessible to the public, which is a material percentage of the site and highly unusual for urban projects. The proposed open space network materially improves existing conditions around existing wetlands, which have been heavily disturbed and altered by the existing horse racing operations at the track.

014-014

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

014-015

Refer to Chapter 3, *Urban Design.*

014-016

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

014-017

Refer to Chapter 5, *Wetlands and Waterways.*

014-018 | The DEIR should consider measures to limit buffer zone encroachment as well as opportunities to preserve or restore wetland features on the site. The proponent

014-019 | should also consider opportunities to incorporate new natural features and green infrastructure systems that will complement the existing marshes.

014-020 | As indicated in the EENF, MassDEP has issued a draft Pathogen Total Maximum Daily Load (TMDL) for the Boston Harbor Watershed. The proponent should provide greater detail on how stormwater best management practices will be used to maximize the treatment of pathogens on-site. The DEIR should explore ways for the proponent to meet the highest standards of stormwater treatment given that this site is largely undeveloped and therefore has fewer constraints than most other sites in the Boston Harbor Watershed. The DEIR should provide further detail on the

014-021 | project's predicted load contribution and how the proposed amount of development will be responsive to the TMDL for this area.

CLF is grateful for the opportunity to provide comments on the EENF and looks forward to a continued dialogue with your office, the proponent, and community stakeholders as this project moves forward.

Sincerely,

Deanna Moran

Deanna Moran
Director of Environmental Planning

014-018

Refer to Chapter 5, *Wetlands and Waterways.*

014-019

Refer to Chapter 3, *Urban Design.*

014-020

Refer to Chapter 10, *Infrastructure.*

014-021

Refer to Chapter 10, *Infrastructure.*

BOSTON HARBOR NOW
Are you on board?

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January 22, 2018

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs
Attn: Paige Czepiga, MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114 via email to Page.Czepiga@state.ma.us

Re: Suffolk Downs Redevelopment, EENF

Dear Secretary Beaton,

On behalf of Boston Harbor Now, thank you for the opportunity to comment on the Expanded Environmental Notification Form (EENF) for the Suffolk Downs Redevelopment project submitted by McClellan Highway Development Company LLC (McClellan) in November of 2017.

After reviewing the EENF and attending the January 8, 2018, MEPA site visit, our comments follow.

Project description
As presented in the EENF, this proposal is for the redevelopment of the existing Suffolk Downs horse racing facility located in East Boston and Revere. The site is approximately 161 acres extending over two municipalities--109 acres in Boston and 52 acres in Revere.

As proposed, the Suffolk Downs Redevelopment Master Plan Project will include 16.5 million SF of mixed-used development; approximately 11 million square feet will be in the City of Boston and 5.5 million square feet in Revere. The entire redevelopment will take 15 to 20 years to complete.

Phase 1 Waiver
MEPA reviews require State agencies to evaluate the environmental consequences of permitting a development project and to require all feasible measures to be taken to avoid, minimize, and mitigate potential damage to the environment. Under 301 CMR 11.11, the Secretary may waive any provision or requirement of the MEPA regulations and may impose appropriate and relevant conditions or restrictions, provided that he finds that strict compliance with the rule or requirement would not avoid or minimize

damage to the environment. The proponent has requested a Phase 1 waiver for a limited portion of the site, located in East Boston. Phase 1 would include:

- 520,000SF of office space,
- A new internal access road,
- Open space improvements, and
- 520 structured parking spaces.

We understand the proponent's need to expedite the process in response to Amazon's search for new headquarters and the site's inclusion in, the recently published, shortlist of potential sites. Assuming that the waiver has the support of the City of Boston and the Impact Advisory Group for this project, Boston Harbor Now does not oppose McClellan's request for a Phase 1 waiver. Our concern, expressed in the following comments, focus on the remaining sections of the Master Plan.

The Suffolk Downs Redevelopment is a significant proposal with some fluid and yet-to-be-designed portions. The project will require extensive collaboration between City and State agencies, effective communication between two different municipalities, and a lengthy construction period. A Draft Environmental Impact Report (DEIR)for the remaining acres of the redevelopment is an absolute necessity for a project of this magnitude. We look forward to reviewing the proponent's DEIR at a future time.

015-001

A portion of Phase 1 is located within landlocked tidelands that are exempt from Chapter 91 licensing obligations. The Secretary may, however, require a public benefits determination for the proposed Phase 1 section of the project. As proponents develop the DEIR, we ask that particular attention is given to project impacts on abutters and surrounding communities, the proposed on-site community activities, and the public benefits offered as part of the redevelopment.

Environmental Protection and Preservation

According to the EENF, the Suffolk Downs site contains 8 acres of wetland area. The Rumney Marshes Area of Critical Environmental Concern (ACEC) is part of the 8-acre wetland area and runs through a portion of the Suffolk Downs redevelopment site.

ACECs are areas that receive special recognition because of the significance of the natural and cultural resources they provide. Rumney Marsh was designated by the state as an ACEC in 1988 to preserve its environmental value as one of the most biologically significant salt marshes within and north of Boston. We commend the proponent for recognizing the importance of the area both in the EENF and at public meetings.

015-002

One of our predecessor organizations (The Boston Harbor Association) worked closely with the Saugus River Watershed Council to educate the community and advance the long-term objectives of the Rumney Marsh ACEC designation[1]. Section 4.4.6 of the EENF points to the Marsh as a "heavily disturbed" area due to previous onsite activities. We understand the history of activities on the site may have heavily disturbed the natural habitat. These salt marshes are still vitally important to the surrounding areas, partially due to their capacity to provide flood water storage and prevent flood damage. Boston Harbor Now is particularly interested in understanding the proponent's mitigation plans to address the existing disturbances and restore portions of this environmentally valuable natural resource. We look forward to reviewing additional details in the DEIR.

[1] http://www.mass.gov/eea/docs/dcr/stewardship/acec/rumneymarsh.pdf

015-001

Refer to Chapter 1, *Project Description and Alternatives*, for a summary of public benefits associated with the Master Plan Project.

015-002

Refer to Chapter 5, *Wetlands and Waterways.*

Finally, according to the supplemental information provided to MEPA, the Phase 1 project will add an estimated 19,000 cubic yard volume of fill within Land Subject to Coastal Storm Flowage (LSCSF). Although the proponent confirms there are no plans to alter existing wetland areas, the grading plan indicates the use of fill to increase site grade near the infield pond and at the edge of existing wetland areas. The DEIR should focus on impacts to the wetland areas resulting from fill on abutting resource areas and the effects associated with redirecting storm flooding.

015-003

Public Access and Transportation

Recognizing that this project is being expedited due to its role in Boston's bid for the second Amazon headquarters, we anticipated a plan that more closely aligned with the Boston proposal. The City's proposal included a water transportation component that is not mentioned in the EENF. For future ferry service to be a viable option for the site, there must be meaningful connectivity to and across Route 1 at the southwest corner of the site included in the plan. The DEIR should include a passenger ferry viability study that considers travel times and travel time savings from Downtown Boston and North Station, a feasible location and design for a ferry dock proximate to the site, and vessel designs that can be used with the Andrew McCardle and Chelsea Street bridges.

015-004

Currently, the Phase 1 section of the project is proximate to the Suffolk Downs T station but it is not near an existing bike path/network. The nearest bike and pedestrian pathway is the East Boston Greenway that currently terminates near the Orient Heights T station. We are excited to hear that the proponent plans to connect the East Boston Greenway to Revere Beach. We strongly support efforts to incorporate several modes of transportation to and from the redevelopment site. Extending the existing East Boston Greenway will provide both the site and the surrounding communities with improved access and recreational benefits.

As presented in the EENF, there will be several new east-west pedestrian pathways that cut across the site to connect Revere and Orient Heights. We applaud efforts to improve walkability across the site and encourage the proponent to explore additional north-south connections across the site as part of the DEIR. We look forward to reviewing details of improved pedestrian and bike pathway connections in the DEIR.

015-005

015-006 A detailed mitigation commitment timeline that addresses the proponent's transportation contributions should also be included in the DEIR.

Climate Change

We were glad to read that the proponent understands the vulnerability of the Suffolk Downs redevelopment site to flooding. We see this project proposal as an excellent opportunity to build an exemplary climate resilient project that creates on-site as well as district-wide resiliency that will also benefit the surrounding communities. We strongly urge the project proponent to consider district-wide resiliency approaches as part of the DEIR.

015-007

As completed by the proponent, the Boston Climate Change Resiliency and Preparedness Checklist confirms that the project site is within the FEMA 100-year Flood Zone AE with a Boston City base site elevation ranging from 14-22 (the lowest point on the property is currently 14 inches at the Beachmont station in the Revere section of the project). As presented in the EENF and at public hearings, the proponent plans to elevate portions of the site to the Boston Planning and Development Agency-recommended standard of 40-inches above the 100-year FEMA flood elevation and to create an opportunity for the community to shelter in place. We applaud this initiative.

015-003

Refer to Chapter 5, *Wetlands and Waterways,* and Chapter 10, *Infrastructure*, for a discussion of a change in stormwater flows to nearby natural resources.

015-004

The Project Site is bounded by Route 1A and Bennington Street and does not have ownership or access to waterfront properties to allow ferry access. Future ferry access to this area would be dependent upon redevelopment of existing parcels on the west side of Route 1A, which are currently industrial and oil storage facilities. Ferry access would be difficult on the Belle Isle Marsh due to existing parkland and low bridge clearances that lead back to Boston Harbor. Although the Proponent supports consideration of new and increased ferry service in the area development of this would be dependent on adjacent parcels, which have direct waterfront access.

015-005

Refer to Chapter 6, *Transportation.*

015-006

Refer to Chapter 6, *Transportation.*

015-007

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

The proponent's responses to the Resiliency Checklist also indicated that the frequency of storms, the need for temporary flood barriers, the resiliency of critical building systems, flood proof elevations, and first floor elevations are yet-to-be-determined or have not been analyzed. Site and building design should consider the possibility that today's 1% storm could have a frequency of 10% by mid-century, and that chronic flooding associated with monthly and seasonal high tides will become more and more prevalent during the latter half of the century. We strongly recommend the proponents evaluate the combined impacts of both nuisance flooding and storm scenarios as well as increased intensity of super storms, nor'easters, and hurricane events that was suggested by the Climate Ready Boston/Boston Research Advisory Group report.

015-008

We also note that the Boston Research Advisory Group's projections for the Climate Ready Boston project indicated that that sea level rise may completely submerge the Bell Isle Marsh over time, substantially reducing the buffering capacity of this natural resource. The resilience plan for the Suffolk Downs site should consider this possibility.

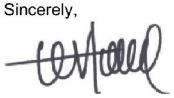
015-009

During the MEPA site visit, our staff inquired about coastal flooding during winter storm Grayson. The development team confirmed that the tide gates along Bennington Street were vital in preventing storm surge and coastal flood waters from entering the Belle Isle Square section of the property. We note that the tide gates affecting the redevelopment project are operated and managed by the Department of Conservation and Recreation (DCR). Climate change resiliency plans explored as part of the DEIR should consider a program that supports DCR's tide gate operations.

Finally, it is clear there will be a significant gap of time between the completion of Phase 1 and full buildout of the Suffolk Downs redevelopment. It is essential that Phase 1 is well-designed, with the public amenities, resilient design standards, and multimodal connections that will make it a great place and destination on its own.

Thank you for your time and consideration.

Sincerely,



Jill Valdes Horwood
Director of Policy

015-008

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

015-009

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

January 25, 2018

Mayor Brian Arrigo
ATTN: Robert O'Brien, Director of Economic Development
City of Revere
281 Broadway
Revere, MA 02151

Secretary Matthew Beaton
ATTN: Page Czepiga, MEPA Analyst
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Director Brian Golden
ATTN: Tim Czerwienski, Project Manager
Boston Planning and Development Agency
One City Hall, Ninth Floor
Boston, MA 02201

RE: WalkBoston comments on Suffolk Downs redevelopment (EEA No. 15783)

Dear Mayor Arrigo, Secretary Beaton and Director Golden:

Thank you for the opportunity to comment on HYM Investment Group's proposed redevelopment of the Suffolk Downs site in East Boston and Revere. WalkBoston looks forward to working with the City of Revere, EEA, BPDA, HYM, and other agencies and project stakeholders to help advance the proponent's stated goal of "creating a vibrant, mixed-use walkable community."

Leveraging connections between walkability and transit

The proponent's Expanded Project Notification Form (EPNF) reflects a strong commitment in principle to walkability and multimodal transportation connectivity. The proposed Phase 1 project emphasizes new pedestrian connections at the Suffolk Downs Blue Line station on the MBTA, and the Master Plan project is similarly premised upon pedestrian access to and from the Blue Line at Suffolk Downs and Beachmont Stations. Overall the Suffolk Downs site is well-positioned for walkable transit-oriented development, which is reflected in HYM's high anticipated mode shares for walking and transit for the Master Plan project. (The projected mode shares for walking range from 10.9% for office uses to 19.6% for residential uses; the projected mode shares for transit range from 45.4% for residential uses to 54.7% for hotel uses.)

The Phase 1 project has a much lower projected transit mode share of 37.5%, as well as a 44.4% projected mode share for single occupancy vehicles. We are concerned that this will create

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significant auto dependency from the onset of this project that will affect the future Master Plan development as well. The proponent states that "while there will be emphasis to support a high proportion of alternative trip making by the Phase 1 Project, this more conservative mode share profile has been utilized given the Phase 1 buildings are being analyzed as a standalone project without the benefit of a mixed-use environment." We urge the proponent to aim for more ambitious transit, walking and biking mode share goals for the Phase 1 development to maximize the site's potential for transit-oriented development.

016a-001

The proponent also anticipates over 54,000 new transit trips per weekday, including over 4,000 trips during the morning peak hour and over 5,000 trips during the evening peak hour. This number is very high relative to current Blue Line ridership levels. As part of their transit analysis for the Draft Environmental Impact Report (DEIR), HYM should detail how they arrived at this number and how Blue Line ridership will change as the Master Plan project is phased in over time. This analysis should be accompanied by the proponent also clarifying their plans to invest in capacity upgrades along the Blue Line as part of a broader package of Transportation Demand Management (TDM) strategies.

Exploring opportunities to reduce single occupancy vehicle trips and parking spaces

016a-002

While the high projected transit mode share and ridership are positive attributes of this development proposal, the proponent still projects over 33,000 new vehicle trips per weekday, including over 3,000 trips during the morning peak hour and over 3,000 trips during the evening peak hour. This increased vehicular traffic has the potential to significantly affect congestion and pedestrian safety within the project site and along surrounding roadways. Given that vehicular access to the site is limited to just two intersections (Route 1A/Tomasello Way and Winthrop Avenue/Tomasello Way), the proponent should clarify how the project site and surrounding streets will handle this traffic in the DEIR. Significant mitigation measures will be necessary to address 33,000 new vehicles on already congested streets.

016a-003

While HYM does not specify how many new parking spaces will be needed to accommodate these vehicles, WalkBoston calculates that between 10,800 and 16,200 new spaces will be necessary, depending on the development program and parking ratios used. (The proponent states that the following parking ratio ranges should adequately support the Master Plan project's parking demand into the future: residential, 0.5 to 1.0 spaces per unit; office, 1.0 spaces per 1,000 SF; lab, 1.0 spaces per 1,000 SF; hotel: 0.5 spaces per room; retail: 0.5 spaces per 1,000 SF). We are encouraged by the relatively low proposed parking ratios for the residential units, as well as HYM's broader recognition that auto trip rates are likely to decrease over time. The final residential parking ratio should be as close to 0.5 spaces per unit as possible and we look forward to reviewing HYM's TDM plans as part of the DEIR. Any strategies and mitigation measures proposed must further enhance walkability, bikeability and transit access, while reducing single occupancy vehicle use and the associated need for parking.

Exploring opportunities for bus/shuttle connectivity and related pedestrian access

HYM notes that there are several MBTA bus lines (450, 459 and 119) along Route 1A and Winthrop Avenue within a half-mile walk of the project site, and that "there are opportunities to expand MBTA bus service into the project site and provide for internal site

016a-001

Refer to Chapter 6, *Transportation.*

016a-002

Refer to Chapter 6, *Transportation.*

016a-003

Refer to Chapter 6, *Transportation.*

transportation/shuttle to further improve access to public transit" as the Master Plan project is built out. The proponent should further explore and detail these options as part of their TDM plans in the DEIR, as increased utilization of MBTA buses and/or shuttles can reduce single occupancy vehicle use. An analysis of bus/shuttle options should examine the potential for increased service on existing MBTA bus lines and associated changes in ridership, as well as the potential to service the neighborhoods surrounding the project site. The proponent should also clarify their plans for investing in such services, whether through funding the MBTA or their own shuttles.

016a-004

016a-005

Ensuring that pedestrians can safely and comfortably walk to and from bus/shuttle stops is critical to ensuring that these services will be utilized. Ideally bus/shuttle stops will be located within a quarter-mile of the project site to maximize their usage. We appreciate HYM's commitment to improving sidewalks adjacent to the project site to meet ADA standards and to include street trees if feasible, as well as their acknowledgement of the need for mitigation measures and infrastructure improvements at the site's primary vehicular access points (Route 1A/Tomasello Way and Winthrop Avenue/Tomasello Way). The proponent states that "geometric and traffic signal improvements will be recommended at both of these intersections to optimize traffic operations."

Improvements at these locations must also address pedestrian safety and traffic calming. HYM plans to widen Tomasello Way and Route 1A as part of the Master Plan improvements, yet there are no crosswalks across Route 1A near the project site and the crosswalk across Tomasello Way at Route 1A is already 140 feet wide with minimal pedestrian refuge. Any signal and roadway upgrades at this location and near other shuttle/bus stops must provide safe pedestrian crossings and well-timed WALK signals that provide countdowns and leading pedestrian intervals. Long crossing distances should be reduced as much as possible using curb extensions, and pedestrian refuges should be created and enhanced to provide protected waiting areas. In extreme circumstances, the proponent might consider working with the MBTA to relocate bus stops to more pedestrian-friendly locations.

016a-006

Creating a walkable project site that meets Complete Streets standards

In addition to leveraging pedestrian access to and from the Blue Line, the proponent has integrated walkability and pedestrian connectivity into many other aspects of their redevelopment proposal. These include creating a new interior street network on site that meets Boston Transportation Department's (BTD) Complete Streets guidelines, developing a system of multi-use ADA-compliant paths and trails that connects to adjacent neighborhoods and regional path networks, and activating the public realm with open space amenities and extensive ground-floor retail. Creating streets, sidewalks and paths that accommodate road users of all abilities and travel modes is critical to developing more livable and walkable communities, so WalkBoston is pleased to see a commitment to these issues in the EPNF.

We look forward to seeing more detailed plans for the interior streets, paths, intersections and signals as part of the DEIR. The interior streets should be designed to ensure that vehicles follow a 20 mile per hour speed limit to maximize walking safety as well as walking and transit mode shares. They should also include additional measures for pedestrian safety and traffic calming, including narrow vehicular travel lane widths, frequent and well-marked crosswalks,

016a-007

016a-004

Refer to Chapter 6, *Transportation*, which includes an analysis of bus and shuttle options, as well as a description of the proposed Transportation Demand Management (TDM) Plan for the Project.

016a-005

Refer to Chapter 6, *Transportation.*

016a-006

Refer to Chapter 6, *Transportation.*

016a-007

Refer to Chapter 6, *Transportation.*

016b-007
016b-008

and well-timed WALK signals that provide countdowns and leading pedestrian intervals. We encourage the proponent to maintain their current plans to not have vehicular access to the project site from Bennington Street or Waldemar Avenue, thus prioritizing multimodal connectivity and reducing the potential for increased local traffic.

Improving pedestrian safety throughout the project study area

The need for traffic mitigation is not limited to the immediate project vicinity and access points. To this end, HYM states that a mitigation program will likely focus on improvements to roadway geometry, traffic signals, and multimodal mobility along the broader Route 1A and Winthrop Avenue corridors, as well as Furlong Drive, the on-site roadway network, and other nearby intersections. The proponent also notes that many of the broader study area intersections are located within Highway Safety Improvement Program (HSIP) clusters and thus are potentially subject to Road Safety Audits (RSAs) per Massachusetts Department of Transportation guidelines. WalkBoston looks forward to reviewing a more detailed discussion of the Master Plan project mitigation phasing and recommendations for the timing of specific roadway improvement projects as part of the DEIR. We are also available to participate in future RSAs as needed. Once again, we encourage utmost consideration for pedestrian safety and traffic calming measures as part of any improvement packages.

016b-009

Thank you again for considering these issues and feel free to contact us with any questions.

Sincerely,

Wendy Landman

Wendy Landman
Executive Director

Cc: House Speaker Robert DeLeo
Senate President Harriet Chandler
Senator Joseph Boncore, Transportation Co-Chair
Representative William Strauss, Transportation Co-Chair
Representative Adrian Madaro
Boston City Council President Andrea Campbell
Boston City Councilor Michelle Wu, Transportation Chair
Boston City Councilor Lydia Edwards, District 1
Revere City Council President Jessica Giannino
Revere City Councilor Steven Morabito, Economic Development and Planning Chair
Revere City Councilor Joanne McKenna, Ward 1
Becca Wolfson, Boston Cyclists Union
Stacey Thompson, LivableStreets Alliance
Andre Leroux, Massachusetts Smart Growth Alliance
Richard Fries, MassBike
Marc Ebuña, TransitMatters
Chris Dempsey, Transportation for Massachusetts

016b-007

Refer to Chapter 6, *Transportation.*

016b-008

The Proponent is planning to maintain their current plans to not have vehicular access to the project site from Bennington Street or Waldemar Avenue.

016b-009

Refer to Chapter 6, *Transportation.*

Mystic River Watershed Association
your community · your watershed

January 18, 2018

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs
MEPA Office; Attn. Page Czepiga
100 Cambridge Street, Suite 900
Boston, MA 02114

Re: EEA 15783, Suffolk Downs Redevelopment ENF

Dear Secretary Beaton:

The Mystic River Watershed Association (MyRWA) appreciates this opportunity to comment on the Environmental Notification Form filed for the proposed Suffolk Downs Redevelopment in Boston and Revere.

The Mystic River Watershed Association is a 501(c)(3) nonprofit organization founded in 1972. The organization's mission is to protect and restore clean water and related natural resources in the watershed's twenty-two communities and to promote responsible stewardship of our natural resources through educational initiatives. MyRWA accomplishes its mission by forging links with citizens' groups, universities, businesses and government agencies. These alliances enable MyRWA to accomplish work throughout the watershed, documenting current conditions and advocating for resource management and protection. This collaborative approach creates a strong watershed voice and attracts much-needed public and private resources to the Mystic.

As an environmental organization, MyRWA is particularly attuned to how proposed projects will affect existing conditions within urbanized areas. MyRWA notes that the Suffolk Downs Redevelopment ENF was comprehensive and thoughtfully prepared, and applauds the Proponent for including in its objectives:

- A path to LEED certification for the project,
- Climate change resiliency and consideration of the implications of sea level rise,
- Improvements to the existing stormwater collection, treatment, and conveyance systems,
- Protection of the Rumney Marsh (Sales Creek) ACEC, and
- Transit-oriented development incorporating commercial and residential uses.

Although MyRWA is supportive of sustainable, transit-oriented development, we ask that the Secretary deny the waiver for Phase 1 of the project and require an EIR for the entire project, including Phase 1. Our major concern is that stormwater from the site drains via Sales Creek into Belle Isle Marsh. Belle Isle Marsh is part of the Rumney Marsh, an area of critical environmental concern (ACEC) and the largest contiguous salt marsh in the Boston metropolitan area. Our assessment is that the information in the ENF is insufficient to provide adequate

assurance of environmental protection for this critical wetland resource. Phase 1 of the project therefore fails to meet the criteria for a Phase 1 waiver as outlined in 301 CMR 11.11, necessitating an EIR.

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017-004

In particular, Phase 1 of the project will create significant impervious surface, which will increase the amount of stormwater flow into the stormwater management system. A new stormwater drainage system is proposed for the project, including Phase 1. Based on the potential impact to the ACEC, we recommend that the stormwater management design be evaluated in a DEIR to ensure full compliance with the stormwater management regulations (SMR) performance standards. The DEIR should demonstrate that the project's water quality and quantity impacts would be controlled with best management practices (BMPs) to comply with SMR standards. The DEIR should also demonstrate that source controls, pollution prevention measures, and erosion and sediment controls during construction, as well as the post-development drainage system, will be designed to comply with the SMR and standards for water quality and quantity impacts. It is critical that the stormwater system design protect wetlands resources in conformance with stormwater regulations and NPDES permits.

We recognize this project as an opportunity to contribute to the ongoing revitalization of a significant natural resource, and look forward to seeing details in the DEIR for these and other commitments made in the ENF. We expect your scope for the DEIR to include requirements for design details, appropriate modeling and calculations, and firm commitments on mitigation measures that will enhance and protect the human and natural environment.

In addition, we offer specific comments in the following areas:

Phase 1 Waiver Eligibility

Pursuant to 301 CMR 11.11, a Phase 1 Waiver may only be issued if the Secretary determines that:

> (a) the potential environmental impacts of phase one, taken alone, are insignificant;
>
> (b) ample and unconstrained infrastructure facilities and services exist to support phase one;
>
> (c) the Project is severable, such that phase one does not require the implementation of any other future phase of the Project or restrict the means by which potential environmental impacts from any other phase of the Project may be avoided, minimized or mitigated; and
>
> (d) the Agency Action on phase one will contain terms such as a condition or restriction in a Permit, contract or other relevant document approving or allowing the Agency Action, or other evidence satisfactory to the Secretary, so as to ensure due compliance with MEPA and 301 CMR 11.00 prior to Commencement of any other phase of the Project.

MyRWA contests the Proponent's assertion that the environmental impacts of Phase 1, taken alone, are insignificant, and that the project is severable. No comment will be offered on the infrastructure needed to support Phase 1. MyRWA also asks that any agency action taken include consideration of the points in subsequent sections of this letter.

017-001

Refer to Chapter 10, *Infrastructure.*

017-002

Refer to Chapter 10, *Infrastructure.*

017-003

Refer to Chapter 10, *Infrastructure.*

017-004

Refer to Chapter 12, *Summary of Mitigation/Draft Section 61 Findings.*

Environmental Significance of Project and Phase 1 Impacts

Creation of Impervious Surface

The project Phase 1 and the Master Plan significantly increase the amount of impervious surface on a 161-acre tract of land. While Phase 1 construction remains below the mandatory EIR threshold of creation of ten or more acres of impervious area (CMR 11.03(1)(a)(2)), the project as a whole will surpass this threshold. Increasing impervious surface increases the burden on the stormwater system.

As stated in the ENF, Phase 1 construction is anticipated to create six acres of impervious surface and alter nine acres of land subject to coastal storm flowage (LSCSF). Given that the new access road and two large buildings planned for Phase 1 will drain to the infield pond, and overflow from this pond drains to Sales Creek, the creation of six acres of impervious surface near the infield pond has significant environmental implications.

We ask that the Secretary restrict the increase in impervious surface as described in the Project Master Plan or otherwise require additional mitigation for the environmental impact.

Groundwater

The Proponent addresses groundwater protection in section 4.6.8 of the ENF, but does not provide an in-depth discussion of the project's potential impact on groundwater during Phase 1 construction and as part of the Master Plan. For instance, the two buildings planned as part of Phase 1 construction will be connected by below-grade parking. Proponent states that "dewatering effluent will be recharged on-site to the greatest extent possible" and does not anticipate "adverse impacts to adjacent structures or to area groundwater levels." In the DEIR, Proponent should provide specific and appropriate evidence to demonstrate that the project will not have a negative long-term impact on groundwater flow patterns at the project site.

017-005

Wetland Resource Areas/Floodplains

017-006

The floodplains on the site have been regulated as Bordering Land Subject to Flooding (BLSF) under the Wetlands Protection Act in the past by both Boston and Revere Conservation Commissions, and should be analyzed as such in the DEIR. Sales Creek and the onsite ditches have Inland Bank and Land Under Water which, technically, should be bound by BLSF. Land Subject to Coastal Storm Flowage (although listed in the Wetland Protection Act and Regulations) does not have performance standards in the regulations against which to judge impact. Since the Proponent intends to impact the floodplain, a BLSF analysis of mitigation required for storage and/or flow disruption per 310 CMR 10.57 should be provided in the DEIR.

017-007

As the Proponent recognizes in the ENF, Sales Creek is bordered by portions of Bordering Vegetated Wetlands (BVW) within the infield of the race track. The project is therefore subject to regulation pursuant to 310 CMR 10.55. The Proponent should therefore include an appropriate alternative analysis in the DEIR to demonstrate that wetland alteration has been avoided and minimized to the extent feasible.

Rumney Marsh ACEC

Portions of the project site are located within the Belle Isle Marsh portion of the Rumney Marsh ACEC. Within the project site, ACEC limits coincide with the 100-foot buffer zone to Bank and BVW along Sales Creek. The

017-005

Refer to Chapter 10, *Infrastructure.*

017-006

The floodplain on the site has been accurately confirmed by the Boston and Revere Conservation Commissions as Land Subject to Coastal Storm Flowage through the Abbreviated Notice of Resource Area Delineation process.

017-007

Refer to Chapter 5, *Wetlands and Waterways.*

Rumney Marsh is a valuable wetland resource, and previous disturbances within the ACEC do not justify reduced care in planning for the Suffolk Downs development.

The ENF states that, in accordance with the Massachusetts Wetlands Protection Act, the DEIR/DPIR will provide a discussion of applicable performance standards for individual resource areas. Undertaking Phase 1 construction without accounting for these standards is unwise, since individual resource areas of interest may be located near the Phase 1 site. Though the Proponent intends to evaluate opportunities to restore degraded resource areas as the Master Plan Project is advanced, we ask that the Secretary require consideration of these opportunities within the entire development area, including the Phase 1 project site.

Stormwater Quality

017-008 MyRWA asks that the same considerations EEA expressed for water quality improvement/protection in the Secretary's Certificates on the ENFs for EEA 14747 (Suffolk Downs Stabling Area and Racecourse Stormwater Improvements) and for EEA 15006 (Caesar's Resort at Suffolk Downs/Mohegan Sun Massachusetts) be incorporated into the design of the stormwater system proposed for discharge to the Rumney Marsh ACEC under the current proposal. The DEIR should detail how the newly proposed system builds upon the concepts presented in the EEA 14747 and EEA 15006 projects.

017-009 In the ENF, Proponent commits to achieving 80 percent total suspended solids (TSS) removal in the Master Plan project. These standards should be applied to Phase 1 design as well. Proponent should provide additional detail on the on-site treatment trains and structural Best Management Practices (BMPs), including the deep sump hooded catch basins and water quality treatment systems mentioned in the ENF. We ask that the Secretary require calculations in the DEIR that demonstrate that stormwater management systems are appropriately sized and request the Proponent use NOAA Atlas 14 rainfall data. The DEIR for Phase 1 would provide the opportunity to determine the impacts of using these data compared to the TP-40 data.

The Phase 1 project site includes two key drainage areas, and stormwater from both of these has the potential to impact water quality in Sales Creek. The race track and infield areas included in Phase 1 drain to the infield pond, and overflow from this pond drains to Sales Creek. Drainage from the existing overflow parking area and area outside of the racetrack also discharges to Sales Creek via an intermittent stream. Stormwater quality in the Phase 1 project area must therefore be carefully evaluated for its potential impact on Sales Creek and the Rumney Marsh ACEC.

Flooding and Sea Level Rise

017-010 The Phase 1 Project finished floor elevation will be elevated to 22 feet Boston City Base, which is over 52 inches above the 100-year FEMA flood elevation. MyRWA applauds the Proponent for its consideration of potential sea level rise and storm surge impacts on the project site. However, as noted in the ENF, Bennington Street and nearby project site low points are particularly vulnerable to coastal flooding. As part of the DEIR, additional plans should be provided to demonstrate that the proposed development will have no adverse impacts on the ability of the Bennington Street stormwater pumping station to manage flows during severe weather events.

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017-008

The previously proposed projects at the Project Site differed significantly from what is currently proposed. The proposed stormwater management system complies with applicable requirements, and will result in an improvement to the quality of stormwater runoff as compared to existing conditions. Refer to Chapter 10.

The Certificate on the ENF for the Suffolk Downs Stabling Area and Racecourse Stormwater Improvements (EEA 14747) references that the project should meet the Massachusetts Stormwater Management Standards for redevelopment projects. The currently proposed Master Plan Project provides water quality protection beyond this requirement, since it is not being undertaken as a redevelopment project in the context of stormwater requirements.

Similarly, the Certificate on the ENF for Caesar's Resort at Suffolk Downs includes requirements relating to meeting applicable state and federal stormwater requirements, and encourages consideration of Sales Creek and associated drainage channels as a project amenity, which the current Master Plan envisions.

017-009

Refer to Chapter 10, *Infrastructure.*

017-010

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

Severability of Project Phase 1

Stormwater Infrastructure

Runoff from the Phase 1 project site will drain into the infield pond in a fifteen-acre central common, which is designed as an open space that will have improved public access as part of the Master Plan. This infield pond and central common both drain to Sales Creek. Elements of the Phase 1 design will therefore have a direct impact on the extent to which the central common and infield pond are viable destinations for runoff in later phases of the project. The DEIR should detail the extent to which runoff from the Phase 1 area will affect the capacity of the infield pond, and include concrete steps that the Proponent will use to minimize overflow events that will affect Sales Creek and the Rumney Marsh ACEC. Because Belle Isle Marsh and the Rumney Marsh ACEC are possible destinations for runoff from impervious area created during Phase 1 construction, and because the infield pond is a destination for runoff from regions beyond those altered during Phase 1, Phase 1 should not be treated as independent of later project phases.

Regulatory Context

A National Pollutant Discharge Elimination System (NPDES) Construction General Permit is required for projects that involve more than one acre of disturbed lands. Additionally, Section 13.10.020 of the City of Revere Bylaws requires that an Erosion and Sediment Control plan be approved by the Department of Public Works prior to any land-disturbing activities. The Proponent intends to satisfy these regulatory requirements by developing and implementing a Stormwater Pollution Prevention Plan (SWPPP).

In the ENF, Proponent states that "source control and pollution prevention measures will be essential to maintaining the quality of the receiving waters," and that this point will be addressed further in the Long-Term Pollution Prevention Plan and the SWPPP. MyRWA feels that an adequate SWPPP must be developed prior to any site construction and implemented during Phase 1, and that beginning Phase 1 construction without an SWPPP in place would limit the Proponent's ability to carry out later-stage environmental mitigation activities. In a regulatory context, then, the Phase 1 site should not be treated as severable from the remainder of the project site.

Topography and Sedimentation

Proponent plans to raise and re-grade "major portions of the Project Site" in order to protect the site from storm surge and increase resiliency to the impact of sea level rise. The topography of the site, along with the materials and methods used to raise and re-grade the site, will affect runoff flow and quality within and around the development area. Raising and re-grading of the Phase 1 project site are not mentioned specifically in the ENF, but any raising or re-grading decisions made during Phase 1 construction would affect the project site as a whole and thus are not severable. We ask that the Secretary request that specific plans for the sections of the project site that will be raised and re-graded, including within the Phase 1 site, be included in the DEIR.

017-011

Additionally, the ENF reveals an intent to "develop and implement an erosion and sedimentation control plan for all construction activities for the Phase 1 Project." Appropriate calculations and relevant details from this plan should be provided before construction commences.

Amazon Proposal Timeline

017-011

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. As requested by the MEPA office, in support of the waiver, the Proponent provided an existing and proposed grading plan for the Phase 1 Project.

In the ENF, Proponent states that "full MEPA review would result in undue and unnecessary hardship to the Proponent," as changes to the project timeline would affect Proponent's ability to meet deadlines for the Amazon HQ2 proposal. Whether or not Proponent's Amazon HQ2 proposal is successful, Proponent requests a Phase 1 waiver under the assumption that Phase 1 construction could be a starting point for the construction of a larger Amazon campus. All development activities at the project site therefore constitute a common plan, and Phase 1 is not severable from the remainder of the development. Accordingly, a DEIR should be required for the entire project site, and the Phase 1 waiver should be denied.

Thank you again for this opportunity to comment on this significant project proposal. If you have any questions or require additional information please contact me at (781) 316 3438 or patrick@mysticriver.org.

Sincerely,

Patrick Herron, Executive Director
Mystic River Watershed Association

January 18, 2018

Secretary Matthew Beaton
Executive Office of Energy and Environmental Affairs
MEPA Office; Attn. Page Czepiga
100 Cambridge Street, Suite 900
Boston, MA 02114

RE: EEA 15783, Suffolk Downs Redevelopment ENF

Dear Secretary Beaton:

We are pleased to submit these comments on the above referenced project ENF both as East Boston residents directly impacted by the project and on behalf of GreenRoots, a local environmental justice non-profit organization which advocates on behalf of low income communities and communities of color in the immediate area. As discussed below, we have strong concerns about the project that we do not feel have been adequately addressed by the Project Proponent and urge you to deny the request for an expedited review and approval process for the Phase 1 Project. Additionally, we would further request that a greater effort on the part of the project proponent and the relevant State and municipal regulatory bodies be made to inform the substantial portion of the local community which has not been engaged in this process and are largely unaware of the impacts.

Expedited Review Concerns

The project proponent desires an expedited process for the Phase 1 of the project which consists of two office buildings (500,000+ sqft) expressly for the purpose of a potential tenant (Amazon). While it is understood that the Amazon opportunity represents a potential benefit for the proponent, it is an opportunity, not a guarantee. The proposed Master Plan as presented by the proponent contains two development scenarios (their original plan without Amazon and one with Amazon), and as they have stated, they will be doing this project over the next 20 years or so regardless of Amazon's decision. As such it does not seem reasonable to change the regulatory process for one potential tenant. This further solidifies this precedent that the state and city's regulatory processes are secondary to the transient and self-interested concerns of the private sector at the expense of the public. The waiving of the process in this instance would then justify other projects changing the permitting process on the basis of the business interests of any developer or tenant. Given the expansive scope of the project and its potential impacts on both the community and the region, the development process to date has moved exceedingly fast. The project's Expanded Notification Form was filed with the city in November, and while there were several presentations before this, there are many in the community that have not had the opportunity to digest the copious and technical documentation that has been produced – especially with the holidays having been in between the release of these documents and the comment deadlines.

In particular, there are concerns (outlined below) that we feel must still be addressed before this Phase 1 project should move forward. Given the many attractive aspects of this project for Amazon or indeed any other commercial tenant, including two rapid transit stops, the expanse of (uncontaminated) space, the proximity to an international airport, a highly-educated workforce, and nearby world leading research universities and technology industries, it seems that the city would not need to bend further backwards for this project to be developed to the benefit of the proponent. Bluntly, if we have to bend

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the rules for this immanently developable project, what will we have to do for less desirable parcels? The risk of the loss of Amazon as a tenant does not in any way kill this project or make it less profitable for the proponent.

Housing Impacts

One salient issue for current East Boston residents is the availability and affordability of housing in a rapidly gentrifying neighborhood. In recent years East Boston has become one of the hottest real estate markets in metropolitan Boston and an increasing number of long-time residents are being displaced, despite the best intentions and desires of city planners. The Suffolk Downs project represents a massive direct impact on the housing market of East Boston (and Revere), as well as for the broader region. Happily, the Master Planning process for the project provides an ample opportunity to explore ways to best incorporate diverse housing solutions to benefit both new Bostonians of means, while maintaining the character of East Boston as a gateway community for new Bostonians of more modest means, such as the immigrant community.

The ENF does not anywhere address the concerns of implementing a Phase 1 which would result in two office buildings larger than any other current commercial office building in East Boston without any additional housing for the numerous new workers who would be coming to East Boston. Much of the ENF, the Master Plan and the public presentations have spoken at length about the walkability of the development and its reliance on non-vehicular transit and creating a transit-oriented development. This implies that many of the employment opportunities at the site would be filled with people who would be living in some of the new housing opportunities on site. The Phase 1 project does not include housing; therefore, it will exert further pressure on the rental housing market in the neighborhood. The current Phase 1 study does not address this at all and accordingly does not provide any idea as to how local residents would be affected or how the detrimental impacts of this could be mitigated in the near term. Until this problem is properly scoped, its impacts defined and then addressed, and all of this analysis properly shared with the appropriate community members, the Phase 1 project should be delayed and certainly not expedited.

Environmental Justice/Enhanced Outreach

018-001 While the current Environmental Justice policy of the Executive Office of Energy and Environmental Affairs is not triggered by the project despite it being completely surrounded on all sides by state-defined Environmental Justice census blocks and the project undoubtedly having a major impact on the daily lives of the people in those blocks, it makes sense in keeping with the intent and spirit of community outreach that the project proponent should make every effort to publicize its project within these EJ communities. While it is appreciated that the proponent has invested a great deal of effort in outreach to civically-engaged, English-speaking community members, better than 50% of East Boston is Spanish-speaking as first-language and to our knowledge there have been few to no community presentations in Spanish. The list of Local Community Organizations in the ENF contains four organizations, none of which are in the community, while the organizations listed under the City of Boston Community Organizations are mostly English-speaking. There are a number of East Boston-based, Latino community organizations that have been excluded (presumably unintentionally) from these presentations. (These organizations include Neighbors United for a Better East Boston, Centro Presente, El Centro Cooperativo de Desarrollo y Solidaridad, MassCOSH, Vida Urbana/City Life, Justice at

018-002 Work, East Boston Ecumenical Council, GreenRoots, Zumix, etc.) Additionally, aside from meeting announcements none of the extensive presentations and reports have been made available in Spanish.

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018-001

The Proponent has conducted outreach to EJ communities surrounding the Project Site, including non-English speaking. For the EENF/EPNF, the Proponent provided a Spanish interpreter at public meetings held on the Master Plan Project. As required by the BPDA, the Proponent will develop an Executive Summary for the DEIR/DPIR in Spanish and, in coordination with the BPDA, the Proponent will hold a public meeting in Spanish. Also, the Proponent also held two meetings with a Latino Business Owners Group from East Boston, which meetings also had a Spanish Interpreter providing translation of the presentation and the Proponent's answers to questions asked by the audience.

018-002

Refer to the response to Comment 018-001.

Given this large gap in community outreach an expedited process seems completely unreasonable and justifies denying the request for an expedited process, certainly until there is a greater knowledge of the project and its impacts and benefits among the Latino community.

Technical Capacity

An additional concern, which is a perennial one for these processes, is the ability for the affected communities to be able to critically evaluate what is presented to them by the consultants working for the Project Proponent. As an example, consider the transportation impacts of this project. Currently the traffic on Route 1A from the viaduct before the tunnels all the way north to Bell Circle in Revere is largely impassable at morning and afternoon rush hours. While extensive documentation of traffic studies is provided and assurances are made that the existing highway system can handle the increased traffic, it seems absurd to think this would be the case given that the amount of traffic will be increasing greatly between the actual development proposed, other large and small housing developments in the neighborhoods, the construction of the casino just a short distance down Route 16 from the project site, and increased capacity at Logan Airport. This is just a consideration of passenger vehicles, not including the increased traffic on the many truck routes in the immediate area and their increase as more commercial and industrial projects are permitted locally.

018-003

This particular concern of traffic forecasts and capacity is a highly technical one and the general public (much less the Spanish-speaking public) cannot be expected to have the knowledge to be able to rebut the assertions of paid consultants. Unfortunately, the project proponent's consultants are the only resource available to the public, and they can hardly be expected to provide an analysis that would be against the interests of their client to the benefit of the public. There needs to be additional resources and time provided for the community to be able to receive *unbiased* technical assistance to evaluate the project and the assertions of the Proponent, not only for concerns relating to traffic, but also in the areas of stormwater, flooding and climate change concerns, building shadow impacts and other areas.

018-004

Accordingly, for our concerns regarding stormwater impacts and related effects (such as impacts on the Belle Isle Marsh ecosystem) we will refer you to the letter submitted by the Mystic River Watershed Alliance. We hope that you will take in serious consideration their expressed concerns and recommendations.

In conclusion, we urge you to deny the proponent an expedited review and approval process for the Phase 1 Project, require the project proponent to sufficiently address the housing implications of its proposed large commercial development, and to conduct enhanced outreach in the environmental justice communities surrounding the project, including presentations and written materials in Spanish. Thank you for the opportunity to comment.

Sincerely,

GreenRoots • RaicesVerdes
227 Marginal Street, Suite 1, Chelsea, MA 02150
617.466.3076 • www.GreenRootsChelsea.org

018-003

Refer to Chapter 6, *Transportation.*

018-004

Refer to Chapter 10, *Infrastructure.*

John Walkey
Waterfront Initiative Coordinator
GreenRoots
johnw@greenrootschelsea.org
617.970.4256

Patricia Montes
63 Putnam Street #1

Michael Russo
61 Barnes Avenue

Gloribell Mota
8 Falcon Street

Maria Aguilar
127 Marion Street

Gail Miller
232 Orient Avenue

Heather O'Brien
7 Breed Street # 3

James Correale
643 Bennington Street

GreenRoots • RaicesVerdes
227 Marginal Street, Suite 1, Chelsea, MA 02150
617.466.3076 • www.GreenRootsChelsea.org

Stephen H. Kaiser
191 Hamilton St.
Cambridge Mass. 02139

To : Secretary Matthew Beaton, Executive Office of Energy & Environmental Affairs
Attention : Page Czepiga, MEPA Unit

From : Stephen H. Kaiser

Comment on Waiver Conditions : Suffolk Downs #15783

019-001

I recognize the intense political priority to support the advantages of Boston as a location for Amazon's Eastern headquarters. From recent press reports it appears that Somerville is still in the running, as are over another two hundred communities.

I generally prefer the MEPA process to avoid waivers, which began in regularity in 2005 and have continued at a rate of nearly 50 a year. However, it is clear that Suffolk Downs will be developed for some purpose in the near future, and that a waiver is under consideration. If such a waiver is granted, what are the conditions under which it might be suitably granted without creating a new precedent?

As a settlement to the case of CLF v. Bewick circa 1980, a settlement was reached whereby waivers to MEPA regulations could be granted subject to certain explicit conditions and findings. One of those conditions is that MEPA should achieve certain benefits to the environmental review process that would not normally be available to scoping or analysis of project impacts by the standard process of Chapter 30, 62 review.

One of the objectives of an expanding Boston economy is finding the means to achieve dense development in an urban area without creating severe traffic problems or unduly detracting from existing transit services. Such a goal is consistent with state development policy.

The Suffolk Downs site has the advantage of having two Blue Line stations adjacent to the site. The Blue line is the one MBTA line with the highest levels of residual capacity and

019-001

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The Proponent committed to various mitigation measures for the Phase 1 Project, which were documented in a summary memo submitted to the MEPA office on February 21, 2018.

reliability. For this reason it is the best line to entertain experimental trials for such things as energy efficiency and the advantages of a fleet composed of a single design technology.

The Blue Line also appears also to have sufficient extra cars available for additional service and capacity (with reduced headways). Increased rider demand becomes easier to absorb. The analysis could serve as the ideal source of information on transit capacity phenomena such as bunching of trains, with associated loss of capacity and average speed.

Bunching affects both rail and bus operations. It is a world-wide phenomenon. Only in rare instances do transit operators achieve 99% on-time performance such as Hong Kong or Singapore. London used Hong-Kong experts to bump its on-time performance from 85% to 95%. The challenge will be to take the Blue Line and investigate the methods that could be used to make the it operate with 99% on-time reliability. By experimentation, the goal would also be to find the relationship between capacity and on-time performance, and between average speed and on-time performance.

To my knowledge, no EIR for MEPA has ever provided such an analysis of transit performance, and therefore the achievement for EEA at Suffolk Downs could be a unique accomplishment. This information will be vital for MassDOT and the MBTA to understand how the Blue Line and other transportation services can be adjusted and improved to meet the needs for future growth.

The waiver for Suffolk Downs could include such a novel assignment for the proponent. First, identify certain actions to measure and to improve on-time performance. Seek to measure how improving today's on-time performance will increase performance and average speeds, and how capacity and headways will be affected. Then through computer simulation or actual live train measurements the analysts would test various future conditions to improve capacity and performance reliability during both peak and off-peak periods. Unlike many other U.S. Transit operators, the MBTA typically shows better on-time performance during peak periods, and worse during off-peak period. Could the off-peak Blue Line performance be improved so as to be better than peak performance?

019-002

Several questions are worth asking in the scope : if all trains in the fleet were made available for peak hour service, and the trains were operated with 99% on-time

019-002

Thank you for your comment. Please refer to Chapter 6, *Transportation*, for a description of the transit capacity analysis methodology developed in coordination with the MBTA.

019-002 performance, what would the new Blue Line capacity be and what percentage of the peak hour trips from the development site could be handled by transit? If those trips are higher than those normally planned for a site such as Suffolk Downs with 50,000 people making trips, could such performance allow for fewer parking spaces needed and reduced emissions that lead to climate change? If expanded Blue Line capacity is less that needed, what other transit services to the site should be made available, both bus and rail?

019-003

019-004

The goal would be to develop a methodology that would optimize performance on the Blue Line. It is the Blue Line that is the best-run and least overloaded of MBTA lines and could provide a blueprint for improvements to other lines such as the Red and Orange Lines, and even the Green Line. One objective would be to create a methodology that would apply generally to transit systems elsewhere in the world as the standard way to measure and reduce bunching.

019-005 Finally, in the event that vehicle trips from the site would still be significantly large and contribute to local or regional congestion, how much transit capacity improvement would be needed so that there would be no net increase in traffic on congested highways? The concept in this case recognizes that improved transit would carry passengers to and from the Suffolk Downs site, and also attract added riders along the Blue Line corridor due to more frequent service. Such a situation occurred in London when a major line with five-minute headways had a doubling of service, with headways cut in half to 2 ½ minutes. The result was that of the 100% increase in capacity achieved, half of it was quickly utilized by riders seeking the improved service.

In colloquial terms, this phenomenon has been termed "Out of the Woodwork" ridership – people who might desire to take transit but were deterred by poor qualities of service, reliability or convenience. Many of these "Woodwork" riders would be persons who might have traveled by car, and thus fewer cars trips would be made. That reduction in car trips might be balanced against any increase in vehicle trips caused by the Suffolk Downs project. Working out the planning model for transit under such circumstances would be a valuable benefit from the granting of a waiver for this project.

All developers who present their projects as transit-oriented development could use these same methods to optimize transit performance and capacity at other locations, to

019-003

Refer to Chapter 6, *Transportation.*

019-004

Refer to Chapter 6, *Transportation.*

019-005

Thank you for your comment. Refer to Chapter 6, *Transportation*, for an analysis of traffic and transit demands and capacities associated with the proposed Project.

maintain or improve both road and transit service. The idea would be that "transit oriented development" is not merely development conveniently located with respect to transit lines, but is a project that does not cause overloading on other transit branches.

019-006

The most formidable challenge is to recognize that there are many large projects under consideration in the Boston area and if all of them happen, the MBTA system could become overloaded. MassDOT and the development community needs methods to assess and plan for conditions to prevent such overloading by appropriate pro-active programs.

Sincerely,

Stephen H. Kaiser, PhD

019-006

Refer to Chapter 6, *Transportation,* for details on the Project's transportation impact analysis and proposed mitigation measures.

Czepiga, Page (EEA)

From: Kannan Thiru <sillycilantro@gmail.com>
Sent: Friday, January 19, 2018 5:54 PM
To: Czepiga, Page (EEA)
Subject: Suffolk Downs

Hi Page,

Here are my concerns regarding the developer's request for waiving the environmental review for Phase I:

- I don't know what the cost of waiving the request is. What is the risk we as a community are taking by allowing a project to go ahead without knowing what the impact would be?
- If for some economic or political reason, the waiver is granted, can we make sure that the waiver is rescinded if the Amazon offer does not come through? Or if it is too late because some of the building is already there by the time Amazon makes its decision, can we trigger an environmental review at that point?

020-001

- Additional GHG mitigation measures possible:
- operational practices that allow buildings to turn all lights off at night;
- passive heating and cooling by increasing southern exposure in the winter, reducing direct sunlight in the summer,
- Extra-extra insulation (an insulation envelope in the case of passive houses) along with heat exchange for air. The building design should allow for very little use of energy.
- Through conservation and efficiency, much of the consumption can be reduced. And the setup should allow for easy adoption of renewable energy when it is available. For example, if 20 years down the line, the grid is provided renewable energy-sourced electricity, all cars should be able to plug into that. (all parking spots should have electric charging facility).
- Passive house technology is now available for buildings. Take a look at this: http://www.wbur.org/bostonomix/2017/07/24/passive-housing
- Can the buildings reduce on fresh water over-use by recycling water for other uses (such as for gardens, house plants, and perhaps toilets)?

On the masterplan:

020-002

- Given that this is the beginning stage, we have the opportunity to envision a 21st century waterside development that does not drag the unsustainable practices of the past into our future lives. The development should strive to
- be zero waste (a way for extra food to be donated; a large composting facility; a large recycling facility; a small trash can)
- produce some food locally (roof tops, community food-gardens, etc.)
- be energy-positive (produce energy locally)
- be health-positive (promote the use of stairs etc by making them more visible, welcoming and safe compared to elevators and escalators)
- promote a culture that goes along with eco-conscious values (a carbon footprint measurement facility; a gym that is uses no automation - maybe more dancing space than ellipticals)

020-003

- Given that the city and state were both caught flat-footed on Jan 4 by a 15 feet flood that neither was prepared to handle, we need to be more cautious than the BPDA suggests. This development will have to prepare for more than expected flood and unexpected complications (such as cars being caught in frozen water and pumps not working because of the ice in the water that the tide brought in.). There

020-001

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The Proponent committed to various mitigation measures for the Phase 1 Project, including energy conservation measures resulting in a 27% energy usage savings and 24% GHG emissions reduction compared to a conventional building design. These measures were documented in a summary memo submitted to the MEPA office on February 21, 2018.

020-002

Refer to Chapter 4, *Sustainability/Green Building.*

020-003

As explained in Chapter 8, *Climate Change Resiliency*, the Resiliency Study analyzes climate change impacts using the Northeast Climate Science Center's sea level rise projections, consistent with the highest emissions scenario, of 1.5-feet and 4.2-feet for 2035 and 2070, respectively. Chapter 8 also explains how flood waters that may inundate the Project Site will be conveyed and controlled during and after storm events and identify potential impacts to DCR’s Bennington Street pump station.

have to be air-lift facilities and a generous amount of marine vehicle facility (accessible boat storage). To this end, it would be good to make water transport part and parcel of this facility from the beginning. Also, there should be water storage spaces -- perhaps canals that connect Belle Isle Marsh with Chelsea Creek

020-004 • The oil tanks between Chelsea Creek and Suffolk Downs represent a clear and present danger. What is the plan for development close to them?

020-005 • Belle Isle Marsh will likely migrate towards Suffolk Downs as the ocean moves in to take it over. There should be some room in the plan to allow that to happen. And that room has to be in the part of Suffolk Downs that's close to the marsh.

--
Kannan Thiruvengadam
Host, Zumix Radio
Director, Eastie Farm
Director, JP Green House

020-004

The Proponent does not control the oil tank site and is not proposing to develop any portion of that site as part of the Master Plan Project.

020-005

Bennington Street and the MBTA rail line serve as obstacles to the westward migration of the Belle Isle Marsh.

Czepiga, Page (EEA)

From: Andee Krasner <andee.krasner@gmail.com>
Sent: Friday, January 19, 2018 6:07 PM
To: Czepiga, Page (EEA)
Subject: Suffolk Downs Phase I Plan

Dear Ms. Czepiga,

I am writing to voice my concerns over the Suffolk Downs Phase I Plan. The plans state that the buildings will be built to LEED gold specifications but neglect to take into account the amount of carbon emitted over the lifetime of the buildings, which may be 50 to 100 years.

In Boston, 70% of our carbon footprint comes from buildings. With over 65 million square feet of new construction planned in Boston, we cannot continue to build our buildings with 20th century carbon footprints or we will fail to reach the city's 2030 and 2050 greenhouse gas emission reduction targets. As proposed, the buildings will have to be retrofitted in several years to lower their carbon footprint and it is easier and less expensive to build them as low carbon emitters than to retrofit them later.

021-001 This development should not go forward unless it is proposed as low carbon or net zero carbon emissions. Building 21st century low carbon or net zero buildings will not only ensure cleaner air for our children, it will be a draw to companies like Amazon - which have their own greenhouse gas reduction goals - to Boston. We have the opportunity to build great cutting-edge low-carbon buildings with 21st century technology. Let's not miss it.

Sincerely,
Andee Krasner
Volunteer with Mothers Out Front

1

021-001

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The Proponent committed to various mitigation measures for the Phase 1 Project, which included energy conservation measures resulting in an estimated 27% energy savings and 24% GHG emissions reduction. These measures were documented in a summary memo submitted to the MEPA office on February 21, 2018.

Czepiga, Page (EEA)

From: Bart DeWolf <bdewolf@rcn.com>
Sent: Wednesday, December 13, 2017 1:12 PM
To: Czepiga, Page (EEA)
Cc: DeWolf Bart; DeWolf Lucy
Subject: Suffolk Downs Redevelopment (EEA No. 15783)

Page Czepiga
Environmental Analyst
MEPA Office

Dear Ms. Czepiga,
I would like to add a few comments to a letter submitted to Secretary Beaton and Staff recently by my wife, Lucy DeWolf. As a brief review of the Environmental Notification Form filed for the Suffolk Downs Redevelopment project on December 6th, 2017, makes clear, this is potentially a very large project in terms of land acreage, structures, transportation, and wastewater. The area in question is directly adjacent to the Belle Isle Marsh and the Belle Isle Marsh Reservation, a sensitive tidal saltmarsh wetland. To let this project proceed without completing all the normal environmental studies would, in my view, be highly irresponsible. The Belle Isle Marsh is one of the very few remnants of saltmarsh still extant in the Boston Basin, and provides habitat for a number of species of plants and animals found only in such areas. It is listed as a Massachusetts Important Bird Area by the Massachusetts Audubon Society. Water pollution from the adjacent Suffolk Downs parcel would certainly be a serious threat. I urge the MEPA to not short-change the environmental review process for this project and to require mitigation of any environmental hazards identified.
Thank you.
Bart DeWolf
Lexington, MA

--
Bart DeWolf
bdewolf@alum.mit.edu
781-861-7968
339-927-5152 cell

022-001

1

022-001

As detailed in the EENF/EPNF, the Phase 1 Project complies with applicable stormwater management requirements in order to address potential water pollution concerns. The design of the stormwater management system for Phase 1 was subsequently finalized and reviewed and approved by the Boston Conservation Commission through an Order of Conditions. Refer to Chapter 10 for information pertaining to the stormwater management system for the Master Plan Project, and associated improvements to the quality of stormwater runoff over existing conditions.

Czepiga, Page (EEA)

From: Buckley, Deirdre (EEA)
Sent: Wednesday, December 06, 2017 12:25 PM
To: Ullman, Rebecca (EEA); internet, env (EEA); Sieger, Daniel (EEA)
Cc: Lorenz, Peter (EEA); Czepiga, Page (EEA)
Subject: RE: Suffolk Downs

We will include this as a public comment and forward information regarding the site visit and how to get a copy of EENF to her.

-----Original Message-----
From: Ullman, Rebecca (EEA)
Sent: Wednesday, December 06, 2017 11:22 AM
To: internet, env (EEA); Sieger, Daniel (EEA); Buckley, Deirdre (EEA)
Cc: Lorenz, Peter (EEA)
Subject: RE: Suffolk Downs

Thanks, Nick. Copying Dan and Deirdre.

-----Original Message-----
From: Schwalbert, Nick (EEA) On Behalf Of internet, env (EEA)
Sent: Wednesday, December 06, 2017 9:20 AM
To: Ullman, Rebecca (EEA)
Subject: FW: Suffolk Downs

FYI. I'm sending a general 'thank you for you inquiry' email back to let the constituent to let him know we received his email, but if you want Peter to craft a response just loop me in and I can send that out to him once created.

Nicholas Schwalbert
617-626-1022

-----Original Message-----
From: Lucy DeWolf [mailto:ldewolf@rcn.com]
Sent: Wednesday, December 06, 2017 9:13 AM
To: internet, env (EEA)
Subject: Suffolk Downs

024-001

Dear Secretary Beaton and Staff,
I read in The Boston Globe that the HYM management at Suffolk Downs are asking to bypass some of the environmental studies the State requires, in order to be ready sooner for Amazon's attention.
I cannot see how this can be a good idea.
Please forgive my pointing out a no doubt unpopular opinion: Looking at the map, I can't help but think that the land at Suffolk Downs should be given to The Belle Isle Marsh Reservation. It was originally part of that great marsh.
If there is no will for that to happen, then at the least, the area should be well studied, to limit environmental harm to the Reservation.
Some time back, my cousin, John Kilmartin, who lived in Winthrop, saw plenty that was wrong, used his Kodak instamatic to document these wrongs, went to the State House and refused to leave until SOMEONE looked at the photos. It was nearly time to close the State House up for the evening when someone finally did look. I guess in the end, it was more politic to view the photos than to arrest a retired citizen.
In this case, wrongs were righted, and The John J. Kilmartin Walkway came into being.
But those who pursue environmental justice are not always heard.
Allowing the environmental assessments to be truncated is asking for trouble in this sensitive area.
If Amazon likes the spot, they surely can wait, and hopefully would want to. If not, they are not worth attracting, as there could be further environmental issues down the line, and you want a responsive company there.
Sorry to be so long winded!

1

024-001

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The Proponent committed to various mitigation measures for the Phase 1 Project, which were documented in a summary memo submitted to the MEPA office on February 21, 2018.

Lucy DeWolf
Lexington MA

2

BOSTON REDEVELOPMENT AUTHORITY
D/B/A BOSTON PLANNING & DEVELOPMENT AGENCY

SCOPING DETERMINATION
SUFFOLK DOWNS

SUBMISSION REQUIREMENTS
FOR DRAFT PROJECT IMPACT REPORT ("DPIR")

PROPOSED PROJECT:	SUFFOLK DOWNS
PROJECT SITE:	109 ACRE SITE BOUNDED BY THE CITY OF REVERE, THE MBTA BLUE LINE RIGHT OF WAY, THE ORIENT HEIGHTS NEIGHBORHOOD, AND MASSACHUSETTS ROUTE 1A, EAST BOSTON
PROPONENT:	THE MCCLELLAN HIGHWAY DEVELOPMENT COMPANY, LLC C/O THE HYM INVESTMENT GROUP, LLC
DATE:	FEBRUARY 21, 2018

The Boston Redevelopment Authority ("BRA"), d/b/a the Boston Planning & Development Agency ("BPDA") is issuing this Scoping Determination pursuant to Section 80B-5 of the Boston Zoning Code ("Code"), in response to a Project Notification Form ("PNF"), which the McClellan Highway Development Company, LLC c/o the HYM Investment Group, LLC (the "Proponent") filed on December 5, 2017 for the proposed 776 Summer Street project (the "Proposed Project"). Notice of the receipt by the BPDA of the PNF was published in the Boston Herald on December 5, 2017, which initiated a public comment period with a closing date of January 19, 2018. Pursuant to Section 80A-2 of the Code, the PNF was sent to the City's public agencies/departments and elected officials on December 6, 2017. Hard copies of the PNF were also sent to all of the Impact Advisory Group ("IAG") members. The initial public comment period was subsequently extended until February 2, 2018, through mutual consent between the BPDA and the Proponent to allow more time for the general public to provide comments and feedback.

On November 8, 2017, the Proponent filed a Letter of Intent ("LOI") in accordance with the Mayor's Executive Order Regarding Provision of Mitigation by Development Projects in Boston for the redevelopment of Suffolk Downs at 525 McClellan Highway in the East Boston neighborhood of Boston.

On November 9th, 2017, IAG nomination requests were sent to Senator Boncore, Representative Madaro, and Councilor LaMattina. Letters were also sent to the at-large City Councilors and the Mayor's Office of Neighborhood Services. The letters sought nominations or recommendations to the IAG by November 16th, 2017. Each office responded with two nominees apiece within one week of the nomination requests being sent out. The BPDA Planning Department recommended two individuals, for a total of 15 nominations.

The following is a list of the IAG members:

Joe Arangio
Erica Capogreco
Eleanor Catino
Debra Cave
Ernani DeAraujo
Alex DeFronzo
Ben Downing
Margaret Farmer
Meg Grady
Ann Margaret Gutierrez
Roberta Marchi
Joe Mario
Kathy Orlando
Claudia Sierra
Madeleine Steczynski

The BPDA appreciates the efforts of the IAG and the members should be applauded for their commitment to the review of the Proposed Project.

Pursuant to Section 80B5.3 of the Code, a Scoping Session was held on December 11, 2017 with the City of Boston's public agencies/departments at which time the Proposed Project was reviewed and discussed. IAG members were also invited to attend the Scoping Session.

BPDA-sponsored publicly advertised meetings were conducted on December 19, 2017 and January 30, 2018 in the Clubhouse building at Suffolk Downs. IAG meetings were held on December 13, 2017; January 3, 2018; January 10, 2018; and January 24, 2018, all in the Clubhouse building at Suffolk Downs

Included in the Scoping Determination are written comments that were received by the BPDA in response to the PNF, from BPDA staff, public agencies/departments, elected officials, the general public, and IAG members. All of which are included in **Appendices A, B, and C and must be answered in their entirety.**

Appendix A includes written comments from BPDA staff, public agencies/departments, and elected officials.

Specifically, they are:

- BPDA Planning and Urban Design departments
- BPDA Climate Change and Environmental Planning Department
- Boston Transportation Department and BPDA Transportation and Infrastructure Planning Department
- Tim Davis, BPDA Housing Policy Manager
- Carrie Marsh: Boston Parks and Recreation Department
- John P. Sullivan: Boston Water and Sewer Commission
- State Senator Joseph A. Boncore, State Representative Adrian Madaro, and City Councilor Lydia Edwards

Public comments received by the BPDA during the comment period are included in **Appendix B.**

Impact Advisory Group ("IAG") member comments received by the BPDA during the comment period are included in **Appendix C.**

The Scoping Determination requests information that the BPDA requires for its review of the Proposed Project in connection with Article 80 of the Code, Development Review and Approval, and other applicable sections of the Code.

In addition to the specific submission requirements outlined in the sections below, the following points are highlighted for additional emphasis and consideration:

- Throughout this initial phase of review, and prior to it, the Proponent has taken steps to meet with many community members and groups, elected officials, abutters, and various City agencies/departments. Regular conversations and meetings with all interested parties must continue through the duration of the public review process, ensuring that what is presented in the DPIR and any future filings is beneficial to the respective neighborhood and the City of Boston as a whole.

- Greater outreach to the various Latinx communities in East Boston is crucial as the review of the Proposed Project continues. The BPDA looks forward to working with the Proponent, East Boston's elected officials, the Mayor's Office of Neighborhood Services, and neighborhood leaders to develop strategies that ensure these communities are involved in reviewing and shaping the Proposed Project.

025-001

- Given the importance of engaging Spanish-speaking residents who may be impacted by the Proposed Project, the Proponent should provide executive summaries of the DPIR and each relevant chapter in Spanish. The Proponent should consult with the BPDA about the specific format and content of these summaries.

- Much of the discussion of the Proposed Project has been animated by the City of Boston's response to Amazon's Request for Proposals for a potential second headquarters, which positioned the Project Site as a preferred location. Amazon has generated a great deal of interest, excitement, and concern, but the nature and timeline of Amazon's decision-making process is outside the scope of this review. The BPDA encourages the Proponent to continue to be open and transparent about Amazon's role in the Proposed Project, but to maintain its focus on the physical design, impacts, and programming of the Proposed Project.

025-002

- The PNF outlined two broad land use alternatives: one that leaned toward more office space in the event of Amazon choosing to locate on the Project Site, and one that leaned toward more residential space in the event of Amazon locating elsewhere. The latter alternative still contains a significant amount of office and commercial space. The Proponent should discuss its vision for filling that space, either with another single large tenant, or multiple smaller tenants.

025-003

- The DPIR should include the most up-to-date information on the status of review and approvals in the City of Revere, as well as the Proponent's collaboration and reviews with state agencies, including the Massachusetts Department of Transportation, the Massachusetts Environmental Protection Act Office, the Department of Conservation and Recreation, and others. Throughout the review process for the DPIR, the BPDA encourages the Proponent to keep the City of Boston and the community apprised of those reviews.

025-004

- Housing affordability and the effect of the Proposed Project on prices in East Boston have been subjects of interest and concern during the initial review process. The BPDA encourages the Proponent to provide a range of rental and homeownership opportunities, including income-restricted units of both types. See the letter from Tim Davis, the BPDA Housing Policy Manager, in Appendix A for more on housing affordability strategy.

- The Proposed Project enjoys good access to two MBTA Blue Line stations at Suffolk Downs and Beachmont. However, concerns remain about the limited vehicular access to the site and the existing congestion on Route 1A. The Proponent should work to limit single occupancy vehicle trips and encourage alternative modes of transportation, including transit, biking, and walking. The memo from the Boston Transportation Department and the BPDA Infrastructure and Transportation

025-005

025-001

The Proponent has developed an Executive Summary of this DEIR/DPIR filing that has been translated into Spanish.

025-002

As each development phase and/or building is completed, any commercial space not leased by Amazon will be put out to market for consideration by another single large tenant or multiple smaller tenants.

025-003

Refer to Chapter 2, *Regulatory Context and General Information.*

025-004

Refer to Chapter 1, *Project Description and Alternatives*.

025-005

Refer to Chapter 6, *Transportation.*

Planning Department in Appendix A includes more on additional transportation studies and interventions.

025-006

- The Project Site, lying between Chelsea Creek and Belle Isle Marsh, is very vulnerable to the impacts of climate change. The PNF includes some initial measures to protect the Proposed Project from those impacts. The BPDA encourages the Proponent to continue to work with the BPDA, the City of Boston Environment Department, and the Commonwealth to develop resiliency strategies that protect the Project Site as well as the surrounding neighborhood. The memo from the BPDA Environmental and Climate Change Planning Department in Appendix A includes more on additional studies and analysis.

- The size of the Proposed Project and the degree of change envisioned on the Suffolk Downs site generated both excitement and confusion during the initial review process. While the Proponent's response to this Scoping Determination will naturally contain more detailed information than the PNF, it is important to ground the public's understanding of the project in concrete and contextual terms. Many commenters, including members of the IAG, requested a physical model of the proposal to help them understand the various elements of the project in relation to each other and to the surrounding neighborhood. The memo from the BPDA Planning and Urban Design departments in Appendix A includes detailed requests for drawings, diagrams, renderings, and models.

025-007

- The Proposed Project shares a major border with the existing Orient Heights neighborhood. The impact of the Proposed Project on this predominantly one- and two-family neighborhood was of particular concern during the initial phase of review. Special care should be taken in considering this edge condition. The Proponent should evaluate topography, land use, building massing, and design to create as harmonious a transition between the new and existing neighborhoods as possible.

025-008

- The nature of the Proposed Project's retail strategy was a subject of great interest during the initial review process. Commenters and members of the IAG expressed a desire for neighborhood-scale retail, opportunities for local businesses to rent space, and incubator space for small business startups. The Proponent should be prepared to discuss its strategies for attracting neighborhood-serving retail and fostering small local businesses.

025-009

- The Proposed Project includes a 40-acre open space network that has the promise to provide many benefits to East Boston and the entire city. The Proponent must work with the Boston Parks and Recreation Department ("BPRD") and BPDA to address how the Proposed Project's open space network connects to and complements the existing open spaces in the neighborhood, as well as the

025-006

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

025-007

Refer to Chapter 3, *Urban Design.*

025-008

Refer to Chapter 3, *Urban Design.*

025-009

Refer to Chapter 3, *Urban Design.*

025-009 Proposed Project's impacts on existing open space. In addition to working with BPRD, the BPDA encourages the Proponent to continue to engage the IAG and community to determine what types of new public open space best address the needs and goals of the community.

025-010
- Members of the public highlighted the importance of neighborhood-defining civic facilities during the initial review process. While the Proposed Project has an ambitious open space strategy that should be a great asset to the project and the neighborhood, more clarity on proposed civic and cultural spaces—schools, libraries, community centers, performance spaces—is necessary in the DPIR.

025-011
- The BPDA encourages the Proponent to work with the Boston Police Department ("BPD") and Boston Fire Department ("BFD") to review and address the impacts that this proposal will have on the existing capacity of these departments' facilities and staff, should a project move forward.

025-012
- The Proponent must work with the Boston Transportation Department ("BTD") to address concerns regarding site access, circulation of traffic in and around the Proposed Project site, potential traffic impacts, and appropriate mitigation throughout East Boston.

025-013
- All development projects have construction impacts. As with any urban development, there needs to be a balance of construction related inconveniences with the daily activities that will continue to occur adjacent to the Proposed Project site. A detailed approach to the construction management must be included in the DPIR, including strategies for construction management over the Proposed Project's multiple phases and community involvement in developing construction management plans.

025-014
- The Proponent must take into account all BPDA approved and under review proposals in the East Boston neighborhoods, scheduled infrastructure improvements in the general area, and nearby large scale developments in the City of Boston while conducting the DPIR's required studies (transportation, infrastructure, open space, etc.).

025-015
- The Proponent must clearly describe the overall demolition and phasing of the Proposed Project. The buildings to be demolished and constructed in each phase of the Proposed Project should be specified along with an anticipated timeline for each phase. The BPDA acknowledges that project timelines are subject to change due to market conditions and other factors.

025-010

Refer to Chapter 3, *Urban Design.*

025-011

The Proponent has undertaken a municipal fiscal impacts assessment for both the City of Revere and Boston. The Master Plan Project at full build out is estimated to require approximately $10.3 million in police services and $6.2 million in fire services annually. Accounting for these costs, the Master Plan Project at full build out is estimated to generate a positive net fiscal impact of approximately $56.8 million annually to Boston.

025-012

Refer to Chapter 6, *Transportation.* The Proponent has worked with and will continue to work with the Boston Transportation Department (BTD) to address concerns regarding site access, circulation of traffic in and around the Proposed Project site, potential traffic impacts, and appropriate mitigation throughout East Boston.

025-013

Refer to Chapter 9, *Environmental Protection.*

025-014

Refer to Chapter 6, *Transportation,* Chapter 10, *Infrastructure,* and Chapter 3, *Urban Design,* respectively.

025-015

Refer to Chapter 1, *Project Description and Alternatives*.

I. PROJECT SITE

The site of the Proposed Project is an approximately 161 acre site, approximately 109 acres of which is in East Boston, bounded by the City of Revere to the north; the MBTA Blue Line tracks to the east; the Orient Heights neighborhood to the south; and Massachusetts Route 1A and an oil tank farm to the west (the "Project Site"). The site currently houses the former Suffolk Downs racetrack, consisting of several buildings of various ages.

II. PROJECT DESCRIPTION

The Proposed Project, as described in the PNF, consists of approximately 11 million square feet of development in East Boston, including up to 5.3 million square feet of commercial office space, up to 5 million square feet of residential space, up to 350,000 square feet of retail space, and up to 350,000 square feet of hotel space in a new mixed-use district. The Proposed Project will also include 40 acres of publicly accessible open space which will incorporate existing wetland features.

III. PREAMBLE

The Proposed Project is being reviewed pursuant to Article 80, Development Review and Approval, which sets forth a comprehensive procedure for project review of the following components: transportation, environmental protection, urban design, historic resources, infrastructure systems, site plan, tidelands, and Development Impact Project applicability. The Proponent is required to prepare and submit to the BPDA a Draft Project Impact Report ("DPIR") that meets the requirements of the Scoping Determination by detailing the Proposed Project's impacts and proposed measures to mitigate, limit or minimize such impacts. The DPIR shall contain the information necessary to meet the specifications of Section 80B-3 (Scope of Large Project Review; Content of Reports) and Section 80B-4 (Standards for Large Project Review Approval), as required by the Scoping Determination. After submitting the DPIR, the Proponent shall publish notice of such submittal as required by Section 80A-2. Pursuant to Section 80B-4(c) (i) (3), the BPDA shall issue a written Preliminary Adequacy Determination ("PAD") within ninety (90) days. Public comments, including the comments of public agencies, shall be transmitted in writing to the BPDA no later than fifteen (15) days prior to the date by which the BPDA must issue its PAD. The PAD shall indicate the additional steps, if any, necessary for the Proponent to satisfy the requirements of the Scoping Determination. If the BPDA determines that the DPIR adequately describes the Proposed Project's impacts and, if appropriate, propose measures to mitigate, limit or minimize such impacts, the PAD will announce such a determination and that the requirements of further review are waived pursuant to Section 80B-5.4(c) (iv). Section 80B-6 requires the Director of the BPDA to issue a Certification of Compliance indicating the successful completion of the Article 80 development review requirements before the Commissioner of Inspectional Services can issue any building permit for the Proposed Project.

IV. REVIEW/SUBMISSION REQUIREMENTS

In addition to full-size scale drawings, ten (10) copies of a bound booklet and an electronic copy (PDF format) containing all submission materials reduced to size 8-1/2" x 11", except where otherwise specified, are required. The booklet should be printed on both sides of the page. Bound booklets should be mailed directly to all of the IAG members. A copy of this Scoping Determination should be included in the booklet for reference. The electronic copy should be submitted to the BPDA via the following website: https://attachments.bostonredevelopmentauthority.org/

A. General Information

1. Applicant/Proponent Information

025-016

a. Development Team
   (1) Names
      (a) Proponent (including description of development entity and type of corporation, and the principals thereof)
      (b) Attorney
      (c) Project consultants and architect(s)
   (2) Business address, telephone number, FAX number and e-mail, where available for each
   (3) Designated contact person for each

025-017

b. Legal Information
   (1) Legal judgements or actions pending concerning the Proposed Project
   (2) History of tax arrears on property owned in Boston by Applicant
   (3) Evidence of site control over project area, including current ownership and purchase options, if any, for all parcels in the Proposed Project, all restrictive covenants and contractual restrictions affecting the Proponent's right or ability to accomplish the Proposed Project, and the nature of the agreements for securing parcels not owned by the Applicant.
   (4) Nature and extent of any and all public easements into, through, or surrounding the site.

025-018

2. Project Area

025-016

Refer to Chapter 2, *Regulatory Context and General Information.*

025-017

In compliance with Article 80 requirements, Section 1.11 of the EENF/EPNF presented legal information relative to the Project Site. There are no changes or updates to that information at this time.

025-018

Refer to Chapter 1, *Project Description and Alternatives*.

025-018

a. An area map identifying the location of the Proposed Project
b. Description of metes and bounds of project area or certified survey of the project area.
c. Current zoning

3. Project Description and Alternatives

025-019

a. The DPIR shall contain a full description of the Proposed Project and its components, including its size, physical characteristics, development schedule, costs, and proposed uses. This description should include a breakdown of components within the City of Boston. This section of the DPIR shall also present analysis of the development context of the Proposed Project. Appropriate site and building plans to clearly illustrate the Proposed Project shall be required.

025-020

b. A description of alternatives to the Proposed Project that were considered shall be presented and primary differences among the alternatives, particularly as they may affect environmental and traffic/transportation conditions, shall be discussed.

025-021

4. Public Benefits

a. Anticipated employment levels including the following:
(1) Estimated number of construction jobs
(2) Estimated number of permanent jobs

025-022

b. Current and/or future activities and programs which benefit the host neighborhood, adjacent neighborhoods of Boston and the city at large, such as; child care programs, scholarships, internships, elderly services, education and job training programs, public realm/infrastructure improvements, grant programs, etc.
c. Other public benefits, if any, to be provided.

5. Community Process

025-023

a. A list of meetings held and proposed with interested parties, including public agencies, abutters, elected officials, businesses, and community groups.

025-024

b. Names and addresses of project area owners, abutters, and any community or business groups which, in the opinion of the applicant, may be substantially interested in or affected by the Proposed Project.

B. REGULATORY CONTROLS AND PERMITS

025-019

Refer to Chapter 1, *Project Description and Alternatives*.

025-020

Refer to Chapter 1, *Project Description and Alternatives*.

025-021

Refer to Chapter 1, *Project Description and Alternatives*.

025-022

Refer to Chapter 1, *Project Description and Alternatives*.

025-023

Refer to Chapter 1, *Project Description and Alternatives,* for community meetings held and *Chapter 2, Regulatory Context and General Information,* for agency meetings.

025-024

Refer to Appendix I.

025-025 An updated listing of all anticipated permits or approvals required from other municipal, state or federal agencies, including a proposed application schedule shall be included in the DPIR.

025-026 A statement on the applicability of the Massachusetts Environmental Policy Act ("MEPA") should be provided. If the Proposed Project is subject to MEPA, all required documentation should be provided to the BPDA, including, but not limited to, a copy of the Environmental Notification Form, decisions of the Secretary of Environmental Affairs, and the proposed schedule for coordination with BPDA procedures.

C. TRANSPORTATION COMPONENT

In addition to the information required to meet the specifications of Section 80B-3 and Section 80B-4 of the Code, the Proponent must also refer to the BTD "Transportation Access Plan Guidelines" in preparing its studies.

025-027 The Proponent must address the comments outlined by the Boston Transportation Department and BPDA's Infrastructure and Transportation Planning Department, included in **Appendix A**.

Proposed transportation network and infrastructure improvements/mitigation in the impacted area should also be listed and explained in this component.

D. ENVIRONMENTAL PROTECTION COMPONENT

025-028 The DPIR must address the comments of the BPDA Climate Change and Environmental Planning Department, included in **Appendix A** and must include the most up to date documents required by the Article 37/ Interagency Green Building Committee ("IGBC").

The DPIR should include the most up to date Article 37 Interagency Green Building Committee ("IGBC") documentation.

E. URBAN DESIGN COMPONENT

025-029 In addition to the information required to meet the specifications of Section 80B-3 and Section 80B-4 of the Code, the Proponent must address the comments outlined by the BPDA's Planning and Urban Design departments, included in **Appendix A**.

F. INFRASTRUCTURE SYSTEMS COMPONENT

025-025

Refer to Chapter 2, *Regulatory Context and General Information.*

025-026

Refer to Chapter 2, *Regulatory Context and General Information.*

025-027

Refer to Chapter 6, *Transportation.*

025-028

Refer to Chapter 4, *Sustainability/Green Building* and *Chapter 8, Climate Change Resiliency.*

025-029

Refer to Chapter 3, *Urban Design.*

025-030 An infrastructure impact analysis must be performed. The Proponent should continue to work with the City of Boston Public Works Department ("PWD"), Boston Water and Sewer Commission ("BWSC"), and the Boston Groundwater Trust ("BGWT") (if applicable) on infrastructure impacts.

The standard scope for infrastructure analysis is outlined in the comment letter submitted by John P. Sullivan, Chief Engineer and Operations Officer, BWSC, submitted to the BPDA on January 4, 2018, included in **Appendix A**.

Any proposed or anticipated infrastructure improvements/mitigation in and around the Project Site should also be listed and explained in this component.

G. PUBLIC NOTICE

The Proponent will be responsible for preparing and publishing in one or more newspapers of general circulation in the City of Boston a public notice of the submission of the DPIR to the BPDA as required by Section 80A-2. This notice shall be published within five (5) days of the receipt of the DPIR by the BPDA. Therefore, public comments shall be transmitted to the BPDA within seventy five (75) days of the publication of the notice. A draft of the public notice must be submitted to the BPDA for review prior to publication. A sample of the public notice is attached as **Appendix D**.

Following publication of the public notice, the Proponent shall submit to the BPDA a copy of the published notice together with the date of publication.

H. INCLUSIONARY DEVELOPMENT POLICY/AFFORDABLE HOUSING COMPONENT

025-031 The Proposed Project must comply with the Mayor's Executive Order regarding the Inclusionary Development Policy ("IDP") executed on December 10, 2015 ("IDP"). The DPIR should include the approximate number of IDP or income restricted units to be created, the incomes of the households, and the anticipated unit mix.

I. ACCESSIBILITY CHECKLIST

025-032 As part of the DPIR, the Proponent must include an up to date and completed Article 80 Accessibility Checklist for the Proposed Project. An Accessibility Checklist is attached as **Appendix E**.

J. BROADBAND READY BUILDINGS QUESTIONNAIRE

025-033 As part of the DPIR, the Proponent must include a completed Article 80 Broadband Ready Buildings Questionnaire, attached as **Appendix F**. The information that is shared through the Broadband Ready Buildings Questionnaire will help the BPDA and the City understand

025-030

Refer to Chapter 10, *Infrastructure.*

025-031

Refer to Chapter 2, *Regulatory Context and General Information.*

025-032

Refer to Appendix B.

025-033

The Broadband Questionnaire has been completed online for the Master Plan Project.

how developers currently integrate telecommunications planning in their work and how this integration can be most responsive to a changing technological landscape.

MEMORANDUM

TO: Tim Czerwienski, Project Manager
FROM: Richard McGuinness, Deputy Director for Climate Change and Environmental Planning
Kristina Ricco, Senior Planner
Corey Zehngebot, Senior Urban Designer and Architect
Jill Zick, Landscape Architect
DATE: February 21, 2018
SUBJECT: Suffolk Downs Redevelopment - **Planning and Urban Design Comments**

Master Plan Framework

The BPDA recognizes the incredible opportunity the redevelopment of Suffolk Downs represents for the City of Boston, and looks forward to working with the Proponent on the next iteration of the Master Plan. The general strategy of creating a vibrant, mixed-use, publicly-accessible neighborhood anchored by a large open space is one that we wholly embrace as a foundational concept. Though the submission in the Expanded Project Notification Form establishes an initial framework for discussion, we anticipate that a greater degree of refinement and specificity will emerge in the months to come. Both the EPNF and conversations with the Proponent inform the following BPDA comments.

Planning Overview

Formal planning for the Project Site has been limited given its unique history as a single, privately-owned parcel. Built on 161 acres of filled tidal wetlands, the site was formerly home to Suffolk Downs, a thoroughbred racetrack which operated from 1935 to 2014. The year before operations closed, a proposal for a destination resort casino was abandoned when, in 2014, the Massachusetts Gaming Commission awarded the only Boston-area casino license to a resort casino in Everett. After prospects for a casino development dissolved, the Boston Society of Architects hosted an Urban Design workshop focused on the unique opportunity presented by the city's largest development parcel.

Imagine Boston 2030 identified the Project Site (referred to as Suffolk Downs) as one of five important opportunity areas to grow our city by "expanding neighborhoods." The document defines expanded neighborhoods as those which exist at the edges of established neighborhood fabric and offer the opportunity to create new and substantial capacity for housing and job growth. Current zoning for the Project Site (Suffolk Downs Economic Development Area) would be inadequate for both the intensity and type of uses prioritized in Imagine Boston 2030.

In addition to the Imagine Boston 2030 community process, preceding this filing, the BPDA, in partnership with other city agencies, conducted a series of community open houses

during the fall of 2017, on November 15, 18, and 28. These public discussions focused on asking participants about their priorities around creating a diverse and inclusive neighborhood. Topics included housing which meets the needs of a variety of household types, vibrant and active ground floor uses including local retail and civic and cultural amenities, public infrastructure and both passive and active open space. Below are key goals from Imagine Boston 2030 along with specific comments heard from stakeholders from the BPDA open houses.

Encourage Housing Growth

026-001 The Project should strive to create a diverse and inclusive neighborhood, with housing that meets the needs of a variety of household types. Participants in public meetings were interested in a mix of housing which supports this idea, and many participants identified the housing needs of families and the 55+ community as important priorities. Residents expressed concern for affordability across all housing products. By way of context, approximately 15% of East Boston's housing is income restricted and 19% of Boston's housing is income restricted. Please elaborate on the strategy for producing affordable housing. See the Housing memo for more.

Encourage Job Growth

026-002 Please outline strategies for attracting / incorporating local businesses.

Support Industrial Uses

026-003 The Project identifies Office uses designed for "21st Century Industrial" uses. Please elaborate on the concept of "21st Century Industrial" uses.

Prepare for Climate Change

026-004 At public meetings, participants wanted to know more about the potential impact of climate change. As referenced in the Suffolk Downs Redevelopment Expanded Project Notification Form (EPNF), the Proposal contemplates raising substantial portions of the Project Site to provide protection against potential impacts of sea level rise. Please prepare a hydrological analysis of existing conditions and proposed build out. See the Environmental and Climate Change memo's discussion of "Climate Change." See Environment and Resilience memo for more.

Improve Transportation Connections

026-005 At public meetings, participants emphasized the need for Transit Oriented Development which would prioritize public transportation and bicycle / pedestrian access. Concern for increased traffic to the neighborhood produced calls for reduced parking ratios where

026-001

Refer to Chapter 1, *Project Description and Alternatives*.

026-002

Refer to Chapter 3, *Urban Design.*

026-003

Refer to Chapter 3, *Urban Design.*

026-004

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

026-005

Refer to Chapter 6, *Transportation.*

026-005 appropriate, and an internal shuttle which might service the site while connecting to points beyond. See the Transportation and Infrastructure memo for more.

Invest in Public Realm and Open Space

Open Space

The BPDA is very encouraged by the generous open space provided in the project plan. This acreage will benefit those who work and live in and around the project area and will provide positive environmental benefits including stormwater control and containment,
026-006 and reducing heat island effect. We ask the proponent to consider a framework of open space which would support a mix of passive and active uses.

Considering all open space is privately owned, please identify open spaces which are intended as publicly accessible versus spaces which would operate with some restriction. Please identify strategies to permanently protect the "public" status of the open space, in whole or in part. See the Boston Parks and Recreation Department memo for more on open space and parks.

Open Space and Active Uses

New residents and employees of the project area and the abutting neighbors would benefit from active recreation in addition to passive parks. This feedback is underscored by many of the comments and observations provided during the project planning workshops last
026-007 year. The Proponent should explore opportunities to invest in offsite open space, pedestrian and bicycle networks to integrate Suffolk Downs into the neighborhoods of East Boston and Revere. Additionally, there could be dramatic regional benefits associated with connecting to DCR parkland and reservations including Revere Beach, Belle Isle Marsh, and Constitution Beach.

The City of Boston and Massport have invested over $8.5 million in the East Boston Greenway over the last few years extending the Greenway by one mile and connecting the harborfront to the beachfront. These improvements were completed in partnership with DCR and MBTA. The Greenway, a grass roots idea in the making for the last 20+ years, includes the neighborhood's centerpiece open spaces, including Piers Park, Bremen Street
026-008 Park, and this new connection from Wood Island Marsh to Constitution Beach. The East Boston Greenway is a critical pedestrian and bicycle route for the neighborhood and was envisioned to connect to Belle Isle Marsh and beyond. The redevelopment of Suffolk Downs presents an opportunity to create critical links into and along this highly successful series of public open spaces (already with many jurisdictional ownerships), add new premiere open space along the Greenway, and to finally make safe, meaningful connections from Belle Isle Marsh into Revere and beyond. The East Boston Greenway has only two roadway crossings as it stretches from Piers Park to Constitution Beach, a remarkable feat for an urban area. The ease of bicycle connectivity is conducive to a strong bicycle mode for the project if the Greenway were linked to Suffolk Downs. The Proponent

026-006

Refer to Chapter 3, *Urban Design.*

026-007

Refer to Chapter 6, *Transportation.*

026-008

Refer to Chapter 6, *Transportation.*

026-009 should also analyze the railbed along Chelsea Creek for open space amenity, connectivity, and drainage implication. See the Transportation and Infrastructure memo's discussion of "Bicycle and Pedestrian Network."

Public Realm

026-010 The concept of public realm extends beyond publicly accessible open space to include public assets such as libraries, youth centers, schools, and more. Civic and cultural spaces are an important part of neighborhood character and signal to the public who is welcome here. Identify opportunities to incorporate community assets which are not necessarily part of the open space network, and identify how these assets would integrate with / be distinct from surrounding development.

Encourage Contextually Sensitive Development

026-011 Today the site operates almost as an island, bounded by infrastructure (the Blue line) and industrial uses (Irving Oil Terminals) on two sides. While acknowledging that there are limited opportunities to create connections to existing neighborhood fabric, the project should make that effort wherever possible.

Context

026-012 Adjacent neighborhoods including Harbor View, Orient Heights, and Beachmont are structured around one, two, and three family dwellings on lot sizes most often under 10,000 square feet. Though the proposal contemplates primarily multifamily products, it is important that where the project meets neighborhood fabric, it responds appropriately in scale, frontage and access. At public meetings, participants expressed specific concerns about the proposal's relationship to Waldemar Avenue.

Honoring the History of the Site

026-013 After operating for more than 80 years as a thoroughbred race track, community members were hopeful that memory of Suffolk Downs would be retained and incorporated into the development. Please outline strategies for documenting / cataloging existing conditions, determining historically significant structures / ephemera, demolition of existing on-site structures and commemorating the legacy of Suffolk Downs in future development.

Phasing

026-014 As referenced in the EPNF, the Proposal anticipates a 15-20 year build out which would accommodate a variety of build-out scenarios. It has been expressed in public meetings that if Amazon HQ2 were to initialize the Project, that several buildings would be built concurrently with Phase 1. Elaborate on this scenario including what infrastructure and public realm would be included to support the initial phase. If Amazon HQ2 were *not* to initialize the Project, please elaborate on this scenario including the program and scale of

026-009

Refer to Chapter 6, *Transportation.*

026-010

Refer to Chapter 3, *Urban Design.*

026-011

Refer to Chapter 3, *Urban Design.*

026-012

Refer to Chapter 3, *Urban Design.*

026-013

Refer to Chapter 3, *Urban Design* and *Chapter 11, Historic Resources.*

026-014

Refer to Chapter 3, *Urban Design.*

026-014 an Alternative Phase 1, and what infrastructure and public realm would be included to support.

026-015 Regardless of Amazon's decision to move forward with Suffolk Downs as their HQ2, elaborate on phasing scenarios leading to full build out, including timing of infrastructure and public realm.

Urban Design Overview

Adaptability of the Project/Block Morphology

Creating a site that is flexible and adaptable over time is closely linked to block morphology. Understanding that full build out will likely happen over decades, the attempt to bake in flexibility is wise. In light of that, the blocks represented in the schematic master plan diagram are larger than conventional blocks. Though this is not intended to be a literal manifestation of building footprints, there is nevertheless concern the blocks are overly

026-016 large, and that a finer grain of both buildings and blocks should be considered. It is difficult to discern the difference between the proposed built site uses, as the scale forms of the buildings and most of the blocks are similar. Introduce variety into the plan to make the intended scale and organization of the site more legible.

Conversations with the Proponent and their team have discussed a move away from typical, modern block morphology—i.e. a single building surrounded on all sides by streets (as seen in the Seaport or other large-scale master plan developments such as Cambridge Crossing)—and instead a desire to consider multiple buildings on a single block "campus." This presumes a finer grain of connections between the blocks, but these are not yet

026-017 represented in the Master Plan. Nevertheless, given the scale and economics of modern building construction, there is concern that limiting the street network will negatively impact the highly connected, publicly-accessible and porous nature of these blocks and the larger site. For that reason, a better articulation of why superblocks are preferred to blocks with more manageable dimensions is needed. Limits to amount of constructed roadway is a factor of both design and cost. The uniqueness of this context requires exploration of many alternatives, particularly given this project is poised to be the largest permitted master plan in Boston's history. It may be that certain "neighborhoods" have larger blocks, but the Main Street Retail District may deploy more typical blocks as this central neighborhood should have the greatest mix of uses and building typologies. Also considering its broad western face to 1A and the unknown future of the adjacent industrial oil tanks, it might be prudent to consider a more conventional street grid to better connect to future conditions. There is no reason why a single block morphology needs to populate the entire 161 acres.

026-018 It seems that the master plan diagram comes from a desire to preserve and reuse existing site elements (retaining the track infield, the infield pond, linear wetlands, and the layout of

026-015

Chapter 1, *Project Description and Alternatives* describes the proposed phasing for the build out of the Master Plan Project. Refer to Chapter 3, *Urban Design*, for a description of open space phasing and Chapter 11, Infrastructure, for a discussion of infrastructure systems phasing.

026-016

Refer to Chapter 3, *Urban Design.*

026-017

Refer to Chapter 3, *Urban Design.*

026-018

The on-site wetlands, some of which were created, such as the pond, are very unique on-site elements that the Proponent is incorporating into the proposed 40-acre open space system. This was not for ease of implementation, but rather focus on preserving unique wetlands, enhancing them given they connect to the Belle Isle Marsh and allowing public access to them through the open space system. In addition Tomasello Drive is being realigned in several sections and is not being held in its original position but was purposely shifted to improve the overall master plan. Both the on-site wetlands and Tomasello Drive were carefully considered during the design of the Master Plan Project.

026-018 Tomesello Way) for ease of implementation. More study is required to understand if simply reusing these remnants of the Suffolk Downs site, largely unchanged, is warranted as the best overall approach to a final build out of the master plan. With the advanced approval of Phase I, the development team is now afforded an opportunity to review and study the master plan's layout to a higher degree and better understand if the currently proposed configuration is the best possible. The plan requires more creative thought around the potentials of restoration, improvement, and interconnection of the water and wetland resources and the legible integration of these on-site natural systems into the communities to the north and south.

Height, Use and Massing

026-019 The preliminary shaded land use diagram provides some indication of building use, but residential and commercial appear comparable in dimension. We presume that there would be much greater heterogeneity in building scale that reflects the underlying use, but this should be refined further.

We are unsure about the strategy behind the current proposed locations of many of the uses: residential is relegated to the far edges of the site while commercial/office is centralized and given proximity to the largest concentrations of open and recreational space (15 acre park and sporty spine). There is concern that the gaming of the FAA guidelines to provide greater height closest to 1A creates a scenario where multifamily residential is overscaled and underserved by other uses. Though Boston and Revere may have different land use priorities, we believe the success in creating a "vibrant, mixed use community" hinges on a mix of uses, but also end users of different incomes. Increasing housing capacity should balance maximizing density while creating diverse housing

026-020 typologies. Explore opportunities to create housing which provides transition from the established single and two family homes in adjacent neighborhoods to larger multi-family products.

The aspiration for dynamism requires a mixing of people, use, height, and building morphology to create an environment that is compelling. Nevertheless, because of FAA height restrictions and the surrounding context of Orient Heights and Beachmont, this area is unlikely to be built to resemble a quintessential mixed-use downtown environment, but rather a TOD mixed-use neighborhood.

026-021 Greater study is needed on the Boston edge adjacent to the Orient Heights neighborhood, particularly given the close proximity to single family residential and the BHA Orients Heights redevelopment. The Proponent should study a variety of buildings, street configurations, and block typologies, paying close attention to the grading. Could a residential building type that takes advantage of the natural grade to provide dual access be considered along this edge? For example, could a street entrance for pedestrians and access for parking be designed along Waldemar, while also creating a second building front

026-019

Refer to Chapter 3, *Urban Design.*

026-020

Refer to Chapter 3, *Urban Design.*

026-021

Refer to Chapter 3, *Urban Design.*

with pedestrian and vehicular access from the Suffolk Downs side? In light of the recently constructed BHA development, this may be a welcome opportunity to complete the street.

026-022 Concurrently, consider the realignment of Tomesello Way as it enters the site from Route 1A. Study if there are benefits to moving the proposed height and density adjacent to the densely vegetated, linear wetland along the entry spine to move it away from the Orient Heights neighborhood along Waldemar Avenue. Again, this may provide an opportunity to put some lower height along the northern edge of Waldemar Avenue to complete and scale Waldemar's cross section.

026-023 The Boston edge, in particular, should be studied through section, 3D/axonometric drawings, and/or digital models that include accurate topography of the surrounding neighborhoods and natural features. Numerous sections should be provided to capture grading strategies at the site scale, block or area scale, and individual building scale.

Streetscape

026-024 More and better information on the proposed hierarchy of new streets is needed, including on-street parking locations and anticipating how buildings might be serviced, if only conceptually. Provide cross sections not just for the primary streets, but also interior block or separate ped/bike connections. How do those relate and what is the scale relative to the buildings? Are there examples from elsewhere that have informed this strategy? How might through-block ped/bike paths connect to a perimeter sidewalk and typical roadway?

026-025

Again, the Master Plan's stated goals of connectivity and accessibility seem to run counter to the superblocks that populate the larger site and limited streetscapes that have currently been described. The EPNF identifies 4 streetscape types (Landscaped Parkway/Boulevard, Interior Complete Streets, Green Spines, and Sporty Spines) which are discussed in more detail below.

Landscaped Parkway Boulevard

The design of the open space alludes to Olmsted's Emerald Necklace, but is fundamentally dissimilar in that the proposed open space is physically connected to the proposed commercial/retail/hotel (in Program A) or residential (in Program B), rather than separated by a street or carriage road. These types of utilitarian interventions help to provide clear park boundaries and help to make these spaces feel more "public" in nature by physically disconnecting them from their neighboring private uses. Reconsider the layout and alignment of the proposed boulevards to better define the shape and public status of the parkway open spaces.

026-026

Interior Complete Streets

026-027 We would expect variety in the range of interior complete streets, and not a single typology. It is presumed that any new secondary streets would also be designed in the

026-022

Refer to Chapter 3, *Urban Design.*

026-023

Refer to Chapter 3, *Urban Design.*

026-024

Refer to Chapter 6, *Transportation.*

026-025

Refer to Chapter 3, *Urban Design.*

026-026

Refer to Chapter 3, *Urban Design.*

026-027

Refer to Chapter 3, *Urban Design.*

026-027 spirit of Boston's Complete Street Guidelines. See the Transportation and Infrastructure memo's discussion of "Internal Site Streets."

Green Spines

026-028 We understand these "green spines" to be similar to the "Coastal Mews" concept being developed as part of Phase I, though the landscaping and vegetation may vary. Depending on the spacing between buildings, these may be a challenge to program and landscape. Again, why not consider a block morphology that is more archetypically urban? We have concerns about the perception of public v. private nature of these spines, and by extension, equitable access to them. Regardless, connections to, adjacent to, and across existing and proposed water and wetland features should all be thought of early on as a family of infrastructure consistent in design and detail for legibility across the entire site, and appropriately scaled for the intended users.

Sporty Spines

026-029 More and better information is needed on the specific types of active recreation spaces that are a part of the "sporty spine" and how these will either fulfill needs or augment existing uses identified in the Boston Open Space Plan. We believe that given the scale of the overall development and the 15 acre common area, the active programming should support not just East Boston, but the entire city as a whole.

Circulation and Accessibility

026-030 More and better information regarding how pedestrian (limited) and bicycle (none) connections will be made to established bordering neighborhoods in East Boston from the site, including to the adjacent MBTA stations. MBTA station connections in the early phases of the development will be critical to establishing transit-oriented commuting patterns for new residents and workers.

026-031 More detailed study is needed for bus, vehicular, pedestrian, and bike circulation nearest to the Suffolk Downs T. We would like to see pedestrian, bike, and bus connections strengthened to Belle Isle Square and the T Station. At the intersection of Waldemar

026-032 Avenue in the southeast corner of the site, blocks and buildings should be designed in a manner so as not to preclude future vehicular connections from the neighborhood to the site. Direct vehicular connections from Revere are integrated on the northern edge of the site, and it is important to maintain options on the Boston side for all modes of circulation in the future. Earlier comments regarding block porosity and scale also relate to circulation and accessibility. See the Transportation and Infrastructure memo's discussion of "Site Access."

026-033 Local and regional pedestrian and bike connections to the site should be further explored and represented at a scale that is legible. How will this open space and mobility network connect to East Boston (Belle Isle and East Boston Greenway) and Revere (Revere Beach

026-028

As described in Chapter 3, *Urban Design,* the Green Spines are conceived of as part of the public realm and an extension of the pedestrian circuit throughout the Project Site.

026-029

Refer to Chapter 3, *Urban Design.*

026-030

Refer to Chapter 3, *Urban Design.*

026-031

Refer to Chapter 6, *Transportation.*

026-032

Refer to Chapter 6, *Transportation.*

026-033

Refer to Chapter 6, *Transportation.*

026-033 Parkway and Beach)? How might connections to Belle Isle Marsh be constructed? Is there an at grade strategy across Bennington Street or is a pedestrian/bike bridge warranted? Near-term implementation of these connections is preferable.

026-034 Other supplementary circulation, including a shuttle route and stops, MBTA bus infrastructure and proposed stops, autonomous vehicle performance standards and storage, and TNC curbside accommodation should be further studied and incorporated into the next iteration of the master plan, and represented in both plan and street cross-section. Please see Transportation and Infrastructure memo for more detailed comments.

Civic Architecture and Public Realm Design

026-035 During the next phase, the design team should identify more precisely the locations for all civic architecture – i.e. any building that includes or may include a publicly accessible use. We expect additional study is warranted to determine whether city-owned facilities (schools, fire stations, library services, etc.) are needed given the scale of the proposed development, but the location and design aspirations for these facilities should be developed during the master planning phase. Though some flexibility will naturally be accounted for, detailed design guidelines and a commitment to design excellence should be established as a core objective for these facilities.

026-036 As in any urban fabric or large-scale master plan, certain buildings and spaces are under greater design pressure given their location, visibility, access to key amenities, etc. The design of Belle Isle Square is one such space, and the design of the architecture of framing buildings, as well as the design of the public realm, is paramount. In this wedge-shaped plaza, careful selection should be made of all public realm materials and other plaza elements (exterior furnishings, landscape, public art, pavilion architecture, etc.) Detailed illustrative representation and design guidelines should accompany this, and other, key spaces. It is expected that a similar exercise will be completed in parallel for Beachmont Square. Though located in Revere, it is important to understand the relationship—both through design aspirations and through physical connections—of how these two important gateway-nodes relate to one another, to the rest of the larger Suffolk Downs site, and to points beyond. Here, unlike other areas of the master plan, certain facades or roofline elements may terminate a long view or facilitate wayfinding, and should be studied alongside finer grained material elements.

026-037 Just beyond Belle Isle Square, the primary entry/departure for all T riders is the pedestrian/bike bridge over the southeastern edge of the wetlands running alongside the rail line. Conversations with the Proponent and design team have already singled out this critical infrastructure as important threshold and gateway for the project. We expect this piece of infrastructure-architecture to be more than a utilitarian feature, functioning as an amuse-bouche for the site beyond, yet scaled appropriately. There may be other elements (another footbridge over Sales Creek or pond, an open-air pavilion structure in the park or

026-034

Refer to Chapter 6, *Transportation.*

026-035

Refer to Chapter 3, *Urban Design.*

026-036

Refer to Chapter 3, *Urban Design.*

026-037

Refer to Chapter 3, *Urban Design.*

026-037 amphitheater) that may be similarly deserving of up front design thinking, and we look forward to working with the proponent on identifying these important elements.

026-038 Though we expect there may be some modifications to the overall plan configuration, it seems likely that a large open space will be retained as a core feature of the master plan. Given that, there should be careful study of the building facades surrounding the park, particularly given the sinewy curves that are suggested in the current site plan. How these buildings function as a backdrop to the open space, but also relate to one another on both a ground and upper floor level should be studied.

026-039 Though it is not yet clear where commercial uses will be concentrated, the character and design of the Main Street district should be clearly articulated including streetscape design, but also the design of any new commercial prototypes. The prevalence of multistory retail podia on new construction makes this exercise particularly critical, though it is not clear that this is something that will be widely prevalent at Suffolk Downs. Regardless, storefront design and associated signage along a Main Street and in other parts of the site should be studied and represented even at the master plan stage in order to anticipate and inform any future design of buildings.

Open Space Plan and Landscaping

026-040 The Suffolk Downs site sits adjacent to Belle Isle Marsh, the last remaining salt marsh in the City of Boston. The site itself is a filled salt marsh and, therefore, the open space system proposed for the site's redevelopment seems obliged to tell the ecological history of the site, including highlighting the remnant connections to the Belle Isle Marsh (and the Harbor), the lineage of Sales Creek, and the evolution of the created wetlands at the edge of the site. Much can be done to improve and augment the quality (and, perhaps, capacity) of the water and wetlands that remain on the site, both for the ecological health of the site and for the activation of the proposed open spaces. The goal for the open space system in this redevelopment should be one that both creates and supports resiliency, recreation, connectivity, and provides a narrative on the ecological evolution of the site and continued role that the open space will play.

026-041 How can the plan better incorporate and enhance the existing wetlands as an open space and aesthetic resource for the site? Currently on the west edge of the site, the proposed multi-use paths are depicted on the opposite side of Tomesello Way and overall provide no connection to these linear wetlands. It seems like a missed opportunity to enhance these areas either for improved functionality, or at the very least, an aesthetic resource within the site's open space system. On the western edge, we encourage the proponent to look beyond McClellan Highway to the Chelsea River for possible public connections to the water's edge in future scenarios.

026-038

Refer to Chapter 3, *Urban Design.*

026-039

Refer to Chapter 3, *Urban Design.*

026-040

Refer to *Chapter 5, Wetlands and Waterways,* and Chapter 3, *Urban Design,* for site design measures that are anticipated to improve the conditions of the adjacent Belle Isle Marsh.

026-041

Refer to Chapter 3, *Urban Design.*

026-042 Again, programming for the open space and central 15 acre common should fulfill needs or augment existing uses identified in the Boston Open Space Plan. We believe that given the scale of the site and the 15 acre common area, in particular, the active programming should support not just East Boston, but the entire city as a whole. Can active recreational amenities like soccer fields be included to complement some of the more passive open space features or episodic "sporty" moments that have been described? See the Boston Parks and Recreation Department memo for more on open space and parks.

Materials

The following materials for the Proposed Project's schematic design must be submitted for the DPIR. Scale of materials will be variable depending on intent of drawing, but the Proponent should consult with BPDA to ensure that adequate context is captured. The overall intent is that materials should represent a level of thinking and representation associated with a more detailed master planning exercise. Certain buildings and/or site features may require additional representation beyond those described below. Please use this list as a suggestive starting point for the full complement of necessary drawings, illustrations, renderings, and 3D models/physical models needed to adequately represent the Master Plan.

Plans

026-043 1. Regional plans showing connections to the larger systems of open space amenities (East Boston and Revere) and transportation infrastructure including bike, pedestrian, T, and bus.

026-044 2. Site Plan Drawings including diagrams (land use, etc.), sections, elevations, and other 3D representation. Please include sufficient surrounding context (in consultation with the BPDA) demonstrating relationships of the proposed project to the neighborhood context.

026-045 3. Interior "Neighborhood" plans, elevations, and sections at an appropriate scale, but with enough detail to understand block morphology, building footprint dimensions, landscape architecture, service and loading, building access and entrances, and all circulation. Any meaningful ground level programming should be clearly articulated to understand relationships between and among buildings and public realm.

026-046 4. More detailed building scale plans or detailed design guidelines for Phase I and proposed first phase elements. Detailed drawings anticipated for any significant open space or public realm amenities, including, but not limited to, Belle Isle Square, the central common, any civic buildings or known "celebratory architecture."

Models

026-047 1. Digital 3D model including surrounding context and accurate topography. Model should include architecture, landscape architecture, other infrastructure (bridges,

026-042

Refer to Chapter 3, *Urban Design.*

026-043

Refer to Chapter 6, *Transportation.*

026-044

Refer to Chapter 3, *Urban Design.*

026-045

Refer to Chapter 3, *Urban Design.*

026-046

Refer to Chapter 3, *Urban Design.*

026-047

The Proponent will provide a 3D model to the BPDA following the filing of the DEIR/DPIR.

026-047 bus stops, etc.) at a level of detail that gives real-world impression. Given the resources known to be available to the design team, we encourage the full use of new modeling and virtual reality tools to explore representation of the Master Plan.

026-048
2. Physical model at an appropriate scale to be used as a tool with BPDA and other public agencies, as well as community and other stakeholders

026-049 *Perspectives (preferably non-distorted)*

1. Orient Heights neighborhood toward development / Belle Isle Marsh demonstrating impact on viewshed
2. Route 1A (William F McClellan Highway) approaching development in both directions
3. Tomesello Way near intersection with Route 1A (William F McClellan Highway) down length of residential development
4. Multiple views relating to Belle Isle Square (approach, multiple interior locations, from the MBTA station, looking back at the MBTA station, view to/from Central Common)
5. View from Belle Isle Marsh
6. View from train and/or Bennington Street
7. Multiple perspectives from Revere, including from Furlong Drive/existing shopping center
8. Multiple views relating to Beachmont Square
9. Views at any key pedestrian and bicycle connections to/from East Boston neighborhood
10. Multiple streetscape views including Main Street, "Sporty Spine," and typical interior streets illustrating different uses

026-048

The Proponent has developed a physical model of the Master Plan Project.

026-049

Refer to Chapter 3, *Urban Design.*

MEMORANDUM

TO: Tim Czerwienski, Project Manager
FROM: Vineet Gupta, Director of Planning, Boston Transportation Department
John (Tad) Read, Deputy Director for Transportation & Infrastructure Planning, BPDA
Keith Bynum, Senior Traffic Engineer, Boston Transportation Department
Bob D'Amico, Senior Planner, Boston Transportation Department
Matthew Moran, Senior Transportation Planner, BPDA
DATE: February 21, 2018
SUBJECT: Suffolk Downs Redevelopment - **Transportation and Infrastructure Comments**

Overview

The Suffolk Downs Redevelopment represents one of the largest single development proposals in the City of Boston's history. With limited connections to a regional roadway system, access to a single subway line, and significant susceptibility to 100 year flooding and sea level rise, the project site poses serious challenges for development of this scope. With these factors in mind, that we offer the following recommendations for the project Scoping.

Overarching Goals

Given the congestion on Route 1A and limited access to this and other regional arterials, the Proponent should make concerted efforts to minimize single occupancy vehicle use as a means to reducing vehicular trips while maximizing more sustainable modes, including transit, walking, bicycling, and ride-sharing. Boston's citywide transportation plan, *Go Boston 2030*, identifies the following aspiration mode share goals relative to how people get around the city in 2030. These should be the stated goals of the project as well.

027-001

Go Boston 2030 Mode Share Goals	
Public Transit	44%
Walk	20%
Bike	8%
Carpool + HOV	5%
Drive Alone	20%
Other/Work from Home	4%
TOTAL	101%

**NOTES:*
Percentages are approximate and add up to more than 100%.

027-001

Refer to Chapter 6, *Transportation.* The proponent has worked with MassDOT, CTPS and others to collaborate and define appropriate future mode shares to be considered in connection with the study of transportation impacts.

The mode shares to be used for trip generation are different and outlined in the "Transportation Modeling Methodology" below.

The comments contained in this memo are focused on measures that the Proponent should take in project planning and design to align anticipated and actual project mode shares with these City 2030 aspirational goals.

Go Boston 2030 Emission Goals

Boston's citywide transportation plan, following the lead of the City's *Climate Action Plan*, has established an aspirational goal to reduce greenhouse gas emissions by 50% of 2005 levels by 2030. This goal also drives the focus on encouraging the Proponent to embrace non-motorized transportation and clean fuel use. In addition Mayor Walsh has committed to work toward making Boston carbon neutral by 2050.

Phasing

027-002

The Proponent should provide greater details on how the master plan will be phased, as impacts are expected to vary over time as technology and transportation initiatives evolve. Commitments to submit impact analysis at key build-out thresholds should be outlined. At each stage, particular emphasis will be required with respect to:

- Timing transportation mitigation such a public transportation improvements *in advance* of development
- Phasing in parking supply to avoid overbuilding in the initial phases.
- Conducting updated transportation modeling (Synchro) analyses at key phases/build-out thresholds.

Synergy with Urban Design

The character and quality of the built environment and urban design have a significant effect on how people feel walking or bicycling--as opposed to using motorized transportation. The scale and orientation of buildings in relation to streets and sidewalks; dimension of blocks; relationship of buildings to the street and sidewalk; sidewalk character and dimensions; inclusion of safe, comfortable bicycle paths; the presence or absence of view corridors and wayfinding; an overall sense of human scale--all of these factors can significantly influence mobility behavior and willingness to walk and bicycle. Since significantly increasing walking and bicycling mode shares are critical for the sustainability of this development, we want to emphasize our strong support for the recommendations from the BPDA Urban Design team that speak to these considerations.

Of particular interest are the following:

027-003

- Orientation: Streets meander so extensively and buildings depicted are so homogeneous in size and scale that it is unclear how pedestrians and bicyclists will

027-002

Refer to Chapter 6, *Transportation.*

027-003

Refer to Chapter 3, *Urban Design.*

027-003 become oriented without certain prominent architectural and/or landscape features serving to help orient. What will be the internal landmarks and view corridors to draw people in and through, especially from major external entry points, such as the MBTA stations?

027-004
- Wayfinding: What system of wayfinding will be used to help orient and guide pedestrians and bicycles?

027-005
- Block Size: Certain block sizes depicted are overly large and would not to be at a scale that easily invites walking.

027-006
- Active Ground Floors and Street Edges: Active ground floors and street edges create activity and life. A diagram showing where these are would be helpful for understanding the need to certain pedestrian and sidewalk dimensions and amenities.

Site Access

Site access will be critical in determining the future success of the Suffolk Downs project. Existing transportation networks in the East Boston neighborhood are burdened and site access is constrained by existing industrial and residential uses on either side. However, the proposed project also represents the potential to improve neighborhood connectivity to Downtown Boston and the broader region while increasing sustainable mode shares.

Connections to Route 1A

Existing connections to Route 1A are limited. Since Route 1A will be a primary vehicular and bus connection to and from the project site, it is extremely important that connections to Route 1A maximize flexibility and porosity.

027-007
- The Proponent should review and evaluate all of the proposed traffic mitigation measures made by the proponents of the Suffolk Downs casino. Each of the proposed mitigations in that project should be evaluated for feasibility and benefits taking into account updated traffic counts and conditions. This should include studying the need for a grade-separated Boardman Street and working with city and agencies to develop a design and contribute to the construction of a selected alternative.

027-008
- New connections to 1A should be studied, including connections at Furlong Drive and Tomesello Way. The proposals should prohibit a direct left turn on to Route 1A southbound. The two intersections as well as the southbound turnaround "jug handle" should be evaluated together in designing the new proposals.

027-009
- Note that there should be no vehicular connections to Walley Street.

Connections to Winthrop Ave.

027-010 We support the connections to Winthrop Avenue as described in the Expanded Project Notification Form. Further elaboration and modeling of these connections should be conducted.

027-004

Refer to Chapter 3, *Urban Design.*

027-005

Refer to Chapter 3, *Urban Design.*

027-006

Refer to Chapter 3, *Urban Design.*

027-007

Refer to Chapter 6, *Transportation.*

027-008

Refer to Chapter 6, *Transportation.*

027-009

The Proponent will not provide vehicular connections to Walley Street given there is no existing connection today and community feedback that no connection is desired by the Orients Heights neighborhood.

027-010

Refer to Chapter 6, *Transportation.*

Potential Future Connections

027-011 At the intersection of Waldemar Avenue in the southeast corner of the site, blocks and buildings should be designed in a manner so as not to preclude future vehicular connections from Bennington Street into the site in the long term, should this be deemed necessary.

Internal Site Streets

Street Design

027-012 The Proponent should follow the broad principles and guidance specified in *Boston's Complete Streets Guidelines* in designing the internal street network. These include bicycle and general travel lane widths, sidewalk widths, street tree spacing and root environment, sidewalk materials, the configuration of curb lines at intersections, and crosswalk design.

Curbside Parking

027-013 The Proponent should lay out a conceptual plan that lays out the anticipated curbside parking regulations. Will there be time limits and parking meters? What is the strategy to combine shuttle pick-up and drop-off and valet spaces?

Neighborhood Cut-Through Traffic

027-014 The Proponent should detail measures that will prevent neighborhood cut-through traffic such as limiting Waldemar Ave to bike and pedestrian connections only.

Shared, Connected (and Autonomous) Mobility

The way Bostonians get around the city is changing rapidly. Today there are more travel choices with the rise of on-demand mobility services - people can summon shared-car rides or bicycle short distances using the bike-share network. For example since launching in July 2011, Hubway users have taken more than 5.3 million trips, with increases each year. Plus, real time information on travel options is practically free and readily available - with next train/bus or bike rental availability alerts literally on a rider's fingertips. New facilities, such as an expanding network of bike-share and car-share stations, have contributed to these trends in travel behavior.

Character and Status of Curbside Drop of for On-Demand Car Services

027-015 The street and circulation plan should show clearly and specifically where and how on-demand bicycle and car services will be accommodated in streets, public ways, and private developments. Estimates and assumptions for future demand for such services should be quantified and explained, and the relationship between such estimates and provisions made in the plan for these services should made explicit. If the plan must be adaptable over time to accommodate an increase in on-demand services, where and how it will be adapted should be specific and detailed.

027-011

Refer to Chapter 6, *Transportation.*

027-012

Refer to Chapter 3, *Urban Design.*

027-013

Refer to Chapter 6, *Transportation.*

027-014

Refer to Chapter 6, *Transportation.* The Project proposes only bicycle and pedestrian connectivity between the site and the adjacent residential neighborhood.

027-015

Refer to Chapter 6, *Transportation.* The Proponent is committed to working with the BTD and others to define detailed roadway and curbside infrastructure solutions for on-demand vehicles, bicycles, public transportation, and other measures to support comprehensive, multi-modal transportation.

Neighborhood Mobility microHUBs

027-016 The Proponent should establish a network of *microHUBs* in the project area. Centered around subway stations, bus and shuttle network nodes, and local destinations such as community centers or small-business streets, and within high-density residential enclaves, they provide access to bike-share, car-share, secure bike parking, ride-hailing pick-up spots, wayfinding, free Wi-Fi, and real-time, information amenities.

Flexibility for Shared Autonomous Vehicle Technology

027-017 Technology is evolving quickly and in such a way as to suggest a significant increase in the near future in the use of shared autonomous vehicles--with simultaneous significant reductions in private automobile ownership and use. This, in turn, could have major implications for roadway design, parking demand, the need for pick up and drop off, urban design, and other infrastructure needs. The Proponent should study the potential implications and opportunities that the rapid advancement of shared autonomous vehicle technology presents. The study should also describe how the proposed project will anticipate these changes, including flexibility in the design to readily accommodate rapid shifts in transportation technology and travel behavior.

Transportation Modeling Methodology

027-018 The Proponent should prepare a Synchro model for the site and study area using projections of future traffic volumes, at full buildout and at key points in project phasing (25% build, 50% build, 75% build--or other appropriate phasing milestones).

Study Area

027-019 BTD Engineering believes that the study area should be expanded to include impacts to the Route 1A Sumner and Callahan Tunnels, the Day Square area, Chelsea Street Bridge and Meridian Street Bridge. In addition, note that the Bennington/Saratoga intersection is listed twice in Section 5.2.2; replace one with Bennington/Swift. BTD Engineering will confirm the adequacy of the study area intersections.

Trip Generation Mode Share Assumptions

027-020 For purposes of modeling, and for the initial project phases, BTD Engineering requests that the Proponent conduct a model run using the mode share assumptions contained in Table 5-10 (page 5-38) of the November 30, 2017 Expanded Project Notification Form for the first phase as recommended by the Proponent and for the full build out. This is particularly needed to account for "worst case" scenarios where TNCs and autonomous vehicles in fact increase the number of motorized vehicles on Boston's streets. At the same time, for comparison purposes, the Proponent should also propose higher mode shares for transit and bicycle use at each phased build out in conjunction with the Boston Transportation Department.

Transit Network & Accommodations

027-016

Refer to Chapter 6, *Transportation.* The Proponent is committed to working with the BTD and others to define detailed roadway and curbside infrastructure solutions for on-demand vehicles, bicycles, public transportation, and other measures to support comprehensive, multi-modal transportation.

027-017

Refer to Chapter 6, *Transportation.* The Proponent is committed to working with the BTD and others to define detailed roadway and curbside infrastructure solutions for on-demand vehicles, bicycles, public transportation, and other measures to support comprehensive, multi-modal transportation. The Project will be designed to be adaptable to accommodating future technologies, including potential for autonomous vehicles.

027-018

Refer to Chapter 6, *Transportation.*

027-019

Refer to Chapter 6, *Transportation.*

027-020

Refer to Chapter 6, *Transportation.*

Improved and expanded transit opportunities will be key to minimizing increased roadway congestion, reducing carbon emissions, and creating a walkable place. Transit will be a key element for the success of the Suffolk Downs site. With two stations nearby and unused passenger capacity, the Blue Line is an important resource to the project. At the same time, the condition of Suffolk Downs station is deteriorated, and flood risks and sea level rise pose challenges of safety and emergency access. Transit upgrades, safety improvement and flood mitigation have the potential to provide substantial benefits to the surrounding neighborhood. The section describes the key bus, shuttle, and water service to the site. Among the issues and opportunities that should be explored are the following:

Blue Line and Blue Line Stations

027-021
- Proponent should describe how Suffolk Downs Station will be repaired to address deteriorated conditions at the Station and how this will be funded.

027-022
- Proponent will evaluate the risks for 100 year flooding and sea level rise to impact the Blue Line and explore improvements that would mitigate the impacts.

027-023
- Explore how activating spare Blue Line trains could help meet demand at partial and full build.

027-024
- Explore how to incorporate space at MBTA stations for bus turnarounds and accommodation of TNC service.

027-025
- Proponent should study the impact of the Red/Blue Connector on transit access to the site, including mode splits, travel times, and connections of the East Boston neighborhood.

MBTA and Regional Bus Service

027-026
- Proponent should study key regional connections to the Suffolk Downs site using either MBTA or publically-open shuttle connections, including:
  - A route connecting South Station, South Boston Seaport, and Logan Airport to the site, including potential use of the single rail spur extending along the eastern edge of Chelsea Creek from approximately the Chelsea Street Bridge to Tomesello Way.
  - A route connecting the site to a station on the northern branch of the Orange Line such as Sullivan Square, Assembly, or Wellington;
  - A route connecting the site to the Newburyport/Rockport Commuter Rail Line in a location such as Chelsea.

027-027
- Proponent should study potential value of connecting to local and regional MBTA bus services on Route 1A and convenient connections to regional service to the site, including direct on site access.

027-028
- Proponent should confer with the MBTA about the possible need for additional MBTA bus maintenance capacity to serve the increased MBTA service that will likely be necessitated by the the new development at Suffolk Downs site to serve new Silver Line, local, or regional buses anticipated at the site.

027-021

Refer to Chapter 6, *Transportation.*

027-022

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

027-023

Refer to Chapter 6, *Transportation.*

027-024

Bus and TNC accommodations for the Project are shown in the circulation plans for Belle Isle Square and Beachmont Square in Chapter 3, *Urban Design.*

027-025

Refer to Chapter 6, *Transportation.*

027-026

Thank you for your comment. Please refer to Chapter 6, *Transportation*, for a discussion of regional transit connections.

027-027

Chapter 6, *Transportation*, includes a discussion of potential local and regional transit connections to the site.

027-028

Refer to Chapter 6, *Transportation.* The Proponent has coordinated with MBTA regarding MBTA bus service needs in the vicinity of the Project Site.

027-029

- Proponent should explore and evaluate subsidies for MBTA bus services to enable service enhancements into the site.

Internal and Local Bus Services and Shuttles

027-030

- When will the proposed internal shuttle service connecting to stations be activated, and how does this related to overall project phasing?

027-031

- To what extent will the project utilize zero-emission shuttle vehicles? This will be necessary to achieve meaningful carbon reductions.

027-032

- Explore local shuttle and/or bus service to and from nearby neighborhoods.
- Proponent should explore shuttles service to nearby transportation hubs such as Logan Airport and North Shore Commuter Rail Lines.
- Proponent should analyze where within the master plan bus and shuttle service desire lines may be greatest and incorporate into the street network dedicated lanes to facilitate rapid movement of these services.

Water Transportation

Past projects proposed for the Suffolk Downs site explored the potential of water transportation. While the site does not have direct access to the water's edge, it is proximate to Chelsea Creek and Belle Marsh waterway and connected via ground transportation to the East Boston Inner Harbor waterfront including an underutilized water transportation terminal at Lewis Mall.

Earlier analysis of water transportation opportunities for the project site flagged the challenges of Chelsea Creek and Belle Marsh waterway including water depths, overhead clearances and potential conflict with boating/shipping interests. Chelsea Creek lacks public access and docking infrastructure. Chelsea Creek and Belle Marsh waterway would also pose longer travel times due to distance and the above referenced navigational challenges.

Of the three waterways options, in terms of convenience and practicality of utilizing water transportation as mode of transportation to the project site, the direct route across Boston Inner Harbor to the waterfront of East Boston and thence to ground transportation (Blue Line etc.) may be the most efficient. Inner Harbor service from East Boston is under study with possible connections to the South Boston Waterfront and even North Station.

027-033

The proponent should review past water transportation analysis and plans and the Boston Harbor water transportation planning underway and managed by MassDOT, Masport and Boston Harbor Now. We ask for updated analysis and exploration of support for water transportation service particularly from the East Boston Inner Harbor waterfront to other waterfront neighborhoods in Boston.

Bicycle and Pedestrian Network

027-029

Please refer to Chapter 6, *Transportation*, for a discussion of mitigation measures developed to enhance transit service to and within the project site.

027-030

Refer to Chapter 6, *Transportation.*

027-031

Refer to Chapter 4, *Sustainability/Green Building.*

027-032

Refer to Chapter 6, *Transportation.*

027-033

The Project Site is bounded by Route 1A and Bennington Street and does not have ownership or access to waterfront properties to allow ferry access. Future ferry access to this area would be dependent upon redevelopment of existing parcels on the west side of Route 1A, which are currently industrial and oil storage facilities. Ferry access would be difficult on the Belle Isle Marsh due to existing parkland and low bridge clearances that lead back to Boston Harbor. Although the Proponent supports consideration of new and increased ferry service in the area development of this would be dependent on adjacent parcels, which have direct waterfront access.

The project's success in maximizing sustainable, non-SOV mode share, will depend in no small part on the quality of the bicycle and pedestrian infrastructure. The Proponent should reference the Boston Bike Network Plan recommended in the Go Boston 2030 Action Plan. With this in mind, we offer the following comments.

027-034
- Proponent should provide a detailed plan of sidewalks, pedestrian plans, and bicycle plans throughout the project, including dimensions.

027-035
- Proponent should provide details on how internal bicycle and pedestrian paths will be connected to the regional network.

027-036
- The character and quality of pedestrian and bicycle connections to T stations should be emphasized particularly connecting to Belle Isle Marsh without having to go through the "paid" Suffolk Downs Station lobby.

027-037
- Proponent should detail how the internal network will be separated from automobile traffic.

027-038
- The approach to bicycle parking, both in the public realm and individual buildings, should be described, including the character and quantity of bicycle parking near all MBTA stations.

027-039
- Proponent should map existing local and regional bicycle and pedestrian systems and prepare a diagram and plan showing how the project will connect to these systems. Of particular interest are the following:
    - The East Boston Greenway is a critical pedestrian and bicycle route for the neighborhood and envisioned to connect to Belle Isle Marsh and beyond. The East Boston Greenway has only two roadway crossings as it stretches from Piers Park to Constitution Beach, a remarkable feat for an urban area. The ease of bicycle connectivity is conducive to a strong bicycle mode for the project if the Greenway were linked to Suffolk Downs.
    - The proponent should explore opportunities to invest in offsite pedestrian and bicycle networks to integrate Suffolk Downs into the neighborhoods of East Boston and Revere.

Transportation Demand Management

A critical part of reducing Single Occupancy Vehicle use and achieving more sustainable mode shares will be having a successful Transportation Demand Management (TDM)

027-040 Program. Therefore, the Proponent should prepare a Parking and TDM Plan for the project. The goal of the plan should be to demonstrate the measures that the Proponent will take to achieve the mode share goals specified in *Go Boston 2030*.

027-041 The plan should describe the proposed and/or alternative mix of land uses; proximity to public transit and other non SOV facilities; number of residents, as well as number of employees and their places of origin; the number and type of patrons and users of proposed parking supply and their likely place of origin; the number of vehicle trips expected to be generated by the project along with description of measures to reduce

027-034

Refer to Chapter 3, *Urban Design.*

027-035

Refer to Chapter 6, *Transportation.*

027-036

Refer to Chapter 6, *Transportation.*

027-037

Refer to Chapter 6, *Transportation.*

027-038

Refer to Chapter 6, *Transportation.*

027-039

Refer to Chapter 6, *Transportation.*

027-040

Refer to Chapter 6, *Transportation.* A Parking Plan and TDM Plan will be prepared for the project and will be codified within the TAPA.

027-041

Refer to Chapter 6, *Transportation.*

027-041 associated traffic impacts on nearby streets; and a commitment to implement vehicle trip reduction measures including some or all of the following:

- Subsidized MBTA passes and other incentives to use bike share, rideshare, and shuttle services
- Designated Bus / Shuttle / Ride-share pick-up/drop-off areas
- Shuttle services
- Ride sharing services
- Consolidated bicycle parking, showers, and repair facilities
- Preferential parking for Low Emission Vehicles, Zero Emission Vehicles, carpools, vanpools and other trip reduction measures.
- Real-time transit and mobility information within buildings
- A comprehensive car share network plan for the district
- Unbundled parking from residential units

027-042 The commitment should be accompanied by a detailed description of the measures proposed to be implemented. However, the commitment to TDM should be flexible enough to not preclude advances in transportation technology. These elements will ensure the Suffolk Downs community has a comprehensive set of transportation options and will help to ease the burden on the East Boston and Revere transportation networks.

027-043 The Proponent should also study the creation of a Transportation Management Association (TMA) for the entire Redevelopment area that each and every building owner and lessee would participate in. The purpose of the TMA is to coordinate district-wide transportation services and act as an intermediary between building owners/resident associations and their access to the broader transportation network.

Parking Management & Loading

Parking and loading are key considerations for internal circulation, access to city streets, and pedestrian/bike networks. Key consideration should be given to the following items:

027-044
- The Proponent should consider the following parking ratios: 0.75/residential unit, 0.5/1000 sq. ft. office, retail, lab; and 5% minimum electric vehicle charging equipped, with another 10% make-ready wired.

027-045
- Bicycle parking should be provided as per BTD guidelines.

027-046
- Proponent should provide additional details on parking and loading access points. This should include details on parking garage entrances, loading dock points, and any other vehicular access points. Proponent should minimize parking and loading dock entrances by having consolidated loading and parking access where possible.

Coordination with Environment and Resiliency Comments

027-047 As detailed in the Air Quality section of the Environment and Resiliency comments, the Proponent should conduct an analysis to measure pollutant emissions from transportation

027-042

The proposed TDM plan will be flexible to include advancement in transportation technology. The TDM Plan will be codified as part of the review and approval of the TAPA.

027-043

Refer to Chapter 6, *Transportation.*

027-044

Refer to Chapter 6, *Transportation.* The proponent is committed to utilizing aggressive parking ratios to limit auto use and encourage increased use of alternative transportation choices.

027-045

Refer to Chapter 6, *Transportation.* Bicycle parking will be provided as per BTD guidelines.

027-046

Refer to Chapter 6, *Transportation.*

027-047

Refer to Chapter 9, *Environmental Protection.*

027-047 related emissions generated by the project including a microscale, intersection by intersection, analysis to determine the effect of project generated traffic on air quality.

Smart Utilities

027-048 The Proponent should propose a utilities infrastructure master plan including phasing and connections to existing systems with respect to the Smart Utilities guidance detailed below.

Smart Utilities Vision
In close collaboration with the Public Works Department (PDW), Boston Transportation Department (BTD), Boston Water & Sewer Commission (BWSC), Department of Information Technology (DoIT), and other City agencies, and departments, the Boston Planning & Development Agency (BPDA) has been exploring a new model for integrated planning among energy, transportation, water, and communications utilities. Out of this exploration has emerged a draft Smart Utilities Vision which aims to transform the business-as-usual model of utility design, planning, and coordination and reducing unnecessary street disruptions and associated costs. By improving planning and coordination, utility service can be made more affordable, resilient, equitable, and sustainable.

Two key recommendations have emerged as part of the Smart Utilities Vision that are being considered for adoption as policy: the *Smart Utilities Standards*, and the *Smart Utilities Policy for Article 80 Development Review.*

- The *Smart Utility Standards* set forth guidelines for planning and integration of Smart Utility Technologies with existing utility infrastructure in existing or new streets, including 10 Smart Utility Technologies and a cross section of an ideal layout for underground pipes in 40' and 60' right-of-ways. The *Smart Utility Standards* are intended to serve as guidelines for developers, architects, engineers, and utility providers for planning, designing, and locating utilities.
- The Smart Utilities Policy for Article 80 Development Review in its draft form (as of January 2018) is outlined below. The policy continues to be reviewed and will likely evolve further before final adoption.

Smart Utilities Policy for Article 80 Development Review
The draft policy as of January, 2018 is outlined below. This draft is subject to further change and refinements prior to final adoption (please contact Manuel Esquivel at Manuel.Esquivel@boston.gov for any updates).

Projects subject to Article 80B–Large Project, Article 80C–Planned Development Area, and/or Article 80D–Institutional Master Plan review shall be asked to incorporate Smart Utility Technologies ("SUTs") into the infrastructure design and planning process. Utilizing the most recent *Smart Utility Standards* provided by the Boston Planning & Development Agency ("BPDA") and the City of Boston ("City") (available at: http://www.bostonplans.org/planning/planning-initiatives/boston-smart-utilities-project),

027-048
Refer to Chapter 10, *Infrastructure*.

the project proponent will be asked to integrate the applicable SUTs into the design and planning of utility infrastructure for water (including but not limited to sewage and stormwater), energy (including but not limited to gas, electricity, and steam), communications, and transportation services. [1]

Applicable Development Review Threshold Criteria

SUTs required for Article 80 projects will depend on: (a) the floor area of the Project and/or (b) the Project's required mitigation of traffic, street lighting, and surface water runoff.

027-049

- *For projects at or above 1.5 million square feet of floor area:* The BPDA shall, as part of project review, recommend the incorporation of a District Energy Microgrid and preparation of a District Energy Microgrid Master Plan for the entire development. For projects that are primarily residential, complying may entail cooperation with a service provider that can sub-meter individual resident units. If the BPDA determines that it is not feasible to build the full District Energy Microgrid as part of the initial project phase or phases, all initial phases of the project should nevertheless be designed and constructed to be District Energy Microgrid Ready. In this way, when the full District Energy Microgrid becomes feasible, all buildings that were built during the initial phase or phases can be easily connected to the District Energy Microgrid system with minimal cost and disruption. If a District Energy Microgrid is not incorporated into the project plan, the project proponent should demonstrate to the BPDA and other City departments, including but not limited to the Public Improvement Commission ("PIC"), the Boston Water and Sewer Commission ("BWSC"), and the Environment Department, how other technologies to be incorporated into the project offer comparable or superior benefits in terms of energy supply resiliency, reduced energy use, reduced GHG emissions, cost reductions to utility customers, and limited impacts on the public way--such as street disruptions and redundant construction-- as compared to the benefits quantified in the District Energy Microgrid Master Plan. If, at a later date, the project proponent wishes to amend the approved Article 80 development plans, the corresponding District Energy Microgrid Master Plan must also be amended to reflect any changes in project phasing, configuration, land use mix, and/or intensity of use.

027-050

- *For projects at or above 1.5 million square feet of floor area, and/or adding or altering road surface in excess of .5 miles of roadway:* The BPDA and PIC shall, as part of their project review, recommend the incorporation of a Telecommunications Utilidor. If a Telecommunications Utilidor is not incorporated into the project plan, the project proponent shall demonstrate to the BPDA and PIC how other technologies to be incorporated into the project will provide comparable or superior benefits in terms of mitigating and/or reducing street disruptions, yielding more efficient use of underground space, and promoting more equitable access to telecommunications infrastructure.

[1] For a list of defined terms employed in this draft policy, please confer with BPDA staff.

027-049

Refer to Chapter 7, *Greenhouse Gas Assessment.*

027-050

Refer to Chapter 10, *Infrastructure.*

- *For all projects at or above 100,000 square feet of floor area:* The BPDA shall recommend the use of Green Infrastructure to retain, on site, a volume of runoff equal to 1.5 inches of rainfall times the total impervious area, prior to discharge, and in compliance with any applicable BWSC stormwater mitigation requirements.
- *For Projects satisfying other threshold criteria:* For all projects where the BTD requires that traffic signals be installed, or where traffic signal phasing and timing changes are required due to traffic mitigation, the BPDA shall recommend the incorporation of Adaptive Signal Technology and any related components into the traffic signal system network, consistent with any applicable BTD standards or guidelines.

For all projects making right-of-way improvements which are responsible for street light installation or a contribution toward the same, BPDA shall recommend that all street lights include additional electrical connection and fiber optic service, consistent with any applicable PWD standards or guidelines.

Timing in the Article 80 Process

- A. With the Project Notification Form ("PNF"), Notice of Project Change ("NPC"), or other initial filing, provide documentation of the integration of applicable SUTs into the design and planning of the project via diagrams, plans, analyses and descriptions deemed necessary by the Director of the BPDA. Describe all immediate and long-term planning, design, and construction strategies that will be employed to avoid, eliminate, or mitigate the adverse impacts of utility construction. Consideration of SUTs should not be limited to those described in the *Smart Utility Standards*.
- B. Incorporate *Smart Utility Standards* into all relevant components of the project, including building, site, infrastructure, transportation, environmental protection, urban design, landscape, sustainable development, historic resources, and tidelands.
- C. With the Design / Building Permit filing, the project proponent shall also submit to the BPDA updated documentation of the integration of applicable technologies along with supporting analysis and document the strategies that will be employed to integrate SUTs.
- D. With the Construction / Certificate of Occupancy filing and final inspection, the project proponent shall submit documentation to the relevant City agencies of the integration of applicable technologies along with supporting analysis and document the strategies that will be employed to integrate SUTs.

MEMORANDUM

TO: Tim Czerwienski, Project Manager
FROM: Richard McGuinness, Deputy Director for Climate Change and Environmental Planning
Katie Pedersen, Senior Land Use Planner, Sustainability Specialist and Environmental Review
Chris Busch, Senior Waterfront Planner
John Dalzell, Senior Architect
DATE: February 21, 2018
SUBJECT: Suffolk Downs Redevelopment - **Environmental & Climate Change Comments**

Environmental Analysis

A thorough understanding of the microclimate is integral to understanding how best to maximize the strengths and overcome the limitations of a site. Adapting building designs to existing site conditions and the natural features can greatly reduce the potential adverse environmental impacts. The quality and success of open spaces are dependent on many factors, including pedestrian comfort.

028-001 A climate analysis shall be performed based on the master site plan massing, height, densities, grids, blocks and open spaces.

028-002 The pedestrian level wind impacts and new shadows created shall be assessed on a phase by phase basis, as each is dependent upon building height, massing, and location, as well as the immediately surrounding uses.

Shadow

028-003 A shadow analysis shall be required to be conducted and the results included in the submission of each subsequent phase for existing (No-Build) and future (Build) conditions, for the hours of 9:00 a.m., 12:00 noon, and 3:00 p.m. for the vernal equinox, summer solstice, autumnal equinox and winter solstice and for 6:00 p.m. during the summer and fall.

1. No-Build-The existing site conditions to establish a baseline condition
2. Full Build-Master Site Plan (as described in the EPNF)
3. Build Condition-The proposed initial phase (each subsequent phase shall be required to conduct)

028-001

Refer to Chapter 6, *Transportation.*

028-002

Refer to Chapter 9, *Environmental Protection.*

028-003

Refer to Chapter 9, *Environmental Protection.*

028-003

4. As-of-Right Build Alternative

Net new shadows shall have a clear graphic distinction and for purposes of clarity, new shadows shall be shown in a dark, contrasting tone distinguishable from the existing shadows. The shadow impact analysis shall include the existing shadow and incremental effects of the project on existing and proposed open spaces, plazas, park areas, sidewalks, pedestrian areas and walkways, adjacent to, and in the vicinity of the project, including but not limited to the Belle Isle Marsh. If deemed necessary, design or other mitigation measures to minimize or avoid any adverse shadow impacts must be identified and described.

028-004

The shadow analysis results shall be provided in both animation and graphic representations, so as to best understand the extent to which shadows from the project are anticipated to affect the overall shadow conditions both on the project site as well as within the surrounding area.

Wind

028-005

The submission of each subsequent phase will require that either a qualitative or quantitative analysis shall be conducted (determination based on phase building details) and the results included in the filing.

028-006

The analysis shall determine the suitability of particular locations for various activities (e.g., walking, sitting, eating, etc.) as appropriate. Particular attention shall be given to public and other areas of pedestrian use, including, but not limited to, entrances to the project buildings and adjacent buildings, sidewalks, and parks, including but not limited to the Belle Isle Marsh, plazas, and other open spaces and pedestrian areas near the project.

The analysis shall evaluate the following conditions:

1. No-Build-The existing site conditions to establish a baseline condition
2. Full Build-Master Site Plan (as described in the EPNF)
3. Build Condition-The proposed initial phase (each subsequent phase shall be required to conduct)
4. As-of-Right Build Alternative

The wind tunnel testing shall be conducted in accordance with the following guidelines and criteria:

1. The analysis shall include the mean velocity exceeded 1% of the time and the effective gust velocity exceeded 1% of the time.

028-004

Refer to Chapter 9, *Environmental Protection*, for the static shadow studies. The Proponent will develop a shadow animation and submit directly to the BDPA, as requested.

028-005

Refer to Chapter 9, *Environmental Protection.*

028-006

Refer to Chapter 9, *Environmental Protection.*

2. Wind direction shall include sixteen compass points. Data shall include the percent or probability of occurrence from each direction on seasonal and annual bases.
3. Results of the wind tunnel testing shall be presented in miles per hour (mph).
4. Velocities shall be measured at a scale equivalent to an average height of 4.5-5 feet.
5. The model scale shall be such that it matches the simulated earth's boundary and shall include all buildings within at least 1,600 feet of the Master Plan Project site. All buildings taller than 25 stories and within 2,400 feet of the Master Plan Project site should be placed at the appropriate location upstream of the site during the test. The model shall include all buildings recently completed, under construction, and planned within 1,500-2,000 feet of the project site. Prior to testing, the model shall be reviewed by the Boston Planning and Development Agency (BPDA). Photographs of the area model shall be included in the written report.
6. The written report shall include an analysis which compares mean and effective gust velocities on annual and seasonal bases, for No-Build and Build Conditions and shall provide a descriptive analysis of the wind environment and impacts for each sensor point, including such items as the sources of the winds, direction, seasonal variations, etc., as applicable. The report shall also include an analysis of the suitability of locations for various activities (walking, sitting, standing, etc.) as appropriate, in accordance with the recognized criteria Melbourne or Lawson comfort categories, or equivalent).
7. The pedestrian level wind impact analysis report shall include, at a minimum, the following maps and tables:

*Maps indicating the location of the wind impact sensors, for the existing (No-Build) condition and future build scenario(s).

*Maps indicating mean and effective gust wind speeds at each sensor location, for the existing (No-Build) condition and each future build scenario, on an annual basis and seasonally. Dangerous and unacceptable locations shall be highlighted.

*Maps indicating the suitability of each sensor location for various pedestrian-related activities (comfort categories), for existing (No-Build) condition and each future build scenario, on an annual basis and seasonally. To facilitate comparison, comfort categories may be distinguished through color coding or other appropriate means.

*Tables indicating mean and effective gust wind speeds and comfort category at each sensor location, for the existing (No-Build) condition and for each future build scenario, on an annual basis and seasonally.

*Tables indicating the percentage of wind from each of the sixteen compass points at each sensor location, for the existing (No-Build) condition and for each future build scenario, on an annual basis and seasonally.

Noise

028-007 With each subsequent phase submission, the Proponent shall be required to conduct a noise assessment to analyze the potential noise impacts that may occur during construction and as well as during the subsequent occupancy/operation of the project. The noise assessment shall include monitoring of the existing sound levels as well as calculations of future sound levels associated with the project's mechanical equipment including, but not limited to, exhaust fans, cooling towers and emergency generators. Additionally, an evaluation of the study area shall identify sensitive receptor locations and locations with outdoor activities which may be sensitive to noise associated with the project. During the early stages of the design process, specific technical specifications of mechanical equipment may not be available and thus the manufacturer's sound level data for mechanical equipment shall be substituted. Reference sound levels for the exhaust systems shall be based on data of equipment of similar type and size.

028-008 The Proponent shall be required to demonstrate that the project complies with all applicable City of Boston, Massachusetts, and Federal (including Housing and Urban Development noise standards) regulations and guidelines.

Solar Glare

028-009 A solar glare analysis shall not be required at this time. However, for each subsequent phase, if the design includes the use of reflective coated glass or other highly reflective materials, the Proponent shall be required to conduct an analysis of the potential solar glare impact on streets, public open spaces and pedestrian areas, to assess the potential for the creation of visual impairment or discomfort due to reflective spot glare and an analysis of the potential for solar heat buildup in any nearby buildings receiving reflective sunlight from the project shall also be conducted. If deemed necessary, mitigation measures designed to eliminate any adverse reflective glare shall be identified and described.

Air Quality

028-010 The BPDA requires that project-induced impacts to ambient air quality be addressed. Thus, an air quality analysis shall be conducted to determine the impact of pollutant emissions from combustion and mobile source emissions generated by the project.

The Proponent shall be required to conduct a microscale analysis to determine the effect of project generated traffic on air quality. Thus, the Proponent shall be required to analyze local effects of the potential increase in traffic on ambient air quality near specific roadway intersections. This microscale analysis is required at intersections where (1) Project traffic would impact intersections or roadway links currently operating at LOS D, E, or F or would cause LOS to decline to D, E, or F, (2) Project traffic would increase traffic volumes on

028-007

As requested in the EEA Secretary's Certificate on the EENF and in the BPDA Scoping Determination, Chapter 6, *Environmental Protection*, provides information on wind, shadow, air quality and construction for the Master Plan Project. The study of potential impacts related to solar glare, daylight, and noise will be provided for future subsequent phases of development as part of the BPDA design review process.

028-008

Compliance with applicable noise standards and regulations will be demonstrated for future subsequent phases of development as design is advanced. This analysis will be reviewed under the BPDA design review process for each development phase and/or building.

028-009

The Proponent will provide an assessment of solar glare impacts as the design for each individual development phase and/or building advanced for review as part of future Design Review.

028-010

Refer to Chapter 9, *Environmental Protection.*

nearby roadways by 10% or more (unless the increase in traffic volume is less than 100 vehicles per hour) or (3) the project will generate 3,000 or more new average daily trips on roadways providing access to a single location.

The microscale analysis involves modeling CO emissions from vehicles idling at and traveling through both signalized and unsignalized intersections. Predicted ambient concentrations of CO for the build and no-build cases are compared with federal (and state) ambient air quality standards for CO.

028-011 The Proponent shall be required to include in the submission of subsequent phases (if deemed applicable) a microscale analysis to conduct a cumulative impact analysis for comparison to the NAAQS for SO2, NOx, PM-10, and PM-2.5. This analysis shall address emissions from the project's heating boilers, emergency generators, cooling towers, etc. Worst case maximum predicted impacts from these source groups shall be added to monitored background values obtained from MassDEP and compared to the NAAQS.

028-012 The Proponent shall be required to conduct a stationary source analysis to ensure that the project will not adversely impact air quality in the area. The stationary sources that may contribute to impacts are typically combustion sources such as heating boilers, emergency generators, cooling towers, and garage vents.

Solid and Hazardous Wastes

028-013 With the submission of each subsequent phase, the Proponent shall be required to provide a comprehensive list and description of any known or potential hazardous wastes or contaminants on the project site, together with a description of the proposed remediation measures to ensure their safe removal and disposal, pursuant to M.G.L. Chapter 21E and the Massachusetts Contingency Plan. Any potential hazardous wastes to be generated by

028-014 the project must be identified. The existence of underground storage tanks ("USTs") and above ground storage tanks ("ASTs") on the project site shall be identified as well. Potential

028-015 waste generation must be estimated and plans for disposal indicated. Additionally, if applicable, the Proponent shall be required to provide a comprehensive description of the on-site storage, the process for determining the extent of the contamination, disposal options, and measures to ensure the safe transfer of material to disposal sites.

Climate Change Resiliency & Green Buildings

Green Buildings

Green buildings promote vibrant communities, reduce site impacts, save water, energy,

028-016 and natural resources, and support human health and wellbeing. The Proponent should establish a long term sustainability plan that includes a green building commitment of LEED Gold or better for the majority of all buildings with numerous buildings achieving

028-011

Refer to Chapter 9, *Environmental Protection.*

028-012

Refer to Chapter 9, *Environmental Protection.*

028-013

No additional solid and hazardous waste sampling or site assessment activities have occurred since the EENF/EPNF filing.

028-014

Refer to Chapter 6, Environmental Protection, of the EENF/EPNF dated November 30, 2017.

028-015

It is anticipated that the Master Plan Project will collect and/or store materials typically associated with commercial and residential uses (i.e., trash, recycling, diesel fuel for emergency generators, grease traps for restaurants, etc.). Each individual building will obtain the appropriate permits/approvals for such storage to reduce risk of contamination and ensure proper disposal.

028-016

Refer to Chapter 4, *Sustainability/Green Building.*

028-016 LEED Platinum and no more than equal number of buildings achieving LEED Silver or better. The Proponent should provide an updated green building strategy including LEED outcome commitments as a percentage of all buildings and over the full build out time frame.

028-017 The current filing commits both Phase 1 buildings to using the LEED v4 Rating System and achieving LEED Gold. Both the rating system selection and outcome are accepted. Given the scale of the project, multitude of buildings, and impact on the surrounding neighborhood, the project should also utilize the LEED for Neighborhood Development (LEED ND) rating system and achieve LEED ND Gold or better. Please provide a LEED ND Checklist and supporting narrative. The LEED Master Site or Campus approach is appropriate and acceptable for demonstrating Article 37 compliance for individual buildings. The proponent is encouraged to use additional rating systems that demonstrate and ensure leadership in practice including SITES, PEER, and others.

At the initiation of development review and coinciding with start of building urban design review for each individual building, the Proponent is to provide a complete Article 37 Green Building "Initial Filing" specific to the building and an updated Climate Resiliency Checklist. As building planning progresses, the Proponent is to provide an Article 37 Design / Building Permit and Construction / Certificate of Occupancy Filings in accordance with the Boston Zoning Code Article 37 Green Buildings and Climate Resiliency Review Procedures and Submittal Requirements. Building specific submissions must be provided for each building. Please review Article 37 Green Building and Climate Resiliency Guidelines and utilize the most current Review Procedures and Submittal Requirements.

028-018 Reducing greenhouse gas emissions ("GHG") is critical to avoiding more extreme climate change conditions. Mayor Martin J. Walsh has set a goal for Boston to be carbon neutral by 2050. The entire development and all new buildings should be planned and designed to minimize GHG emissions and include future adaptation strategies to further reduce GHG

028-019 emissions. The long term phasing of the project should be reflected in both general and building specific GHG emission reduction commitments that progressively increase over the duration of the buildout. Initial building designs should, at minimum, target low carbon performance and anticipate future adaptations actions for achieving net zero and net positive carbon performance. Later phase buildings should achieve net zero carbon performance.

Following are specific sustainable development and green building comments and questions in response to section 3.4.1 Phase 1 Project and section 3.4.2 Master Plan Project Sustainable Design Strategies:

Integrative Process:

028-020 Please provide additional information on the integrative approach to site and building planning, design, and delivery including charrettes, collaboration platforms,

028-017

Refer to Chapter 4, *Sustainability/Green Building.*

028-018

Refer to Chapter 7, *Greenhouse Gas Assessment.*

028-019

Refer to Chapter 7, *Greenhouse Gas Assessment.*

028-020

Refer to Chapter 4, *Sustainability/Green Building.*

028-020 and key participants. Additionally, how will the project team maintain an integrative approach over the full phasing of the development?

Location and Transportation:

028-021 Promote and support everyday active living and travel including a range of walking and bicycling options, public transit, and reduced personal vehicle travel. Include outdoor and indoor active stairs for vertical circulation, easily accessible, secure and enclosed bicycle storage space, shared parking, transit pass programs, and car share programs. Assess existing and planned uses to insure new residents and workers have easy access to key necessities (e.g. groceries, pharmacy) as well as a wide range of diverse uses.

Sustainable Sites:

028-022 Prioritize green infrastructure solutions and best practices for management of stormwater, heat island, wind, and noise impacts. Assess the potential use of existing, new, or expanded water features for full or partial treatment, retention, and management of on-site stormwater. Analyze site planning, building design, landscape design, shade structures, and tree plantings to optimize shading of paved and hardscape surfaces to limit heat island conditions and insure the project achieves exemplary performance. See related Urban Design site planning comments.

028-023 Please provide an outline of proposed Tenant Design Guidelines including minimum performance requirements for GHG emission and water use reductions, preferred practice incentives, and aspirational goals.

Water Efficiency:

028-024 Further assess opportunities for rainwater harvesting for building cooling systems make up water and to further reduce landscape irrigation.

Energy and Atmosphere:

028-025 Minimize GHG emissions with a priority on passive building strategies. Residential and commercial buildings should strive to reduce GHG emission 15% below the emissions levels of comparable buildings meeting standard minimum practice. Strategies should at minimum include the following:

- Passive building strategies should include: building orientation and massing; high performance building envelopes that are airtight, well insulated, and include high efficiency windows and doors; and natural ventilation and daylighting.
  Active building strategies should include: Energy Star high efficiency appliances and building heating, cooling, and hot water systems sized to meet, but not exceed, occupant needs; and high efficiency LED lighting fixtures and advanced lighting control systems and technologies.

028-021

Refer to Chapter 4, *Sustainability/Green Building.*

028-022

Refer to Chapter 4, *Sustainability/Green Building.*

028-023

Refer to Chapter 4, *Sustainability/Green Building.*

028-024

Refer to Chapter 4, *Sustainability/Green Building.*

028-025

Refer to Chapter 4, *Sustainability/Green Building & Chapter 7, Greenhouse Gas Assessment.*

028-025

- Renewable, Clean Energy Sources and Storage: Include and maximize the potential for onsite solar PV including building integrated PV, and rooftop and shade structure arrays. Additionally, clean energy (e.g. combined heat and power), electric battery, and thermal energy storage systems should be assessed for inclusion.
- Energy Efficiency Incentives: Fully utilize federal, state, and utility energy efficiency and renewable energy programs. The proposal describe supporting programs.
- Analysis: Whole building energy modeling should be employed at the earliest phases site planning and building design and utilized to establish base and design case carbon emission profiles.

Materials Selection:

028-026

Include sustainably harvested and responsibly processed materials and products made with recycled and reclaimed materials; materials and products from responsibly harvested and rapidly renewable sources; and locally sourced products and materials (within 500 miles).

Indoor Environmental Quality:

028-027

Tenant demand and market value for high quality healthy indoor environments continues to grow. In addition to the construction practices and system strategies noted consider including extended roof overhangs and proper ground surface drainage to reduce building moisture problems; passive fresh air systems and active ventilation at moisture and combustion sources; active indoor CO2 monitoring; and ensure fresh air intake points are not compromised by point or mobile emission sources. Ensure building products and construction materials are free of VOC's, toxins, hazardous chemicals, pollutants and other contaminants; entryway walk-off mats and smooth floors that reduce the presence of asthma triggers, allergens and respiratory irritants; and easily cleaned and maintained finishes.

Innovation:

028-028

Utilize both "off-the-shelf" products and practices as well as innovative strategies and "cutting edge" products to increase the sustainability and performance of the building.

Suffolk Downs should identify and include innovative strategies and products for engaging residents and occupants in ongoing monitoring of energy and water use, waste generation, emissions by travel modes, and overall environmental stewardship.

Climate Change

028-026

Refer to Chapter 4, *Sustainability/Green Building.*

028-027

Refer to Chapter 4, *Sustainability/Green Building.*

028-028

Refer to Chapter 4, *Sustainability/Green Building.*

As referenced in the Suffolk Downs Redevelopment (the "Project") Expanded Project Notification Form (EPNF) goals and objectives, the Project provides a unique opportunity to integrate resilient design strategies at the building and district scale and establish Suffolk Downs as a climate resilient district. Resiliency measures implemented as Suffolk Downs is built out can assist to prevent and limit impacts from climate hazards, ensuring building occupant safety, continuity of building tenant business operations, improved building service life and value, and serve to protect portions of the larger East Boston and Revere communities.

Section 3.6 of the EPNF, "Climate Change Preparedness and Resiliency," recognizes the climate hazards the Project site will be subject to, as well as preliminary project resiliency measures. Measures include a network of open spaces strategically designed to accommodate potential flooding impacts associated with sea level rise to protect buildings and areas outside the Project site, the elevation of buildings and incorporation of resilient design measures, and use of site elevations and landscaping to contend with increased heat and precipitation. Given the Project's size and time horizon for full build-out, the Proponent should consult with appropriate BPDA and City of Boston Environment Department staff in advance of each project phase regarding the most current City climate policies and directives. Since climate science, modeling, data, and understanding of climate hazard risks will advance over time, the Proponent should be prepared to modify site and building design to respond to our evolving understanding of these risks and hazards.

The most significant current and future climate risk for the Project is coastal and inland flooding due to the complex and dynamic hydrologic features of the site and surrounding area. The proponent should be commended for responding to the sea level rise elevation data in the Climate Ready Boston report and the BPDA Sea Level Rise Flood Hazard Area

028-029 Mapping Tool. Given the size, scale, and time horizon for build-out, and useful life of buildings constructed on the site, the proponent should engage a coastal engineering design firm to develop a dynamic flood model specific to the Project site and surrounding area and review inundation scenarios through 2100 utilizing MassDOT Boston Harbor Flood Risk Model (BH-FRM) data. The analysis should define flood pathway vulnerabilities, as well as when and where flood waters are anticipated to enter onto portions of the property. This analysis will better prioritize site phasing and inform site elevation datum for buildings, roads, utilities and open space.

The Proponent has indicated portions of the permanent roadway constructed with the Phase 1 Project will be designed with a minimum top of curb elevation of 20.83 feet, specifying the elevation is 40-inches above the 100-year FEMA flood elevation. For

028-030 purposes of assessing sea level rise resiliency measures FEMA datum should not be used as FEMA base flood elevations are determined based upon historic storms of record and do not incorporate future sea level rise conditions. Data and elevations from the MassDOT BH-FRM should be utilized for such analysis.

028-029

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

028-030

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

The EPNF also notes 12 inches of freeboard will be added to the base floor elevation of the buildings to account for localized storm surges resulting in a Finished Floor Elevation of 22 feet BCB. This elevation datum will greatly assist in reducing impacts from coastal flood conditions and is consistent with the BPDA's Sea Level Rise Flood Hazard Area Mapping which indicates 2070 sea level rise flood elevations for the area 19.3 to 19.5 BCB. The 22-foot elevation also addresses BPDA freeboard guidance of an additional 12 inches of freeboard for all buildings and 24 inches of freeboard for any critical facilities and infrastructure, and ground floor residential uses. The BPDA Mapping Tool and 40-inch sea

028-031 level rise forecast does not represent a worst case sea level rise scenario. The Proponent is encouraged to evaluate their own tolerance for risk given the specifics of the Project site, location, and uses to determine what flood hazard mitigation and prevention measures should be incorporated into their Project.

028-032 As the Project will be functional through 2100, and given further anticipated increases in sea level rise beyond the end of the century, the Proponent should review options for designing flexibility into new buildings and public realm infrastructure to accommodate future changes in the extent of climate hazards. Such design measures could include allowing greater floor to ceiling height on ground floors to allow for additional ground floor elevation, or designing the second floor as a possible, future first floor to accommodate potential increases in area grade elevation.

Climate Ready Boston (CRB) advances a resiliency strategy for the City that involves redundancy and layers of resilient infrastructure. The on-site resiliency measures referenced in the EPNF may function to protect the Project site; however, the size and scale of the Project make it vulnerable to failures of surrounding infrastructure and transportation that could be compromised in flood events. The CRB report notes the East Boston community has the most land area of all Boston's neighborhoods exposed to

028-033 coastal storms in the future. The Proponent should evaluate the feasibility of developing flood control measures beyond the Project area to critical utility and transportation infrastructure that serves the Project. Data and modeling provided through the dynamic flood modeling for the site referenced above could be used to conduct a feasibility analysis of district-level flood protection interventions. Such an evaluation should review shoreline protective measures to the east of the site along the bounds of the Belle Isle Marsh or elevation of Bennington Street, which would protect the street, the MBTA Blue Line right of way and stations and the Project site. Elevation of Route 1A to the west of the Project site would also function to block flood waters from the Chelsea Creek from entering the property. At a minimum the Proponent should review opportunities to incorporate adaptation and flood prevention measures which would protect the Project site and surrounding community.

028-034 To address extreme precipitation the EPNF indicates the Project area's stormwater management system will be designed to convey a 6-inch storm-event and the 8.8-inch

028-031

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

028-032

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.* The Project as currently designed is being planned for a design life of approximately 50 years and as such is being analyzed for SLR and climate change impacts up to the year 2070.

028-033

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

028-034

Refer to Chapter 10, *Infrastructure.*

028-034 storm event as recommended by the BWSC. The EPNF notes the stormwater infrastructure system will be designed to maintain peak runoff rates up to and including the 100-year storm event to ensure that flow is not increased to the Bennington Street pump station. Stormwater infrastructure should also respond to the changing nature of precipitation with climate change including storm events that are shorter in duration with heavier volumes of rain. To help BMPs continue to function under these changing conditions, the BMP design should incorporate structures, plants, or materials that are adaptable.

028-035 The Proponent should provide analysis of how onsite infrastructure will function in coordination with stormwater flows being conveyed by the Sales Creek which serves as a primary floodway for a substantial urban watershed within Revere. Although on-site infrastructure may be designed to manage large future design storms, as precipitation levels increase with a changing climate, greater flows will also be generated from the Sales Creek Revere watershed. Stormwater conveyance from the site is also controlled by the MA Department of Conservation and Recreation's (DCR) Bennington Street tide gate and stormwater pumping station. Analysis should be provided of how the tide gate and pump station will function with future stormwater flows and rising tide and sea level conditions to prevent onsite flooding. The proponent should work with the DCR to review the pump station's capacity and vulnerabilities to future sea level rise, coastal storm events and increased precipitation levels. As the tide gate/pumping station is crucial to the management of flood waters on the Project site, the Proponent should address how the Project can support the long-term maintenance and management of the facility.

028-036 Open space resources, tree canopy, and building materials should also be evaluated and discussed in relation to mitigating heat island effect and managing extreme precipitation events and stormwater. A robust and extensive tree planting program, aligned with the goals of Urban Forestry, should be included in the Project design, as the Urban Forest is an important part of the City's landscape. It is made up of all the public trees in Boston, along with the City's shrubs, grasses, ground cover, soil, and waterways. The Urban Forest serves

028-037 an important stormwater management function by intercepting rainfall that would otherwise run off of paved surfaces and be transported into local waters though the storm drainage system, picking up various pollutants along the way. The Urban Forest also reduces the urban heat island effect, reduces heating/cooling costs, lowers air temperatures, reduces air pollution, increases property values, provides wildlife habitat,

028-038 and provides aesthetic and community benefits such as improved quality of life. Tree and planting species selected for the site should with consideration to a changing climate with more frequent periods of drought, extreme heat and precipitation.

Sea Level Rise Flood Protections Offsite

028-039 The Proponent is relying on Blue Line capacity for a substantial portion of their mode share. Due to flooding risks of the Blue Line in this area, how will the Proponent provide for protection of this leg of the Blue Line from flooding?

028-035

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

028-036

Refer to Chapter 3, *Urban Design.*

028-037

Refer to Chapter 3, *Urban Design.*

028-038

Refer to Chapter 3, *Urban Design.*

028-039

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

Open Space and Public Realm

028-040

The City of Boston and Massport have invested over $8.5 million in the East Boston Greenway over the last few years, extending the Greenway by one mile and connecting the neighborhood's centerpiece open space including Piers Park, Bremen Street Park, and Wood Island Marsh to Constitution Beach. These improvements were completed in partnership with DCR and MBTA. The East Boston Greenway is a critical pedestrian and bicycle route for the neighborhood and envisioned to connect to Belle Isle Marsh and beyond. The Proponent should explore opportunities to invest in offsite open space, pedestrian, and bicycle networks to integrate Suffolk Downs into the neighborhoods of East Boston and Revere. The regional benefits of connecting DCR parkland and reservations including Revere Beach, Belle Isle Marsh, and Constitution Beach would be dramatic.

The East Boston Greenway has only two roadway crossings as it stretches from Piers Park to Constitution Beach, a remarkable feat for an urban area. The ease of bicycle connectivity is conducive to a strong bicycle mode for the project if the Greenway were linked to Suffolk Downs.

028-041

The BPDA is very encouraged by the generous open space provided in the project plan. This acreage will benefit those who work and live in and around the project area. It will also provide positive environmental benefits including stormwater control and containment, and reducing heat island effect. We ask the proponent to consider a mix of open space design that is a mix of passive and active. New residents and employees of the project area and the abutting neighbors would benefit from active recreation in addition to passive parks. This feedback is underscored by many of the comments and observations provided during the project planning workshops last year. See the Boston Parks and Recreation Department's letter for more on active and passive recreation spaces.

Planning and Design

028-042

We applaud the Proponent for its forward-thinking planning and the possibility of integrating nearby fuel terminals into the project area in the long-term. We encourage the proponent to look beyond McClellan Highway to the Chelsea Creek for possible public connections to the water's edge

028-040

Refer to Chapter 6, *Transportation.*

028-041

Refer to Chapter 3, *Urban Design.*

028-042

Refer to Chapter 3, *Urban Design.*

boston planning & development agency

Tim Czerwienski
Project Manager
Boston Planning & Development Agency
One City Hall Plaza
Boston, MA 02201

RE: Scoping Comments for Suffolk Downs Redevelopment

Dear Mr. Czerwienski:

The redevelopment of Suffolk Downs presents a unique opportunity to create a new neighborhood, and it is my hope that this new neighborhood is one that can meet the housing needs of a range of incomes and household types, helping to create a vibrant and diverse urban village. In meeting this broad vision, there are goals and tools that I believe HYM should implement as part of the overall development plan.

Overall Affordability

029-001

HYM should strive to include more income restricted housing than is required under the current Inclusionary Development Policy ("IDP"). By making this request, please note the following:

- Approximately fifteen percent of East Boston's housing is income restricted, and nineteen percent of Boston's housing is income restricted. Exceeding thirteen percent will help to make Suffolk Downs more similar to Boston as a whole in terms of income restricted housing, providing housing for a broad range of incomes.
- The BPDA will be reviewing the IDP over the next year, and it is expected that there will be changes to the policy that will increase the level of affordability requested of developers. In this respect, HYM should be considering how it might meet future affordability requirements.

029-002

Even though the redevelopment of Suffolk Downs will require substantial infrastructure investments, and sales prices and rents are not as high as in downtown neighborhoods, I do think it is feasible to achieve more than thirteen percent income restricted across the development site. On some parcels, a small increase in affordability may be attainable using private financing. In other cases, a more substantial increase in affordability may require more creativity and alternate funding sources. For example, HYM should consider using public- and quasi-public financing, such as the financing available from MassHousing, the Massachusetts Housing Investment Corporation, and/or the Massachusetts Housing Partnership to create so called "80/20" projects. These projects could be feasible without additional public subsidies, or could be assisted with four percent, federal Low Income Housing Tax Credits, or some of the workforce housing funds available through MassHousing.

029-001

The Proponent is committed to meeting the current IDP requirement of 13%.

029-002

As the design of each development phase and/or residential building advances, the Proponent will consider the use of state funding for the creation of affordable housing, as applicable.

029-003

HYM should also consider the model that was used effectively at the Beverly, near North Station. This model included low-income units funded and financed through traditional, public affordable housing sources, middle-income units funded by private development through the IDP, and voluntarily income-restricted units for upper middle-income households.

Serving a Range of Household Types

HYM should strive to create a true urban village, with housing geared to a variety of needs and household types. In particular, HYM should be thoughtful and creative about ways to meet the following needs as part of the overall housing plan:

029-004

- Smaller homes for singles, couples, and small families: The City of Boston is creating new guidelines for smaller units. These "Compact Living" units are smaller units that use space efficiently, and are located in buildings that also provide common/amenity spaces. One goal of this effort is to provide homes at a lower price than larger, market-rate units. Such units can serve a variety of types, especially younger individuals and couples, or downsizing empty-nesters. Where these units are condominiums, they can help provide another option for first-time homebuyers who are finding it difficult to find a home.

029-005

- Homeownership Opportunities: A significant percentage of units at the development site should be homeownership units, so as to provide wealth building opportunities for Boston residents, and to increase the overall stability of the neighborhood. Currently, thirty-five percent of Boston households are homeowners. I encourage you to strive for such a percentage at Suffolk Downs.

029-006

- Housing for Older Adults: In the 2014 *Housing a Changing City: Boston 2030* plan, the City set a goal of creating 5,000 new housing units for seniors, of which 1,500 would be for low-income households. In part because of the disappearance of the Federal 202 program, meeting these goals have been the greatest challenge to implementing the housing plan. While some seniors are seeking condominiums and rentals in mixed-age properties, the need for age specific housing is important, and I am heartened by HYM's interest in providing housing that is targeted to the 55+ demographic.

In closing, I wish to reiterate the overarching goal—to create a true urban village that meets the needs of a range of household incomes and types. I look forward to continuing the dialog about how such results can be achieved.

Sincerely,

Tim Davis
Housing Policy Manager

029-003

As the design of each development phase and/or residential building advances, the Proponent will consider the use of creative financing to support affordable housing, as applicable.

029-004

To create a true mixed-use development, a variety of housing sizes and types will be provided as part of the Master Plan Project, including smaller-sized studios compared to traditional studio units.

029-005

The proposed mix of housing types includes 35% homeownership units, as suggested.

029-006

Senior housing units are included as part of the proposed housing mix of the Master Plan Project.

COMMONWEALTH OF MASSACHUSETTS

THE GENERAL COURT

STATE HOUSE, BOSTON 02133-1053

BRA

'18 JAN 22 PM4:20:55

January 10, 2018

Director Brian Golden
Boston Planning & Development Agency
One City Hall Plaza, 9th Floor
Boston, MA 02201

Re: Suffolk Downs Project – 525 William F. McClellan Highway

Dear Director Golden:

We write to you with regards to the Phase 1 Development of Suffolk Downs. The current plan includes approximately 520,000 square feet of office space and corporate amenity space in a two building complex adjacent to the Suffolk Downs MBTA Blue Line Station. Suffolk Downs is a 162 acre lot that is the largest single development site in Boston, which also includes a parcel of land in Revere. Given the size, scope, and inevitable impact of the proposed development, it is imperative to have a robust, transparent, resident driven, community process. HYM Investments (HYM) has already commenced a strong community dialogue to solicit feedback by presenting its plans to the East Boston and Revere communities, meeting with abutters, and soliciting feedback from residents. We expect such efforts to continue throughout the duration of this process and to include bilingual outreach, particularly in Spanish,[1] to maximize resident engagement.

030-001

East Boston and Revere are diverse, blue-collar immigrant communities that are currently facing many challenges. Examples of these issues include scarce affordable housing, displacement of families, dislocation of small businesses, severe traffic congestion, a lack of both before-and after-school programming for youth, and the ever increasing threat of sea level rise and severe weather events due to climate change. We are hopeful that the development of Suffolk Downs will help address existing needs without creating new problems for the area. In this letter, we outline guiding principles and recommendations for Phase I and the development as a whole that would greatly benefit Suffolk Downs' host communities and help to ensure the overall success of this project.

As this area continues to develop and grow, transportation pressures are noticeably increasing. Residents specifically face challenges with public transit infrastructure, traffic congestion, and connectivity to the rest of Greater Boston. Connectivity is necessary to ensure the continued economic development of these communities and access to greater opportunity in the region. Presently, transportation options are stymied by the lack of service between the Blue and Red Line trains. A financial commitment supporting the funding of this project would not only increase access to the development, but also provide members of

[1] Over fifty percent of East Boston's population is Latino.

030-001

The Proponent has conducted outreach to EJ communities surrounding the Project Site, including non-English speaking. For the EENF/EPNF, the Proponent provided a Spanish interpreter at public meetings held on the Master Plan Project. As required by the BPDA, the Proponent will develop an Executive Summary for the DEIR/DPIR in Spanish and, in coordination with the BPDA, the Proponent will hold a public meeting in Spanish.

The Proponent also held two meetings with a Latino Business Owners Group from East Boston, which meetings also had a Spanish Interpreter providing translation of the presentation and the Proponent's answers to questions asked by the audience.

030-002 the community with a much needed service. The present limits to transportation infrastructure have resulted in high levels of congestion along densely populated Route 1A, making investments in improving the corridor a necessity. In addition, increased capacity to present transportation structures and alternative approaches, such as a water transportation system on Chelsea Creek, would assist in reducing local

030-003 congestion. Additional consideration should be given to onsite parking, snow emergency parking, electric vehicle charging stations, and pedestrian infrastructure, including bike paths and permeable pavements, to ensure the host communities are not burdened by the development. As a transit-oriented development, a comprehensive transportation study that addresses accessibility, capacity and traffic will ensure the development remains a part of the East Boston and Revere communities.

The redevelopment of Suffolk Downs presents a unique economic opportunity for these communities, whether it is the addition of a flagship business such as Amazon or other commercial developments. Still, it is important that the project remains focused on the economic needs of the host communities. In that

030-004 vein, we ask that the project make significant hiring efforts from East Boston and Revere both during and after the construction process. In addition, a firm commitment to work with local labor organizations, worker centers and other advocates would ensure that workers are treated with the respect and dignity they deserve. Further, the development should include significant space and opportunities for local small businesses and artists. East Boston and Revere remain among the most culturally and economically diverse communities in the Commonwealth and we encourage HYM to maintain this diversity through a concerted effort in their contractor and vendor selection.

The potential for economic development and job creation can provide needed vitality to the proposed site; however, it presents an absolute need for additional housing stock to ensure these communities remain

030-005 affordable for current families. To achieve this, a comprehensive study evaluating the impact of 10,000 new housing units on the host communities and their schools is needed. Additionally, we hope to see a multi-million dollar early-phase investment in housing that includes affordable, workforce and senior units to reduce the overall impact on East Boston and Revere. We would also appreciate a concerted

030-006 effort for building net-zero homes or passive homes,[2] and the use of solar energy on as many housing and commercial units as possible.

As coastal communities, East Boston and Revere are particularly susceptible to, and have already been

030-007 impacted by, the effects of climate change. Bordered by shoreline and marshland, the project at Suffolk Downs must place resiliency at the forefront of the planning process. A climate ready project that addresses the impacts of climate change and provides protection to the existing shoreline and marshland will ensure the sustainability of the development. Additionally, East Boston and Revere have placed

030-008 strong emphasis on the maintenance of green space in urban environments. Continued commitment to the beautification of these cities can be achieved through the reservation of at least 40 acres of dedicated open space at Suffolk Downs and a commitment to extend the East Boston Greenway through the property and to Revere.

[2] Homes that have the lowest possible energy use and ecological footprint

030-002

Refer to Chapter 6, *Transportation.*

030-003

Refer to Chapter 4, *Sustainability/Green Building*, for EV charging stations, Chapter 6, *Transportation*, for on-site parking, Chapter 3, *Urban Design*, for on-site bike/pedestrian facilities.

030-004

Refer to Chapter 3, *Urban Design.*

030-005

The Proponent has undertaken an analysis of municipal services impacts of the Master Plan Project for both the City of Revere and Boston. The studies concluded the Master Plan Project at full build out will generate a positive net fiscal impact which accounts for the estimated education costs.

The initial phases of development proposed for both cities include a housing component with a mix of housing types.

030-006

Refer to Chapter 7, *Greenhouse Gas Assessment.*

030-007

Refer to Chapter 8, *Climate Change Adaptation and Resiliency.*

030-008

Refer to Chapter 3, *Urban Design.*

030-009 Akin to the East Boston Foundation,[3] a community benefit fund should be established and operated by a third party nonprofit entity that would ensure balanced investment of mitigation funds to the various nonprofit and community interests in East Boston. A similar initiative should be pursued in Revere.

Though we remain optimistic about the potential for this project, we want to ensure that it remains an open and transparent process with adequate opportunity for review and community input. Regardless of whether Boston is chosen as Amazon's second headquarters, these are the principles that we would like to see with any large-scale development at Suffolk Downs. Thank you for your consideration of our comments on Phase I of this project. HYM has thus far been a valued partner in this project and we look forward to working with all stakeholders to ensure that what is built at Suffolk Downs benefits the community and residents for the short and long term.

Sincerely,

Joseph A. Boncore
State Senator
First Suffolk and Middlesex

Adrian Madaro
State Representative
First Suffolk

Lydia Edwards
City Councilor
District One

[3] A nonprofit organization that manages mitigation monies from Logan International Airport through grant awards to local organizations and initiatives

030-009

Refer to Chapter 1, *Project Description and Alternatives,* for an extensive list of public benefits associated with the Master Plan Project. The Proponent expects additional benefits, such as the establishment of a community fund to be developed in close coordination with the IAG as part of the Article 80 review process.

BOSTON

Martin J. Walsh, Mayor

February 2, 2018

Ms. Teresa Polhemus
Boston Planning and Development Agency
One City Hall Square
Boston, MA 02201

RE: Suffolk Downs EENF/EPNF; 525 McClellan Highway in East Boston

Dear Ms. Polhemus:

Boston Parks and Recreation Department (BPRD) has reviewed the *Expanded Environmental Notification Form and Expanded Project Notification Form* (EENF/EPNF) for the Suffolk Downs redevelopment located at 525 McClellan Highway in East Boston.

Belle Isle Marsh Reservation

The site is about 350' from the Belle Isle Marsh Reservation - a 241 acre open space that is part of the 1000 acre Rumney Marshes Area of Critical Environmental Concern (ACEC). Belle Isle Marsh is the last remaining salt marsh in Boston, and is the type of wetland that once lined the shore of Massachusetts Bay. Belle Isle Marsh, and much of the Rumney Marsh, is protected open space owned by the Department of Conservation and Recreation (DCR) and municipalities.

DCR notes that this marsh is critical habitat to many plants and wildlife that are rare to the metropolitan area. The salt marsh is also important for climate resiliency as it provides flood water storage that can reduce property damage.

Open Space

The Suffolk Downs site includes wetland resources such as Sales Creek which connects portions of the Revere watershed with the Belle Isle and Rumney Marshes. There is an existing pond on the site and other wetlands. The EENF/EPNF notes that these wetland resources will be preserved and integrated into the proposed open space system in the master plan.

The EENF/EPNF notes that the project will provide a network of 40 acres of publicly-accessible open space, which is 25 percent of the project site. This open space will include a 15 acre central common; a landscaped amphitheater; retail plazas, play areas; and dog parks.

The open space network will be passive use, designed for wetland protection, storm water management, climate resiliency and linear recreation. It will provide connections to the East Boston Greenway, Belle Isle Marsh, Constitution Beach and Revere Beach.

Boston Parks and Recreation Department
1010 Massachusetts Ave., Boston, MA 02118 / Tel.: 617-635-4505 / Fax: 617-635-3173

031-001 The plan does not show active recreational facilities to serve the needs of residents and other users. The project should provide public facilities for active recreation in addition to the passive use open space, and in compliment to the natural wetland resources at Belle Isle Marsh.

031-002 *The proponent should clarify how it is counting the acreage, type and use of the open space. It would be helpful to provide a detailed chart that includes all open space that is proposed as mitigation for the development allowed under the PDA, as well as the proposed public benefits for development in landlocked tidelands under M.G.L. c.30 s.62I.*

031-003 *The public realm of streets, sidewalks, retail plazas and parking areas is distinct from public parks, though it can be complimentary. This type of space should be counted separately from open space suitable for protection of natural resources, wetland areas, active recreation, etc.*

Development Programs

The site is 161 acres total with 109 acres in the neighborhood of East Boston, and 52 acres in the City of Revere. The plan consists of a total of 16.5 million sf of development with 11 million sf in Boston, and 5.5 million sf in Revere. The project will have 15-20 year buildout. The plan proposes two development programs, with a range in the mix of commercial, residential, retail, and open space uses in order to allow flexibility in response to market forces over time.

The proponent is seeking a Planned Area Development (PDA) approval to allow for residential use and variances from existing zoning and to establish the mitigation of impacts and corresponding contributions to offset the development program.

The proposed residential use is the most important factor in terms of demand for and impact to open space. This would range from 7500 units under Program A, to 10,000 units under Program B. The EENF/EPNF does not provide an estimate of the number of residents or users. However, this could be roughly estimated to range from 7,500-30,000 residents under Program A, to 10,000-40,000 residents under Program B. The number of visitors and employees are unknown.

Needs Analysis

East Boston is underserved by public parks suitable for active recreation with a ratio of 1.31 acres per 1000 residents of parks, playgrounds and athletic fields. This is less than the city average of 3.24 acres per 1000 residents.[1] Mayor Walsh endorsed the Trust for Public Land's "Ten Minute Campaign" to ensure that all residents live within a 10 minute walk of a public park. The adjacent Orient Heights neighborhood is an area of particular need as identified by the Trust for Public Land[2] and the City's *Open Space and Recreation Plan.*[3]

Significant new development in East Boston is putting more pressure on existing public parks. The Suffolk Downs project will add 16.5 million sf of development to the neighborhood with 7500-10,000 households, which can be estimated to accommodate up to 40,000 new residents.

[1] 2011-2015 American Community Survey and the City of Boston GIS system
[2] Trust for Public Land, Park Score Evaluator: Boston
[3] *Boston Open Space and Recreation Plan 2015-2021* Map 4: Open Space by Type: East Boston, page 229

031-001

Refer to Chapter 3, *Urban Design.*

031-002

Refer to Chapter 3, *Urban Design.*

031-003

Refer to Chapter 3, *Urban Design.*

031-004 *The project should address how it is meeting this ratio and the public open space needs outlined in the City's Imagine Boston 2030, which includes the Open Space and Recreation Plan 2015-2021. The active recreation needs of this new population should be provided onsite or mitigated offsite so as not to impact already overburdened public parks.*

Impact Assessment

031-005 This project will require new park land to meet the active recreational needs of the population that is enabled through the PDA. It is therefore critical to conduct a thorough impact assessment.

031-006 *The proponent should provide the maximum projected population of residents and other users of the development under Options A and B.*

031-007 *The proponent should also detail how the open space acreage is being counted. Streets, sidewalks, plazas and parking should be counted as public realm, not conflated with park land.*

This assessment will inform the demand for park land for active recreation use at the maximum buildout, compared to the amount of open space to be provided by the project, the resulting impacts to existing public open space, and the appropriate mitigation of this impact.

Public Benefits for Landlocked Tidelands

Suffolk Downs is subject to the *Landlocked Tidelands Legislation M.G.L. c.30 s.621*. This requires the Secretary of the Executive Office of Energy and Environmental Affairs (EOEEA) to approve the benefits that support the public's rights to access, use and enjoy tidelands.

031-008 *Open space that is provided as mitigation for the PDA, as well as any amendments to the PDA, should correlate to the open space that is approved as a public benefit by the EOEEA.*

031-009 *Open space that is approved by the EOEEA as a public benefit should be permanently protected through conservation restrictions or transfer to public ownership.*

Open Space Mitigation in the PDA

The proponent will seek approval of a Planned Area Development (PDA). A PDA will allow for approval of residential uses, and zoning relief for massing, density, and height. The intent of the PDA is to allow for flexibility in land use and timing to respond to market factors. The PDA will establish the mitigation for the impacts of the project created by this relief from zoning.

031-010 *The mitigation established through the PDA should consider the impact of the maximum potential residential buildout (10,000 units) on open space. Residential users will have the greatest demand for park land, particularly for active recreational needs. The highest estimate of residents should therefore be used as the basis for mitigation.*

031-011 *Land that is provided for open space as mitigation of the PDA should be permanently protected through conservation restrictions or transfer to public ownership.*

031-004

Refer to Chapter 3, *Urban Design.*

031-005

Refer to Chapter 3, *Urban Design.*

031-006

Refer to Chapter 3, *Urban Design.*

031-007

Refer to Chapter 3, *Urban Design*.

031-008

Refer to Chapter 3, *Urban Design.*

031-009

The proposed open space network is intended to remain open to the public under easements and/or conservation or other appropriate restrictions.

031-010

Refer to Chapter 3, *Urban Design.*

031-011

Refer to the response to Comment 031-009.

031-012

In the event that mitigation cannot be provided onsite, the equivalent amount of park land should be mitigated nearby. The proponent is encouraged to consider a contribution to the City of land suitable in size for a regional park with active recreational fields. This need could also be addressed by contributing to a fund for development of future public park land.

Protection in Perpetuity

The provision of permanently protected public open space is critical to the balanced development of this new neighborhood. The EENF/EPNF notes that the open space will be open to the public. It does not indicate if the open space will be publicly owned and protected in perpetuity.

031-013

Land that is provided as open space as mitigation of the PDA, or approved as a public benefit by the EOEEA should be permanently protected through conservation restrictions approved by the EOEEA or through transfer to public ownership. It may be privately managed.

A relevant example is the A Street Park in Fort Point which was created as a public benefit in exchange for development rights in the 100 Acre PDA. The ownership was then transferred to BPRD thereby ensuring permanent protection of the park land. A long term agreement was created for the proponents to maintain and improve the park.

Open Space in Phase I

The Suffolk Downs project is proposed with a 15-20 year buildout.

031-014

The mitigation in the PDA should require that the open space system be fully implemented in the first phase of the project. This will establish the framework for development. It will ensure that the public benefit to residents of the development and to the neighborhood of East Boston is fully realized in the near term. And it will further ensure that the open space system is securely in place as amendments are potentially made to the PDA over time.

Thank you for your consideration of the above.

Sincerely,

Carrie Marsh

Carrie Marsh, Executive Secretary
Boston Parks and Recreation Commission

cc: Christopher Cook, Commissioner, BPRD
Liza Meyer, Chief Landscape Architect, BPRD
Jon Greeley, Director of Development Review, BPDA
David Carlson, Deputy Director of Urban Design, BPDA
Tim Czerwienski, Project Manager, BPDA

4

031-012

All open space proposed as part of the Master Plan Project is intended to be provided on-site. Refer to Chapter 3, *Urban Design*, for the proposed active recreation open space areas.

031-013

Refer to the response to Comment 031-009.

031-014

Refer to Chapter 3, *Urban Design*, for the conceptual open space phasing plan.

Boston Water and Sewer Commission

980 Harrison Avenue
Boston, MA 02119-2540
617-989-7000

January 4, 2018

Secretary Matthew A. Beaton
Executive Office of Energy and Environmental Affairs
Attn: MEPA Office
Page Czepiga EEA No. 15783
100 Cambridge Street, Suite 900
Boston MA 02114

And

Mr. Timothy Czerwienski, Project Manager
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

Re: Suffolk Downs Redevelopment Project
East Boston and Revere

Dear Secretary Beaton and Mr. Czerwienski:

The Boston Water and Sewer Commission (Commission) has reviewed the Expanded Environmental Notification Form (EENF) and the Expanded Project Notification Form (EPNF) for the proposed redevelopment of Suffolk Downs Race Track located at 525 McClellan Highway in the East Boston. This letter provides the Commission's comments on the EENF/EPNF.

The project site is 161 acres of land located in East Boston and Revere. Approximately 109 acres of the site is in East Boston and approximately 52 acres is in Revere. The sites present use is a thoroughbred horse racing facility. Building on the site include a clubhouse, grandstand, horse barn and administration, maintenance and support buildings. The project proponents, HYM Investment Group, LLC and The McClellan Highway Development Company, LLC (HYM/MHDC) master plan proposes to develop the site in stages over the next 15 to 20 years. The overall master plan project consists of constructing approximately 11 million square feet (msf) of transit oriented mixed use facilities in Boston and 5.5 msf in Revere.

Phase I of the project is anticipated to be the home of Amazon's second headquarters. The second headquarters will include two 260,000 square foot (sf) buildings, 520 marked parking spaces in the existing paved parking lot, utility and other site improvements. The two buildings, are to be located at the southeast corner of the race track. Details on subsequent phases of

development were not defined in the EENF/EPNF, but are planned to be a combination of commercial, retail and residential buildings and public open space. As future phases of the project are advanced, HYM/MHDC coordinate with the Commission

Water to the site is provided by both the Commission and the City of Revere. The connections to the Commission water distribution system are an 8-inch water main in Waldemar Avenue and 12-inch water in the rear access road to Suffolk Downs at the end of Walley Street behind the MBTA station. The water main in Waldermar Avenue is served by the Commission's northern high pressure zone and serves the grandstand and utility building. The water main in Walley Street is served by the Commission's northern low pressure zone and provides water to the horse barn area.

Sewer and drain service from the site discharges to the Commission's sewers at two locations. The grandstands and other utility buildings discharge to a 12-inch sewer in Waldemer Avenue through a private 12-inch sewer and pump station. A private gravity combined sewer collects sewerage and surface drainage form the barn area and flows to a retention pond. Flows from the retention pond are pumped to the Commission's wastewater system through a private force main that connects to a manhole at the end of Wally Street behind the MBTA station. A separate private storm drainage system collects water from roofs in the horse barn area and discharges to Sales Creak near the southwest corner of the barn area.

The EENF/ EPNF states that water demand for the proposed project, for all phases, will be 2.73 million gallons per day (mgpd) and wastewater generation will be approximately 2.48 mgpd

The Commission has the following comments regarding the proposed project as they relate to Commission facilities and the portion of the site in the City of Boston:

General

032a-001 1. Prior to demolition of any buildings, all water, sewer and storm drain connections to the buildings must be cut and capped at the main pipe in accordance with the Commission's requirements. The proponent must then complete a Termination Verification Approval Form for a Demolition Permit, available from the Commission and submit the completed form to the City of Boston's Inspectional Services Department before a demolition permit will be issued.

032a-002 2. All new or relocated water mains, sewers and storm drains must be designed and constructed at HYM/MHDC's expense. They must be designed and constructed in conformance with the Commission's design standards, Water Distribution System and Sewer Use Regulations, and Requirements for Site Plans. To assure compliance with the Commission's requirements, the proponent must submit a site plan and a General Service Application to the Commission's Engineering Customer Service Department for review

032a-001

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-002

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

and approval when the design of the new water and wastewater systems and the proposed service connections to those systems are 50 percent complete. The site plan should include the locations of new, relocated and existing water mains, sewers and drains which serve the site, proposed service connections as well as water meter locations.

3. The Department of Environmental Protection (DEP), in cooperation with the Massachusetts Water Resources Authority and its member communities, is implementing a coordinated approach to flow control in the MWRA regional wastewater system, particularly the removal of extraneous clean water (e.g., infiltration/inflow (I/I)) in the system. In April of 2014, the Massachusetts DEP promulgated new regulations regarding wastewater. The Commission has a National Pollutant Discharge Elimination System (NPDES) Permit for its combined sewer overflows and is subject to these new regulations [314 CMR 12.00, section 12.04(2)(d)]. This section requires all new sewer connections with design flows exceeding 15,000 gpd to mitigate the impacts of the development by removing four gallons of infiltration and inflow (I/I) for each new gallon of wastewater flow. In this regard, any new connection or expansion of an existing connection that exceeds 15,000 gallons per day of wastewater shall assist in the I/I reduction effort to ensure that the additional wastewater flows are offset by the removal of I/I. Currently, a minimum ratio of 4:1 for I/I removal to new wastewater flow added is used. The Commission supports the policy, and will require proponent to develop a consistent inflow reduction plan. The 4:1 requirement should be addressed at least 90 days prior to activation of water service and will be based on the estimated sewage generation provided on the project site plan.

032a-003

4. The design of the project should comply with the City of Boston's Complete Streets Initiative, which requires incorporation of "green infrastructure" into street designs. Green infrastructure includes greenscapes, such as trees, shrubs, grasses and other landscape plantings, as well as rain gardens and vegetative swales, infiltration basins, and paving materials and permeable surfaces. The proponent must develop a maintenance plan for the proposed green infrastructure. For more information on the Complete Streets Initiative see the City's website at http://bostoncompletestreets.org/.

032a-004

5. For any proposed masonry repair and cleaning HYM/MHDC will be required to obtain from the Boston Air Pollution Control Commission a permit for Abrasive Blasting or Chemical Cleaning. In accordance with this permit HYM/MHDC will be required to provide a detailed description as to how chemical mist and run-off will be contained and either treated before discharge to the sewer or drainage system or collected and disposed of lawfully off site. A copy of the description and any related site plans must be provided to the Commission's Engineering Customer Service Department for review before masonry repair and cleaning commences. HYM/MHDC is advised that the Commission may impose additional conditions and requirements before permitting the discharge of the treated wash water to enter the sewer or drainage system.

032a-005

032a-003

Refer to Chapter 10, *Infrastructure.*

032a-004

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-005

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-006 6. The Commission will require HYM/MHDC to undertake all necessary precautions to prevent damage or disruption of the existing active water and sewer lines on, or adjacent to, the project site during construction. As a condition of the site plan approval, the Commission will require HYM/MHDC to inspect the existing sewer lines by CCTV after site construction is complete, to confirm that the lines were not damaged from construction activity.

032a-007 7. It is HYM/MHDC's responsibility to evaluate the capacity of the water, sewer and storm drain systems serving the project site to determine if the systems are adequate to meet future project demands. With the site plan HYM/MHDC must include a detailed capacity analysis for the water, sewer and storm drain systems serving the project site, as well as an analysis of the impacts the proposed project will have on the Commission's water, sewer and storm drainage systems.

032a-008 8. Activities within the proposed Facility may have Standard Industrial (SIC) Codes that the Environmental Protection Agency (EPA) has designated as requiring a Multi-Sector General Stormwater Permit for Industrial Facilities (MSGP). The project proponent or owner of the facility is responsible for determining whether a MSGP is required. If a MSGP is required the project proponent or owner is responsible for submitting to EPA a Notice of Intent (NOI) for coverage under the MSGP, and for submitting to the Commission a copy of the NOI and Pollution Prevention Plan prepared pursuant to the NOI. If the MSGP designated SIC Codes apply to the project and the project obtains "No-Exposure" Certification from EPA for the activities, a copy of the No-Exposure Certification must be provided to the Commission.

Water

032a-009 1. HYM/MHDC must provide separate estimates of peak and continuous maximum water demand for residential, commercial, industrial, irrigation of landscaped areas, and air-conditioning make-up water for the project with the site plan. Estimates should be based on full-site build-out of the proposed project. HYM/MHDC should also provide the methodology used to estimate water demand for the proposed project.

032a-010 2. If HYM/MHDC proposes interconnections between the Commission's and City of Revere's water distribution system, the Commission will require HYM/MHDC to install backflow prevention devices at all connections to the Commission's water distribution system. Any interconnections must be coordinated with the Commission and the City of Revere.

032a-011 3. The Commission supports HYM/MHDC commitment to explore opportunities for implementing water conservation measures in addition to those required by the State Plumbing Code. In particular HYM/MHDC should consider outdoor landscaping which requires minimal use of water to maintain. If HYM/MHDC plans to install in-ground

032a-006

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-007

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-008

Refer to Chapter 10, *Infrastructure.*

032a-009

Refer to Chapter 10, *Infrastructure.*

032a-010

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-011

Refer to Chapter 10, *Infrastructure.*

032a-011 sprinkler systems, the Commission recommends that timers, soil moisture indicators and rainfall sensors be installed. The use of sensor-operated faucets and toilets in common areas of buildings should be considered.

032a-012 4. HYM/MHDC is required to obtain a Hydrant Permit for use of any hydrant during the construction phase of this project. The water used from the hydrant must be metered. HYM/MHDC should contact the Commission's Meter Department for information on and to obtain a Hydrant Permit.

5. The Commission is utilizing a Fixed Radio Meter Reading System to obtain water meter readings. For new water meters, the Commission will provide a Meter Transmitter Unit (MTU) and connect the device to the meter. For information regarding the installation of MTUs, HYM/MHDC should contact the Commission's Meter Department.

Sewage / Drainage

032a-013 1. The project's plan must show the sewer system for the development that will be installed, the plan must show size, location and connections to the Commission's systems. If HYM/MHDC proposes to discharge sewerage from the Revere portion of the project development to the Commission's wastewater collection system, this must be indicated on the development plan and coordinated with the Commission and the City of Revere.

032a-014 2. The existing drainage system discharges to Commission storm drains in Waldermer Avenue and Sales Creek. The DCR has a NPDES permit for the drainage system that discharges to Sales Creek. The proposed storm drains for Phase I at the northern portion of the site appear to connect into the DCR's drainage system. HYM/MHDC must coordinate the connection with the DCR.

032a-015 3. In conjunction with the Site Plan and the General Service Application HYM/MHDC will be required to submit a Stormwater Pollution Prevention Plan. The plan must:

- Identify specific best management measures for controlling erosion and preventing the discharge of sediment, contaminated stormwater or construction debris to the Commission's drainage system when construction is underway.
- Include a site map which shows, at a minimum, existing drainage patterns and areas used for storage or treatment of contaminated soils, groundwater or stormwater, and the location of major control structures or treatment structures to be utilized during the construction.
- Specifically identify how the project will comply with the Department of Environmental Protection's Performance Standards for Stormwater Management both during construction and after construction is complete.

032a-012

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-013

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-014

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032a-015

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-016 4. Developers of projects involving disturbances of land of one acre or more will be required to obtain an NPDES General Permit for Construction from the Environmental Protection Agency and the Massachusetts Department of Environmental Protection. HYM/MHDC is responsible for determining if such a permit is required and for obtaining the permit. If such a permit is required, it is required that a copy of the permit and any pollution prevention plan prepared pursuant to the permit be provided to the Commission's Engineering Services Department, prior to the commencement of construction. The pollution prevention plan submitted pursuant to a NPDES Permit may be submitted in place of the pollution prevention plan required by the Commission provided the Plan addresses the same components identified in item 3 above.

032b-017 5. The Commission supports HYM/MHDC commitment to protect stormwater quality. HYM/MHDC should as part of the stormwater management plan consider minimizing sanding and the use of deicing chemicals, pesticides, and fertilizers. Structural components of the plan should include the feasibility of constructing green infrastructure and BMP's designed to reduce the nutrient loadings and peak discharge rates to receiving waters.

032b-018 6. The discharge of dewatering drainage to a sanitary sewer is prohibited by the Commission. HYM/MHDC is advised that the discharge of any dewatering drainage to the storm drainage system requires a Drainage Discharge Permit from the Commission. If the dewatering drainage is contaminated with petroleum products HYM/MHDC will be required to obtain a Remediation General Permit from the Environmental Protection Agency (EPA) for the discharge.

032b-019 7. HYM/MHDC must fully investigate methods for retaining stormwater on-site before the Commission will consider a request to discharge stormwater to the Commission's system. The site plan should indicate how storm drainage from roof drains will be handled and the feasibility of retaining their stormwater discharge on-site. Under no circumstances will stormwater be allowed to discharge to a sanitary sewer.

032b-020 8. The Massachusetts Department of Environmental Protection (MassDEP) established Stormwater Management Standards. The standards address water quality, water quantity and recharge. In addition to Commission standards, HYM/MHDC will be required to meet MassDEP Stormwater Management Standards.

032b-021 9. Sanitary sewage must be kept separate from stormwater and separate sanitary sewer and storm drain service connections must be provided. The Commission requires that existing stormwater and sanitary sewer service connections, which are to be re-used by the proposed project, be dye tested to confirm they are connected to the appropriate system.

032b-016

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-017

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-018

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-019

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-020

Refer to Chapter 10, *Infrastructure.*

032b-021

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-022 | 10. The Commission requests that HYM/MHDC install a permanent casting stating "Don't Dump: Drains to Boston Harbor" next to any catch basin created or modified as part of this project. HYM/MHDC should contact the Commission's Operations Division for information regarding the purchase of the castings.

032b-023 | 11. If a cafeteria or food service facility is built as part of this project, grease traps will be required in accordance with the Commission's Sewer Use Regulations. HYM/MHDC is advised to consult with the Commission's Operations Department with regards to grease traps.

032b-024 | 12. The enclosed floors of a parking garage must drain through oil separators into the sewer system in accordance with the Commission's Sewer Use Regulations. The Commission's Requirements for Site Plans, available by contacting the Engineering Services Department, include requirements for separators.

032b-025 | 13. The Commission requires installation of particle separators on all new parking lots greater than 7,500 square feet in size. If it is determined that it is not possible to infiltrate all runoff from the new parking lot, the Commission will require the installation of a particle separator or a standard Type 5 catch basin with an outlet tee for the parking lot. Specifications for particle separators are provided in the Commission's requirements for Site Plans.

Thank you for the opportunity to comment on this project.

Yours truly,

John P. Sullivan, P.E.
Chief Engineer

JPS/ra

cc: T. O'Brien, MHDC
M. Connolly, MWRA
M. Zlody, BED
M. Nelson, BWSC
P. Larocque, BWSC

032b-022

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-023

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-024

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

032b-025

The Proponent acknowledges this comment, and will factor it into the Master Plan Project as the design and permitting progresses.

BOSTON HARBOR NOW
Are you on board?

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January 30, 2018

Director Brian Golden
Attn: Tim Czerwienski, Project Manager
Boston Planning and Development Agency
One City Hall Square
Boston, MA 02201 via email to tim.czerwienski@boston.gov

Re: Suffolk Downs Redevelopment, EPNF

Dear Director Golden,

On behalf of Boston Harbor Now, thank you for the opportunity to comment on the Expanded Project Notification Form (EPNF) for the Suffolk Downs Redevelopment project submitted by McClellan Highway Development Company LLC (McClellan) in November of 2017.

After reviewing the EPNF and attending the December 19, 2017 public meeting, our comments follow.

Project description
As presented in the EPNF, this proposal is for the redevelopment of the existing Suffolk Downs horse racing facility located in East Boston and Revere. The site is approximately 161 acres extending over two municipalities--109 acres in Boston and 52 acres in Revere.

As proposed, the Suffolk Downs Redevelopment Master Plan Project will include 16.5 million SF of mixed-used development; approximately 11 million square feet will be in the City of Boston and 5.5 million square feet in Revere. The entire redevelopment will take 15 to 20 years to complete.

Phase 1 Waiver
MEPA reviews require State agencies to evaluate the environmental consequences of permitting a development project and to require all feasible measures to be taken to avoid, minimize, and mitigate potential damage to the environment. Under 301 CMR 11.11, the Secretary may waive any provision or requirement of the MEPA regulations and may impose appropriate and relevant conditions or restrictions, provided that he finds that strict compliance with the rule or requirement would not avoid or minimize

damage to the environment. The proponent has requested a Phase 1 waiver for a limited portion of the site, located in East Boston. Phase 1 would include:

- 520,000SF of office space,
- A new internal access road,
- Open space improvements, and
- 520 structured parking spaces.

We understand the proponent's need to expedite the process in response to Amazon's search for new headquarters and the site's inclusion in, the recently published, shortlist of potential sites. Assuming that the waiver has the support of the City of Boston and the Impact Advisory Group for this project, Boston Harbor Now does not oppose McClellan's request for a Phase 1 waiver. Our concern, expressed in the following comments, focus on the remaining sections of the Master Plan.

The Suffolk Downs Redevelopment is a significant proposal with some fluid and yet-to-be-designed portions. The project will require extensive collaboration between City and State agencies, effective communication between two different municipalities, and a lengthy construction period. A Draft Environmental Impact Report (DEIR)for the remaining acres of the redevelopment is an absolute necessity for a project of this magnitude. We look forward to reviewing the proponent's DEIR at a future time.

A portion of Phase 1 is located within landlocked tidelands that are exempt from Chapter 91 licensing obligations. The Secretary may, however, require a public benefits determination for the proposed Phase 1 section of the project. As proponents develop the DEIR, we ask that particular attention is given to project impacts on abutters and surrounding communities, the proposed on-site community activities, and the public benefits offered as part of the redevelopment.

Environmental Protection and Preservation

According to the EPNF, the Suffolk Downs site contains 8 acres of wetland area. The Rumney Marshes Area of Critical Environmental Concern (ACEC) is part of the 8-acre wetland area and runs through a portion of the Suffolk Downs redevelopment site.

ACECs are areas that receive special recognition because of the significance of the natural and cultural resources they provide. Rumney Marsh was designated by the state as an ACEC in 1988 to preserve its environmental value as one of the most biologically significant salt marshes within and north of Boston. We commend the proponent for recognizing the importance of the area both in the EPNF and at public meetings.

One of our predecessor organizations (The Boston Harbor Association) worked closely with the Saugus River Watershed Council to educate the community and advance the long-term objectives of the Rumney Marsh ACEC designation[1]. Section 4.4.6 of the EPNF points to the Marsh as a "heavily disturbed" area due to previous onsite activities. We understand the history of activities on the site may have heavily disturbed the natural habitat. These salt marshes are still vitally important to the surrounding areas, partially due to their capacity to provide flood water storage and prevent flood damage. Boston Harbor Now is particularly interested in understanding the proponent's mitigation plans to address the existing disturbances and restore portions of this environmentally valuable natural resource.

[1] http://www.mass.gov/eea/docs/dcr/stewardship/acec/rumneymarsh.pdf

Finally, according to the supplemental information, the Phase 1 project will add an estimated 19,000 cubic yard volume of fill within Land Subject to Coastal Storm Flowage (LSCSF). Although the proponent confirms there are no plans to alter existing wetland areas, the grading plan indicates the use of fill to increase site grade near the infield pond and at the edge of existing wetland areas. Future filings should focus on impacts to the wetland areas resulting from fill on abutting resource areas and the effects associated with redirecting storm flooding.

033-001

Public Access and Transportation

Recognizing that this project is being expedited due to its role in Boston's bid for the second Amazon headquarters, we anticipated a plan that more closely aligned with the Boston proposal. The City's proposal included a water transportation component that is not mentioned in the EPNF. For future ferry service to be a viable option for the site, there must be meaningful connectivity to and across Route 1 at the southwest corner of the site included in the plan. The final plan should include a passenger ferry viability study that considers travel times and travel time savings from Downtown Boston and North Station, a feasible location and design for a ferry dock proximate to the site, and vessel designs that can be used with the Andrew McCardle and Chelsea Street bridges.

033-002

Currently, the Phase 1 section of the project is proximate to the Suffolk Downs T station but it is not near an existing bike path/network. The nearest bike and pedestrian pathway is the East Boston Greenway that currently terminates near the Orient Heights T station. We are excited to hear that the proponent plans to connect the East Boston Greenway to Revere Beach. We strongly support efforts to incorporate several modes of transportation to and from the redevelopment site. Extending the existing East Boston Greenway will provide both the site and the surrounding communities with improved access and recreational benefits.

As presented in the EPNF, there will be several new east-west pedestrian pathways that cut across the site to connect Revere and Orient Heights. We applaud efforts to improve walkability across the site and encourage the proponent to explore additional north-south connections across the site.

A detailed mitigation commitment timeline that addresses the proponent's transportation contributions would be a helpful addition to the master plan documents.

033-003

Climate Change

We were glad to read that the proponent understands the vulnerability of the Suffolk Downs redevelopment site to flooding. We see this project proposal as an excellent opportunity to build an exemplary climate resilient project that creates on-site as well as district-wide resiliency that will also benefit the surrounding communities. We strongly urge the project proponent to consider district-wide resiliency approaches as part of its Master Plan.

033-004

As completed by the proponent, the Boston Climate Change Resiliency and Preparedness Checklist confirms that the project site is within the FEMA 100-year Flood Zone AE with a Boston City base site elevation ranging from 14-22 (the lowest point on the property is currently 14 inches at the Beachmont station in the Revere section of the project). As presented in the EPNF and at public hearings, the proponent plans to elevate portions of the site to the Boston Planning and Development Agency-recommended standard of 40-inches above the 100-year FEMA flood elevation and to create an opportunity for the community to shelter in place. We applaud this initiative.

The proponent's responses to the Resiliency Checklist also indicated that the frequency of storms, the need for temporary flood barriers, the resiliency of critical building systems, flood proof elevations, and

033-001

Refer to Chapter 5, *Wetlands and Waterways* and Chapter 8, *Climate Change Resiliency.*

033-002

The Project Site is bounded by Route 1A and Bennington Street and does not have ownership or access to waterfront properties to allow ferry access. Future ferry access to this area would be dependent upon redevelopment of existing parcels on the west side of Route 1A, which are currently industrial and oil storage facilities. Ferry access would be difficult on the Belle Isle Marsh due to existing parkland and low bridge clearances that lead back to Boston Harbor. Although the Proponent supports consideration of new and increased ferry service in the area development of this would be dependent on adjacent parcels, which have direct waterfront access.

033-003

Refer to Chapter 6, *Transportation.*

033-004

Refer to Chapter 8, *Climate Change Resiliency.*

033-005 first floor elevations are yet-to-be-determined or have not been analyzed. Site and building design should consider the possibility that today's 1% storm could have a frequency of 10% by mid-century, and that chronic flooding associated with monthly and seasonal high tides will become more and more prevalent during the latter half of the century. We strongly recommend the proponents evaluate the combined impacts of both nuisance flooding and storm scenarios as well as increased intensity of super storms, nor'easters, and hurricane events that was suggested by the Climate Ready Boston/Boston Research Advisory Group report.

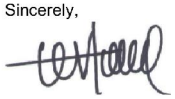
033-006 We also note that the Boston Research Advisory Group's projections for the Climate Ready Boston project indicated that that sea level rise may completely submerge the Bell Isle Marsh over time, substantially reducing the buffering capacity of this natural resource. The resilience plan for the Suffolk Downs site should consider this possibility.

033-007 During a recent site visit, our staff inquired about coastal flooding during winter storm Grayson. The development team confirmed that the tide gates along Bennington Street were vital in preventing storm surge and coastal flood waters from entering the Belle Isle Square section of the property. We note that the tide gates affecting the redevelopment project are operated and managed by the Department of Conservation and Recreation (DCR). Climate change resiliency plans explored as part of the Master Plan should consider a program that supports DCR's tide gate operations.

033-008 Finally, it is clear there will be a significant gap of time between the completion of Phase 1 and full buildout of the Suffolk Downs redevelopment. It is essential that Phase 1 is well-designed, with the public amenities, resilient design standards, and multimodal connections that will make it a great place and destination on its own.

Thank you for your time and consideration.

Sincerely,



Jill Valdes Horwood
Director of Policy

033-005

Refer to Chapter 8, *Climate Change Resiliency.*

033-006

Refer to Chapter 8, *Climate Change Resiliency.*

033-007

Refer to Chapter 8, *Climate Change Resiliency.*

033-008

Refer to Chapter 3, *Urban Design.*

walkBoston™

January 25, 2018

Mayor Brian Arrigo
ATTN: Robert O'Brien, Director of Economic Development
City of Revere
281 Broadway
Revere, MA 02151

Secretary Matthew Beaton
ATTN: Page Czepiga, MEPA Analyst
Executive Office of Energy and Environmental Affairs
100 Cambridge Street, Suite 900
Boston, MA 02114

Director Brian Golden
ATTN: Tim Czerwienski, Project Manager
Boston Planning and Development Agency
One City Hall, Ninth Floor
Boston, MA 02201

RE: WalkBoston comments on Suffolk Downs redevelopment (EEA No. 15783)

Dear Mayor Arrigo, Secretary Beaton and Director Golden:

Thank you for the opportunity to comment on HYM Investment Group's proposed redevelopment of the Suffolk Downs site in East Boston and Revere. WalkBoston looks forward to working with the City of Revere, EEA, BPDA, HYM, and other agencies and project stakeholders to help advance the proponent's stated goal of "creating a vibrant, mixed-use walkable community."

Leveraging connections between walkability and transit

The proponent's Expanded Project Notification Form (EPNF) reflects a strong commitment in principle to walkability and multimodal transportation connectivity. The proposed Phase 1 project emphasizes new pedestrian connections at the Suffolk Downs Blue Line station on the MBTA, and the Master Plan project is similarly premised upon pedestrian access to and from the Blue Line at Suffolk Downs and Beachmont Stations. Overall the Suffolk Downs site is well-positioned for walkable transit-oriented development, which is reflected in HYM's high anticipated mode shares for walking and transit for the Master Plan project. (The projected mode shares for walking range from 10.9% for office uses to 19.6% for residential uses; the projected mode shares for transit range from 45.4% for residential uses to 54.7% for hotel uses.)

034-001

The Phase 1 project has a much lower projected transit mode share of 37.5%, as well as a 44.4% projected mode share for single occupancy vehicles. We are concerned that this will create

MAKING MASSACHUSETTS MORE WALKABLE
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034-001

Refer to Chapter 6, *Transportation.* Mode shares used to support the DEIR have been based upon an in-depth collaboration between the proponent, MassDOT and CTPS to reflect expected future travel behavior.

034-001

significant auto dependency from the onset of this project that will affect the future Master Plan development as well. The proponent states that "while there will be emphasis to support a high proportion of alternative trip making by the Phase 1 Project, this more conservative mode share profile has been utilized given the Phase 1 buildings are being analyzed as a standalone project without the benefit of a mixed-use environment." We urge the proponent to aim for more ambitious transit, walking and biking mode share goals for the Phase 1 development to maximize the site's potential for transit-oriented development.

034-002

The proponent also anticipates over 54,000 new transit trips per weekday, including over 4,000 trips during the morning peak hour and over 5,000 trips during the evening peak hour. This number is very high relative to current Blue Line ridership levels. As part of their transit analysis for the Draft Environmental Impact Report (DEIR), HYM should detail how they arrived at this number and how Blue Line ridership will change as the Master Plan project is phased in over time. This analysis should be accompanied by the proponent also clarifying their plans to invest in capacity upgrades along the Blue Line as part of a broader package of Transportation Demand Management (TDM) strategies.

Exploring opportunities to reduce single occupancy vehicle trips and parking spaces

034-003

While the high projected transit mode share and ridership are positive attributes of this development proposal, the proponent still projects over 33,000 new vehicle trips per weekday, including over 3,000 trips during the morning peak hour and over 3,000 trips during the evening peak hour. This increased vehicular traffic has the potential to significantly affect congestion and pedestrian safety within the project site and along surrounding roadways. Given that vehicular access to the site is limited to just two intersections (Route 1A/Tomasello Way and Winthrop Avenue/Tomasello Way), the proponent should clarify how the project site and surrounding streets will handle this traffic in the DEIR. Significant mitigation measures will be necessary to address 33,000 new vehicles on already congested streets.

034-004

While HYM does not specify how many new parking spaces will be needed to accommodate these vehicles, WalkBoston calculates that between 10,800 and 16,200 new spaces will be necessary, depending on the development program and parking ratios used. (The proponent states that the following parking ratio ranges should adequately support the Master Plan project's parking demand into the future: residential, 0.5 to 1.0 spaces per unit; office, 1.0 spaces per 1,000 SF; lab, 1.0 spaces per 1,000 SF; hotel: 0.5 spaces per room; retail: 0.5 spaces per 1,000 SF). We are encouraged by the relatively low proposed parking ratios for the residential units, as well as HYM's broader recognition that auto trip rates are likely to decrease over time. The final residential parking ratio should be as close to 0.5 spaces per unit as possible and we look forward to reviewing HYM's TDM plans as part of the DEIR. Any strategies and mitigation measures proposed must further enhance walkability, bikeability and transit access, while reducing single occupancy vehicle use and the associated need for parking.

Exploring opportunities for bus/shuttle connectivity and related pedestrian access

034-005

HYM notes that there are several MBTA bus lines (450, 459 and 119) along Route 1A and Winthrop Avenue within a half-mile walk of the project site, and that "there are opportunities to expand MBTA bus service into the project site and provide for internal site

034-002

Refer to Chapter 6, *Transportation.*

034-003

Refer to Chapter 6, *Transportation.*

034-004

Refer to Chapter 6, *Transportation.*

034-005

Refer to Chapter 6, *Transportation*, for details on the Project's transportation analysis, proposed Transportation Demand Management (TDM) Plan, and proposed mitigation measures, including enhanced transit service options.

034-005 transportation/shuttle to further improve access to public transit" as the Master Plan project is built out. The proponent should further explore and detail these options as part of their TDM plans in the DEIR, as increased utilization of MBTA buses and/or shuttles can reduce single occupancy vehicle use. An analysis of bus/shuttle options should examine the potential for increased service on existing MBTA bus lines and associated changes in ridership, as well as the potential to service the neighborhoods surrounding the project site. The proponent should also clarify their plans for investing in such services, whether through funding the MBTA or their own shuttles.

034-006 Ensuring that pedestrians can safely and comfortably walk to and from bus/shuttle stops is critical to ensuring that these services will be utilized. Ideally bus/shuttle stops will be located within a quarter-mile of the project site to maximize their usage. We appreciate HYM's commitment to improving sidewalks adjacent to the project site to meet ADA standards and to include street trees if feasible, as well as their acknowledgement of the need for mitigation measures and infrastructure improvements at the site's primary vehicular access points (Route 1A/Tomasello Way and Winthrop Avenue/Tomasello Way). The proponent states that "geometric and traffic signal improvements will be recommended at both of these intersections to optimize traffic operations."

034-007 Improvements at these locations must also address pedestrian safety and traffic calming. HYM plans to widen Tomasello Way and Route 1A as part of the Master Plan improvements, yet there are no crosswalks across Route 1A near the project site and the crosswalk across Tomasello Way at Route 1A is already 140 feet wide with minimal pedestrian refuge. Any signal and roadway upgrades at this location and near other shuttle/bus stops must provide safe pedestrian crossings and well-timed WALK signals that provide countdowns and leading pedestrian intervals. Long crossing distances should be reduced as much as possible using curb extensions, and pedestrian refuges should be created and enhanced to provide protected waiting areas. In extreme circumstances, the proponent might consider working with the MBTA to relocate bus stops to more pedestrian-friendly locations.

034-008

<u>Creating a walkable project site that meets Complete Streets standards</u>

In addition to leveraging pedestrian access to and from the Blue Line, the proponent has integrated walkability and pedestrian connectivity into many other aspects of their redevelopment proposal. These include creating a new interior street network on site that meets Boston Transportation Department's (BTD) Complete Streets guidelines, developing a system of multi-use ADA-compliant paths and trails that connects to adjacent neighborhoods and regional path networks, and activating the public realm with open space amenities and extensive ground-floor retail. Creating streets, sidewalks and paths that accommodate road users of all abilities and travel modes is critical to developing more livable and walkable communities, so WalkBoston is pleased to see a commitment to these issues in the EPNF.

034-009 We look forward to seeing more detailed plans for the interior streets, paths, intersections and signals as part of the DEIR. The interior streets should be designed to ensure that vehicles follow a 20 mile per hour speed limit to maximize walking safety as well as walking and transit mode shares. They should also include additional measures for pedestrian safety and traffic calming, including narrow vehicular travel lane widths, frequent and well-marked crosswalks,

034-006

As an preliminary improvement, the Proponent has invested in a new stop and turnaround on Tomasello Drive for the MBTA #119 bus route and will continue to work with the MBTA to explore potential future bus routing and stops within the Project Site as the demand is warranted by the Master Plan Project.

As discussed in Chapter 3, *Urban Design*, the Project includes a privately-operated shuttle bus system on-site for direct links to the MBTA Blue Line Stations. The establishment of new, privately-operated shuttle services that would provide direct transit connections between the Project Site and the commuter rail service at North Station, South Station, and Chelsea Station, as well as to the Seaport District are also proposed. Please refer to Chapter 6, *Transportation*, for more details.

034-007

Refer to Chapter 6, *Transportation.*

034-008

Refer to the response to comment 034-006 above.

034-009

Refer to Chapter 6, *Transportation.*

034-009
034-010

and well-timed WALK signals that provide countdowns and leading pedestrian intervals. We encourage the proponent to maintain their current plans to not have vehicular access to the project site from Bennington Street or Waldemar Avenue, thus prioritizing multimodal connectivity and reducing the potential for increased local traffic.

Improving pedestrian safety throughout the project study area

The need for traffic mitigation is not limited to the immediate project vicinity and access points. To this end, HYM states that a mitigation program will likely focus on improvements to roadway geometry, traffic signals, and multimodal mobility along the broader Route 1A and Winthrop Avenue corridors, as well as Furlong Drive, the on-site roadway network, and other nearby intersections. The proponent also notes that many of the broader study area intersections are located within Highway Safety Improvement Program (HSIP) clusters and thus are potentially subject to Road Safety Audits (RSAs) per Massachusetts Department of Transportation guidelines. WalkBoston looks forward to reviewing a more detailed discussion of the Master Plan project mitigation phasing and recommendations for the timing of specific roadway improvement projects as part of the DEIR. We are also available to participate in future RSAs as needed. Once again, we encourage utmost consideration for pedestrian safety and traffic calming measures as part of any improvement packages.

034-011

Thank you again for considering these issues and feel free to contact us with any questions.

Sincerely,

Wendy Landman

Wendy Landman
Executive Director

Cc: House Speaker Robert DeLeo
Senate President Harriet Chandler
Senator Joseph Boncore, Transportation Co-Chair
Representative William Strauss, Transportation Co-Chair
Representative Adrian Madaro
Boston City Council President Andrea Campbell
Boston City Councilor Michelle Wu, Transportation Chair
Boston City Councilor Lydia Edwards, District 1
Revere City Council President Jessica Giannino
Revere City Councilor Steven Morabito, Economic Development and Planning Chair
Revere City Councilor Joanne McKenna, Ward 1
Becca Wolfson, Boston Cyclists Union
Stacey Thompson, LivableStreets Alliance
Andre Leroux, Massachusetts Smart Growth Alliance
Richard Fries, MassBike
Marc Ebuña, TransitMatters
Chris Dempsey, Transportation for Massachusetts

034-010

The Proponent is maintaining their current plans to not have vehicular access to the project site from Bennington Street or Waldemar Avenue.

034-011

Refer to Chapter 6, *Transportation.*

February 2, 2018

Tim Czerwienski
Project Manager
Boston Planning & Development Agency
One City Hall Square
Boston, MA 02201

RE: Suffolk Downs Redevelopment Master Plan

Dear Mr. Czerwienski:

I am pleased to submit these comments on the Master Plan of Suffolk Downs both as an East Boston resident directly impacted by the project and on behalf of GreenRoots, a local environmental justice non-profit organization which advocates on behalf of low income communities and communities of color in the immediate area. It feels fitting that these comments are being submitted on World Wetlands Day, as this proposed project is one that is located in a filled wetland subject to future flooding and will have a great effect on the nearby wetland and Area of Critical Environmental Concern, the Belle Isle Marsh.

As discussed below, we have strong concerns about the project that we feel have not been adequately addressed to date and should definitely be incorporated into the scoping determination. The nature of some of these issues would necessitate your denial of the request by the proponent for an expedited review and approval process for the Phase 1 Project. Additionally, given the unprecedented scope and impact of the project on the abutting neighborhoods as well as the region, we would further request that a greater effort on the part of the project proponent and the relevant regulatory bodies be made to present the results of the required further investigations resulting from the scoping determination in a form that is intelligible to the public. Given the demographics of the neighborhoods involved a greater effort in multilingual outreach and presentation is vital, but even for English speakers the highly technical nature of the information and the jargon contained therein also requires translation by a qualified expert *who is not advocating for the project* and could reasonably be considered "objective."

035-001

Expedited Review Concerns

While we aim to address the Master Plan in this letter we do wish to take the opportunity to again emphasize our concerns regarding the project proponents' desires for an expedited process for the Phase 1 of the project (the two office buildings (500,000+ sqft) expressly for the purpose of a potential tenant (Amazon)). While it is understood that the Amazon opportunity represents a potential benefit for the proponent, it is an opportunity, not a guarantee. The proposed Master Plan as presented by the proponent contains two development scenarios (their original plan without Amazon and one with Amazon), and as they have stated, they will be doing this project over the next 20 years or so regardless of Amazon's decision. As such it does not seem reasonable to change the regulatory process for one potential tenant. This further solidifies this precedent that the state and city's regulatory processes are secondary to the transient and self-interested concerns of the private sector at the expense of the public. The waiving of the process in this instance would then justify other projects changing the permitting process on the basis of the business interests of any developer or tenant. Given the

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035-001

The Proponent has conducted outreach to EJ communities surrounding the Project Site, including non-English speaking. For the EENF/EPNF, the Proponent provided a Spanish interpreter at public meetings held on the Master Plan Project. As required by the BPDA, the Proponent will develop an Executive Summary for the DEIR/DPIR in Spanish and, in coordination with the BPDA, the Proponent will hold a public meeting in Spanish.

The Proponent also held two meetings with a Latino Business Owners Group from East Boston, which meetings also had a Spanish Interpreter providing translation of the presentation and the Proponent's answers to questions asked by the audience.

expansive scope of the project and its potential impacts on both the community and the region, the development process to date has moved exceedingly fast. The project's Expanded Notification Form was filed with the city in November, and while there were several presentations before this, there are many in the community that have not had the opportunity to digest the copious and technical documentation that has been produced – especially with the holidays having been in between the release of these documents and the comment deadlines.

In particular, there are concerns (outlined below) that we feel must still be addressed before this Phase 1 project should move forward. Given the many attractive aspects of this project for Amazon or indeed any other commercial tenant, including two rapid transit stops, the expanse of (uncontaminated) space, the proximity to an international airport, a highly-educated workforce, and nearby world leading research universities and technology industries, it seems that the city would not need to bend further backwards for this project to be developed to the benefit of the proponent. Bluntly, if we have to bend the rules for this immanently developable project, what will we have to do for less desirable parcels? The risk of the loss of Amazon as a tenant does not in any way kill this project or make it less profitable for the proponent.

Housing Impacts

One salient issue for current East Boston residents is the availability and affordability of housing in a rapidly gentrifying neighborhood. In recent years East Boston has become one of the hottest real estate markets in metropolitan Boston and an increasing number of long-time residents are being displaced, despite the best intentions and desires of city planners. The Suffolk Downs project represents a massive direct impact on the housing market of East Boston (and Revere), as well as for the broader region. Nowhere in the presentations and documentation of the Phase 1 of the project is the impact of building two office buildings larger than any other current commercial office building in East Boston without any additional housing for the numerous new workers who would be coming to the neighborhood addressed. Much of the ENF, the Master Plan and the public presentations have spoken at length about the walkability of the development and its reliance on non-vehicular transit and creating a transit-oriented development. This implies that many of the employment opportunities at the site would be

035-002

filled with people who would be living in some of the new housing opportunities on site. The Phase 1 project does not include housing; therefore, it will exert further pressure on the rental housing market in the neighborhood. The current Phase 1 study does not address this at all and accordingly does not provide any idea as to how local residents would be affected or how the detrimental impacts of this could be mitigated in the near term. Until this problem is properly scoped, its impacts defined and then addressed, and all of this analysis properly shared with the appropriate community members, the Phase 1 project should be delayed and certainly not expedited.

In terms of the Master Plan, the issue of affordable housing is addressed through the construction of the minimum required by Boston: 13% of the residential units must be affordable. This comes out to 1,000 affordable units which is good, however there are issues with this. Firstly, the definition of affordable (70-100% of Area Median Income) is in fact not particularly affordable for the CURRENT working class residents of East Boston. The market pressures of gentrification have driven up rents and housing costs while wages have remained stagnant for decades, resulting in Boston having the dubious distinction of the worst income inequality of any major U.S. city according to the Brookings Institution. How this impacts the City's affordable housing schemes is in the fact that the "area" considered in "area median income" is the entire city not the neighborhood where the development is occurring. Even with the median and not the average being used, the tremendous difference between incomes in neighborhoods like Back Bay, Beacon Hill and Downtown (especially in light of recent projects such as the Millennium

035-002

The EEA Secretary granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The initial phase for Boston includes the Phase 1 Project office buildings plus three residential buildings, as well as Belle Isle Square public plaza and ground level retail.

Tower) when compared to incomes in a neighborhood like East Boston results in increasingly higher and unattainable AMI levels for the residents of the neighborhood. Considering that the other 7,700 or so units of housing in the development will be market rate and potentially a very high market rate, this will only help to push the AMI higher and further wring out the working class from the neighborhood.

This process has continued unabated for decades from the South End to Fenway to Jamaica Plain, etc. It is not enough for our municipal leaders to repeat the same platitudes that we heard multiple decades ago and expect that the result will be different. While the proponent may be following the rules as laid down, those rules are clearly failing the residents of Boston. With a project of this magnitude in a neighborhood on the brink of passing a point of no return in terms of displacing the immigrants and working class people that have made the neighborhood home since the 19th century, the City must step up and demand more than the bare minimum.

Environmental Justice/Enhanced Outreach

While the current Environmental Justice policy of the Massachusetts Executive Office of Energy and Environmental Affairs is not triggered by the project despite it being completely surrounded on all sides by state-defined Environmental Justice census blocks and the project undoubtedly having a major impact on the daily lives of the people in those blocks, it makes sense in keeping with the intent and spirit of community outreach that the project proponent should make every effort to appropriately publicize its project within these EJ communities. While it is appreciated that the proponent has invested a great deal of effort in outreach to civically-engaged, English-speaking community members, better than 50% of East Boston is Spanish-speaking as first-language and to our knowledge there had been no community presentations in Spanish until our previous comment letter. At the last community meeting interpretation services were provided (although the equipment did not work) and recent outreach to Latino media and further Spanish-language outreach was pointedly mentioned. The effort is appreciated and we hope the next phases will continue and expand this outreach to potentially include some of the Arabic-speaking community as well. While the entirety of technical reports is not expected to be translated, synopses of these in Spanish would be helpful. As has been stated previously the non-English-speaking community composes a large percentage of the neighbors in East Boston, as well as Revere, and yet these populations are uninformed of a project which will most likely expedite the process of displacing them from their homes.

035-003

Land Uses & Community Impacts

This project, similar to other large-scale developments such as Assembly Row in Somerville, presents the wholesale creation of an entire neighborhood anchored by transit infrastructure. This vibrant neighborhood is composed of housing (87% market rate) with commercial office space (e.g., the Amazon potential) and retail. We are assured by the proponent that the retail is slated to be restaurants and shops that are not necessarily chain stores and "big box" retail. In looking at what makes vibrant neighborhoods in other established parts of the city, we see other uses such as places of worship, public schools, libraries, civic institutions such as the YMCA or the East Boston Social Center. There are municipal buildings, police and fire stations, and other non-commercial entities. This is over 160 acres of an urban neighborhood which may be more like a mall than a neighborhood.

Due to the nature of the flooding concerns on the site there is, laudably, a strong emphasis on open space in the Master Plan. The dual retaining pond/open space feature which incorporates Sales Creek and the pond in the middle of the race track oval dominates the site plans presented at the community meetings. This space, unlike Bremen Street Park, Piers Park, the Condor Street Urban Wild or any of the other heavily utilized East Boston open spaces would be privately held by the owners of the properties

035-003

Refer to the response to comment 035-001 above.

on the site. While the Boston Parks and Recreation Department may appreciate not having an additional maintenance burden, there is a question as to how "public" this open space would be. Currently this open space is privately held and generally off limits to the public, however if we are discussing the creation of a neighborhood and not a gated community or a mall, then we should be clear as to what of this project is within the public realm and what is private. This should be addressed in the scoping determination.

035-004

035-005

In thinking of the lack of municipal buildings, one begins to think about where those municipal services will come from. There will be an increased need for police, fire and ambulance services to these new residents. Additionally, there will be an impact on the school system from the presence of new residents. The impact on these services should be explored in the scoping determination.

Building Massing

Aside from a row of townhouses along the southeast corner of the property abutting part of Orient Heights, the majority of the buildings in the Master Plan are depicted as blocks of very large (relative to East Boston's existing structures) buildings across the site. The lowest of these blocks would be 125 feet while the highest could go over 200 feet. Buildings of comparable size in East Boston are found standing alone (the hotels at the airport and on McClellan Highway, the Gumball Factory and the Eddy). In this case the massing of these buildings in 30 or more blocks from one end of the site to the other represents a scale completely out of line with the neighborhood. Understanding just how this would not only appear but also feel to a pedestrian walking through this landscape in comparison to the current neighborhoods of East Boston is not easily communicated by merely floor area ratios and artist's renderings. The scoping of this project should include existing examples in the Boston area of similarly massed street blocks for residents to have an understanding of what is about to happen. Indeed, the impact on the surrounding community is unclear. Typically, the existence of conditions such as adjacent building heights is frequently used by developers to justify similar construction nearby (as can be seen by the increasing number of four story buildings going up in what were blocks once zoned for triple deckers). Is it reasonable to assume that the construction of such as a massive development in East Boston is going to be used as a justification for increased height and massing in other parts of the neighborhood? How does the proponent and, more importantly, the City address this?

Technical Capacity

An additional concern, which is a perennial one for these processes, is the ability for the affected communities to be able to critically evaluate what is presented to them by the consultants working for the Project Proponent. Technical jargon around traffic counts and floor area ratios (FAR) are not relatable to residents who do not work in traffic engineering, real estate, or municipal planning. While the traffic counts provided are said to incorporate the impact of other development projects and growth in the region (and their accompanying traffic), the reports do not directly answer the question as to what will be done to ensure that the traffic will not be far worse than it already is. The numbers and assurances given do not click with the lived experiences of residents who cannot find a seat on a crowded Blue Line train or sit for an hour in traffic just to get from Orient Heights to the entrance of the Sumner Tunnel.

This particular concern of traffic forecasts and capacity is a highly technical one and the general public (much less the Spanish-speaking public) cannot be expected to have the knowledge to be able to rebut the assertions of paid consultants. Unfortunately, the project proponent's consultants are the only resource available to the public, and they can hardly be expected to provide an analysis that would be against the interests of their client to the benefit of the public. There needs to be additional resources

035-004

Refer to Chapter 3, *Urban Design*.

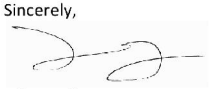
035-005

The Proponent conducted a municipal impacts assessment, which determined at full build-out the Master Plan Project will generate a positive annual net fiscal impact of approximately $56.8 million annually to Boston and $29.6 million annually to Revere completed after accounting for estimated municipal costs for education and fire/safety, etc.

and time provided for the community to be able to receive *unbiased* technical assistance to evaluate the project and the assertions of the Proponent, not only for concerns relating to traffic, but also in the areas of stormwater, flooding and climate change concerns, building shadow impacts and other areas. We hope that within the scoping determination there is a request for the proponent to provide some plain English analysis or, better yet, that the City is able to translate the technical material for the community through a third party expert on the given topics.

In conclusion, we urge you to deny the request for an expedited review and approval process for the Phase 1 Project, and to require the project proponent to sufficiently address the various concerns outlined above. We also hope that the City will do a deeper dive on this project in regards to affordable housing, technical assistance to residents and enhanced outreach in Environmental Justice communities. We greatly appreciate the efforts that have been made by the Project Proponent and the City in the short time we have had so far to review a highly complicated project that will be ongoing for decades and will have impacts lasting generations. Thank you for the opportunity to comment.

Sincerely,



John Walkey
Waterfront Initiative Coordinator
GreenRoots
[redacted]

Tim Czerwienski <tim.czerwienski@boston.gov>

Suffolk Down Proposal - East Boston resident

Melissa Campbell [redacted] Tue, Jan 2, 2018 at 2:07 PM
To: tim.czerwienski@boston.gov

Hi Tim,

My name is Melissa Campbell. I am a resident of 135 Addison St in East Boston. I am the Secretary of the Harborview Neighborhood association and my family has been in East Boston since the 1890s. Our representative, Skip Marcella, attended the meeting as I was unable to attend.

We look forward to having the space being used for something that would benefit the neighborhood, but do want to voice our concerns about the effects on the neighborhood.

My thoughts are below:

036-001

Would love to have businesses that are currently missing in East Boston. A nice gym (spin studio), an upscale grocery store (Whole Foods) would be a great benefit to the community. Currently East Boston residents have to venture into the city (for me, Charlestown) to get my dog groomed, go to Whole Foods, work out, which increases traffic for our neighborhoods and theirs.

036-002

As an Addison resident who takes 1A every day (make the U turn by Starbucks to go into city back), I am very concerned about the influx of cars. Most days it takes me about 30 minutes to get from Addison St through the Ted Williams (I commute to Framingham every day). Vice versa, it takes a very long time to get back to East Boston. I can't imagine what 7k – 10k units will do to East Boston traffic. Its already very stressful to live in this neighborhood driving wise and I can't imagine what every day trips to Target to get gas etc will be like.

I understand there will be more housing units but I think we need to be cognizant that all East Boston residents will need to be happy (both old and new) in order to make Eastie flourish. When everyone becomes miserable because of packed T trains and awful driving commutes, then we become bad neighbors and less proud of our neighborhood.

Thank you for your time

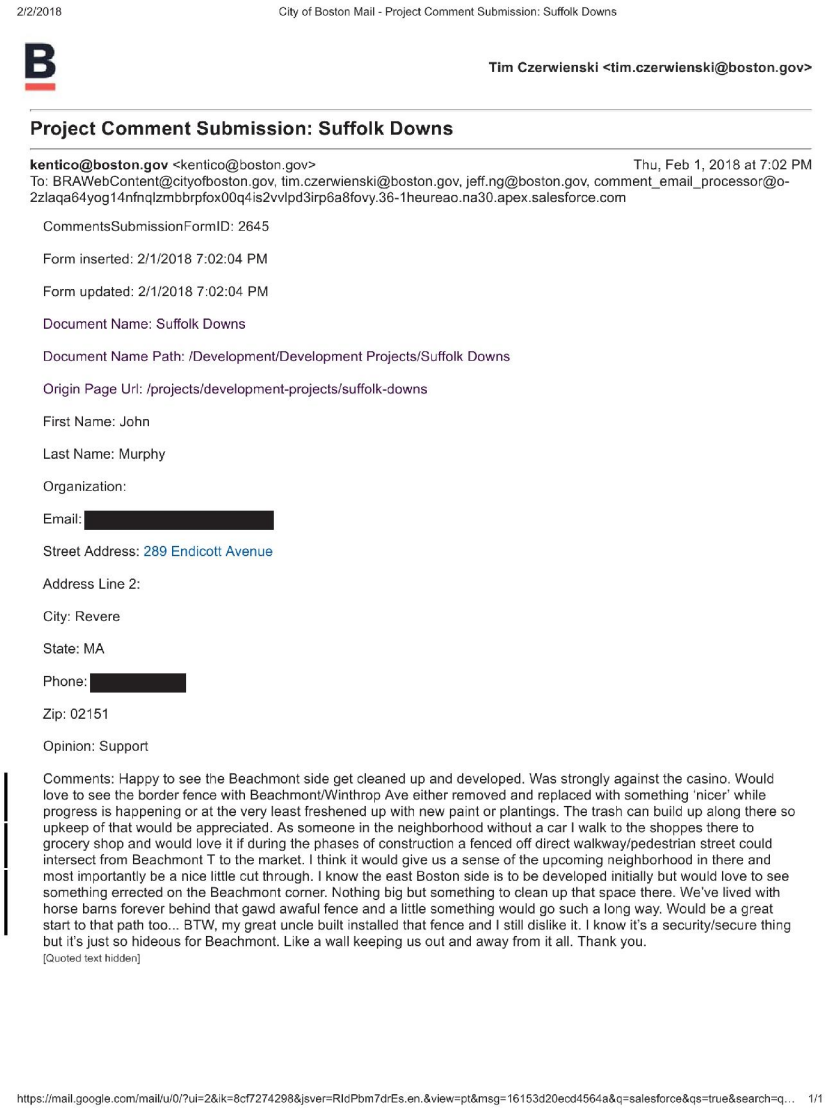
Melissa

036-001

Refer to Chapter 3, *Urban Design.*

036-002

Refer to Chapter 6, *Transportation.*



2/2/2018 City of Boston Mail - Project Comment Submission: Suffolk Downs

Tim Czerwienski <tim.czerwienski@boston.gov>

Project Comment Submission: Suffolk Downs

kentico@boston.gov <kentico@boston.gov> Thu, Feb 1, 2018 at 7:02 PM
To: BRAWebContent@cityofboston.gov, tim.czerwienski@boston.gov, jeff.ng@boston.gov, comment_email_processor@o-2zlaqa64yog14nfnqlzmbbrpfox00q4is2vvlpd3irp6a8fovy.36-1heureao.na30.apex.salesforce.com

CommentsSubmissionFormID: 2645

Form inserted: 2/1/2018 7:02:04 PM

Form updated: 2/1/2018 7:02:04 PM

Document Name: Suffolk Downs

Document Name Path: /Development/Development Projects/Suffolk Downs

Origin Page Url: /projects/development-projects/suffolk-downs

First Name: John

Last Name: Murphy

Organization:

Email: [redacted]

Street Address: 289 Endicott Avenue

Address Line 2:

City: Revere

State: MA

Phone: [redacted]

Zip: 02151

Opinion: Support

Comments: Happy to see the Beachmont side get cleaned up and developed. Was strongly against the casino. Would love to see the border fence with Beachmont/Winthrop Ave either removed and replaced with something 'nicer' while progress is happening or at the very least freshened up with new paint or plantings. The trash can build up along there so upkeep of that would be appreciated. As someone in the neighborhood without a car I walk to the shoppes there to grocery shop and would love it if during the phases of construction a fenced off direct walkway/pedestrian street could intersect from Beachmont T to the market. I think it would give us a sense of the upcoming neighborhood in there and most importantly be a nice little cut through. I know the east Boston side is to be developed initially but would love to see something errected on the Beachmont corner. Nothing big but something to clean up that space there. We've lived with horse barns forever behind that gawd awaful fence and a little something would go such a long way. Would be a great start to that path too... BTW, my great uncle built installed that fence and I still dislike it. I know it's a security/secure thing but it's just so hideous for Beachmont. Like a wall keeping us out and away from it all. Thank you.
[Quoted text hidden]

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037-001

Refer to Chapter 3, *Urban Design.*

037-002

The fence, which has been painted as an early interim improvement, will be removed as part of Phase 1-R in Revere. In the interim, the Proponent will monitor the condition of the fence area and clean trash and debris as needed during construction.

037-003

Refer to Chapter 3, *Urban Design.*

2/2/2018 City of Boston Mail - Suffolk Downs Redevelopment

Tim Czerwienski <tim.czerwienski@boston.gov>

Suffolk Downs Redevelopment

Hector Conde [redacted] Fri, Feb 2, 2018 at 12:03 AM
To: tim.czerwienski@boston.gov
Cc: Claudia Sierra [redacted]

Hola buenas noches

Mi comentario acerca del proyecto es maravilloso aunque declaro estar en una posición NEUTRAL.

PORQUE?

038-001

Yo vivi en East Boston los pasados 13 o 14 años y debido a estos proyectos de transformación que ENCARECEN TODO " general " me encontré obligado a cambiarme de MI BARRIO a OTRO BARRIO ya que en East Boston los costos de vivir se han puesto por las nubes....

Aqui ya entra un problema social que yo lo llamaría " DESPLAZAMIENTO " y no considero justo que esto le siga pasando a mas personas....

Gracias

Hector M Conde
Liason Boston
Colombian Cultural Committee of Merrimack Valley
www.cccmv.org
Sent from my iPhone

https://mail.google.com/mail/u/0/?ui=2&ik=8cf7274298&jsver=RIdPbm7drEs.en.&view=pt&msg=16154e5ccbd33770&search=inbox&siml=16154e5ccb… 1/1

038-001

The *Imagine Boston 2030* plan identifies Suffolk Downs as one of the key sites that could create new housing for the City of Boston as creative reuse of a currently underutilized former horse racing facility. The Master Plan Project presents a unique opportunity that can materially add to the housing stock in East Boston. The Master Plan Project will create new affordable housing units on-site, in compliance with the Boston Inclusionary Development Policy requirements.

El plano de *Imagine Boston 2030* identifica a Suffolk Downs como uno de los sitios claves que podrían crear nuevas viviendas para la Ciudad de Boston como una forma creativa de reutilizar la instalación de carrera de caballos que actualmente se encuentra infrautilizada. El Proyecto de Plan Maestro presenta una oportunidad única que puede agregar materialmente a la provisión de viviendas en East Boston. El Proyecto de Plan Maestro creará nuevas unidades de viviendas asequibles en el lugar, conforme a los requerimientos de la Política de Desarrollo Inclusivo de Boston.

Tim Czerwienski <tim.czerwienski@boston.gov>

***IAG Member* Comment on Suffolk Downs Master Plan**

Ernani DeAraujo [redacted] Fri, Feb 2, 2018 at 10:44 AM
To: "tim.czerwienski@boston.gov" <tim.czerwienski@boston.gov>
Cc: "Madaro, Adrian - Rep. (HOU)" <Adrian.Madaro@mahouse.gov>, "lydia.edwards@boston.gov" lydia edward @bo ton gov , Jo e Garcia Mota jo e garcia mota@bo ton gov

Dear Tim:
I write this message in **support** of the proposed Master Plan by HYM for the Suffolk Downs site. While I share much of the support and concerns expressed by other IAG members, I'm especially concerned about the housing on the site.

039-001 **I support HYM's proposal to create thousands of desperately needed housing units for the greater Boston region.** An arcane zoning code and challenging building process has enabled Boston and other cities and towns in the Commonwealth to hoard homes for the lucky few instead of creating new living spaces for growing families and newcomers. I hope that HYM sticks to its proposal to produce diverse housing types--workforce; dedicated affordable; range of market rate; and specialized living for the elderly, disabled, and artists. One area where their housing proposal falls short is with respect to dedicated affordable housing. HYM proposes to meet the Mayor's executive order of 13% dedicated affordable housing. **At a minimum, HYM should build 20% dedicated affordable, a percentage that roughly approximates the percentage of dedicated affordable in Boston.**

039-002 Over and above this 20% affordable goal, HYM should dedicate mitigation funds to be spent in East Boston to preserve affordable living and create new affordable units where possible. Housing inequality is the number one issue impacting the families in East Boston and Boston at large. Mayor Walsh has successfully expedited the building process for new homes, but we can't get out of a problem that was decades in the making in a few short years of building. Restrictive zoning has proved to be an enemy of people of color, immigrants, and the working class. HYM has an open canvass where they can build tall and wide to address the needs of families to live in safe, clean homes they can afford.
Thank you for your consideration.

Ernani Jose DeAraujo
147 Trenton Street, #1
East Boston, MA 02128

039-001

Refer to Chapter 2, *Regulatory Context and General Information.*

039-002

Refer to Chapter 1, *Project Description and Alternatives,* for an extensive list of public benefits associated with the Master Plan Project.

Madeleine Steczynski
Alex DeFronzo
Suffolk Downs Impact Advisory Group

Director Brian Golden
Boston Planning & Development Agency
One City Hall, Ninth Floor
Boston, MA 02201

February 1, 2018

RE: Suffolk Downs Master Plan – 525 William F. McClellan Highway

Dear Director Golden:

HYM Investments hopes to develop a mixed-use neighborhood at Suffolk Downs. The development is the largest single contiguous development site in Boston. It also encompasses a large tract of land in Revere. While the development is a far better outcome for the Cities of Boston and Revere than what had been proposed at the site previously, the sheer size and scope of the development will have wide-ranging consequences for the surrounding communities. HYM has made commendable efforts to present their vision for the site and to solicit community feedback for their master plan. We commend the leadership of HYM for presenting their project personally, and are particularly pleased with their commitment to building a "pedestrian-friendly neighborhood" with significant open space and diverse housing types (workforce; dedicated affordable; range of market rate; and specialized living for the elderly, disabled, and artists) to attract and serve a diverse community.

We feel, however, that given the proposed eleven million square feet of development on the East Boston side, more community input is needed and that the massive scope of the project requires a more comprehensive approach than the typical Article 80 Large Project Review. The City of Boston has already endorsed the Suffolk Downs master plan, as proposed, in the Amazon HQ2 response proposal. This endorsement, delivered without community input, has created a material impact on our neighborhood's ability to provide feedback and to mitigate various aspects of the Suffolk Downs master plan proposal. The Impact Advisory Group has made numerous requests of the proponent to provide information that we have not yet received, including the production of a 3D model, modifications in massing setbacks on the Waldemar Avenue side of the project, and the mitigation measures shared below. As information on these inquiries have not yet been provided, we request that the BPDA defer a vote on the master plan until the proponent is able to respond to the IAG's requests. We also request the support of a paid community liaison with expertise in major development projects to help the Impact Advisory Group understand the complex impacts of this project on East Boston, and to help facilitate the negotiation of project mitigation on behalf of the Impact Advisory Group, independent of HYM or the BPDA.

040-001

040-002

East Boston currently faces a number of community-wide challenges including a lack of affordable housing, displacement of families related to housing costs, traffic and congestion, 1,600 or more youth with no access to out-of-school programming, the threat of rising sea level and severe weather events, and displacement/loss of local businesses as rents increase, and larger retail and commercial entities move into the neighborhood. Locally and City-wide, nonprofits are being hit particularly hard, as commercial rents skyrocket, and increased housing costs threaten their constituents as well as their staff. In addition, Boston's arts community is struggling to find appropriate space in the City. It is our hope that the Suffolk Downs development will work to address these concerns, rather than further exacerbate their effects. Some specific baseline commitments that we hope can begin to ensure a successful outcome for our neighborhood and for the project proponent include:

Live:

040-003

040-004

- A commitment to 40 acres of open space including connection of the East Boston Greenway from the north to south side of the parcel.
- A commitment to 20% inclusionary housing in both the Boston and Revere parcels, with at least 18% on-site and linkage funds to remain in East Boston.

040-001

The Proponent presented a physical model of the Master Plan Project at a public IAG meeting held on September 11, 2018. Refer to Chapter 1, *Project Description and Alternatives*, for a summary of public benefits and Chapter 12, *Mitigation*, for a summary of proposed mitigation measures associated with the Master Plan Project.

040-002

Request noted.

040-003

Refer to Chapter 3, *Urban Design.*

040-004

The Master Plan Project will meet the City of Boston's Inclusionary Development Policy requirements. All affordable housing units will be provided on-site.

040-005
- A commitment to building, in each phase of the Suffolk Downs development, at least one affordable space designed specifically for cultural and community gathering (i.e. a church, nonprofit service organization, gallery, performing arts space, locally owned café, or a woman, immigrant, or minority owned business)

040-006
- A commitment to fund a comprehensive capacity study on the impact of 10,000 new housing units on Boston Public Schools.

Work:

040-007
- A commitment to fund a minimum of $15m toward the construction of a Blue/Red line connector for the MBTA.
- A commitment of a minimum of $3m to rehabilitate the Suffolk Downs T-Station and to improve entry to the Beachmont T-Station.

040-008
- A commitment to work with the City on the creation of affordable live/work space for artists and nonprofit organizations.
- The creation of temporary and long-term jobs for East Boston residents, young and old.

040-009
- A commitment to construct paid street-level and garage parking that integrates the principles of intelligent urbanism and transit oriented development with the goal of discouraging driving to the site, using the site solely for the purpose of parking, and parking for extended periods of time.

Connect:

040-010
- A commitment to the creation of a perpetual community benefit fund supported by HYM to be managed by an open and transparent external charitable foundation.
    - Until such foundation is formed, funds contributed by HYM should be held by the BPDA.
    - A commitment for HYM to contribute $2 for every square foot of development constructed prior to issuance of an occupancy permit, and $0.50 annually per square foot developed on the site as a whole in perpetuity.
    - 10% of which should be dedicated to an on-site small business incubator facilitated with support from the East Boston Chamber of Commerce and East Boston Main Streets, 10% of which should be dedicated to a teacher-directed enrichment fund for public schools located in East Boston, 10% of which should be dedicated to community health initiatives facilitated by the East Boston Neighborhood Health Center, 10% of which should be dedicated to local faith-based leaders to support the most needy families in East Boston, 10% of which should be dedicated to the Friends of the East Boston Greenway for expansion and maintenance of the Greenway, 20% of which should be dedicated to capital improvement fund managed by the external foundation for East Boston 501(c)(3) organizations, and 20% of which should be dedicated to youth-serving nonprofit organizations in East Boston.

As a community, we were heartened that the City of Boston recognizes East Boston as the vibrant neighborhood it has always been. We are both honored and anxious to have been listed as the most attractive and sensible neighborhood for Amazon's HQ2 in Boston. Whether Amazon choses Boston and the Suffolk Downs site or not, HYM must work constructively with the community to strengthen and not harm the surrounding neighborhoods.

We hope to work together with HYM, the BPDA, and our neighbors to achieve what we know is possible: an innovative, sustainable, community-supported project that will serve as a means of lifting up every member of our diverse neighborhood, as a flagship development for the city, and as a gratifying and financially viable project for HYM.

Alex DeFronzo
Impact Advisory Group
53 Jeffries St. Apt. 1
East Boston, MA 02128

Madeleine Steczynski
Impact Advisory Group
103 Webster St.
East Boston, MA 02128

Cc: Senator Joseph Boncore, Representative Adrian Madaro, Councilor Lydia Edwards, Tim Czerwienski, Michael Sinatra

040-005

The Proponent has included of civic and community space within the approximately 40-acre open space network. Proposed civic elements include:

-Outdoor performance theater;

- Innovation Center (which will have community meeting space included); and

-Belle Isle Square and Beachmont Square public plazas (opportunities for outdoor activities and festivals).
The Proponent will continue to work with the BPDA and City of Revere on integrating civic/community space within the Master Plan Project.

040-006

The Proponent has undertaken a municipal fiscal impacts assessment, which concluded the Master Plan Project will generate a positive annual net fiscal impact of approximately $56.8 million annually to Boston after accounting for estimated $4.3 million in annual school costs.

040-007

Please refer to Chapter 6, *Transportation*, for a description of the proposed transportation mitigation commitments.

040-008

Suggested community benefits will be considered by the Proponent as part of the Article 80 review process in coordination with the BPDA and IAG.

040-009

Refer to Chapter 6, *Transportation.*

040-010

Chapter 1, *Project Description and Alternatives*, provides a list of public benefits associated with the Master Plan Project. As discussed in Chapter 3, *Urban Design*, the Proponent is committed to making approximately 10% of retail space across the Master Plan Project available with flexible lease terms for promising local businesses from East Boston and Revere.

2/2/2018 City of Boston Mail - Comment for the HYM Suffolk Downs Project

Tim Czerwienski <tim.czerwienski@boston.gov>

Comment for the HYM Suffolk Downs Project

Marisa DiPietro [redacted] Fri, Feb 2, 2018 at 1:25 PM
To: Development Review at the BPDA <Tim.Czerwienski@boston.gov>

Dear Mr. Czerwienski,

041-001

I am writing to you to comment on the Suffolk Downs project. First, I want to say that I am immensely impressed by the level of professionalism, thoughtfulness and respect shown by the HYM Investment Group and I admire their willingness to build a community, rather than a straight development. On that note, I would like to add my request that a child care center be considered as part of this project. There is a need for quality child care services in East Boston, particularly in the Suffolk Down area. The East Boston Social Centers, where I am employed, is a 501 (c) (3) non-profit multi-service agency that has served the children, families, senior citizens and community of East Boston since its founding in 1918. A major piece of our programming is Child Care. Our four Early Learning Centers provide childcare year-round to 145 children. These centers offer high quality childcare and are licensed by the Dept. of Early Education and Care (EEC) and accredited by the National Association of Educators of Young Children (NAEYC). The Centers provide transportation and nutritional meals for all of the children in our programs and work to develop the children's social, emotional, cognitive and self-help skills. The School Age Childcare program provides affordable after-school care to approximately 150 children, ages 5 to 14 during the school year, including full time during school vacations. The School Age Child Care Program is also licensed through EEC and uses programming based upon NAA (National Afterschool Association) Standards for Quality School Age Care. During summer months the School Age Child Care program provides Summer Program all day, serving approximately 300 children ages 5-14. The Summer Program provides a safe, educational environment for children, including educationally based field trips to a variety of museums and historical landmarks, literacy programs, environmental awareness activities, and a health and wellness curriculum.

Two of our child care centers, a Pre-school program and an After School program are presently housed in the Orient Heights Public Housing that is slated to be demolished in the near future. This means that the children we serve in those 2 programs will be displaced and will need to be housed elsewhere. While we work on a temporary solution to this issue, we are looking to the future with the hope of returning child care services to the Orient Heights area. A Child Care Center in the HYM development would be the ideal location for the East Boston Social Centers to provide the necessary high quality child care services for the Orient Heights area and hopefully for the many families that will be housed in the Suffolk Downs project.

Thank you for your consideration of this request.

All the best,

Marisa

Marisa Di Pietro

041-001

Refer to Chapter 3, *Urban Design*.

Development Director

East Boston Social Centers

68 Central Square

East Boston, MA 02128

(Office) [redacted]

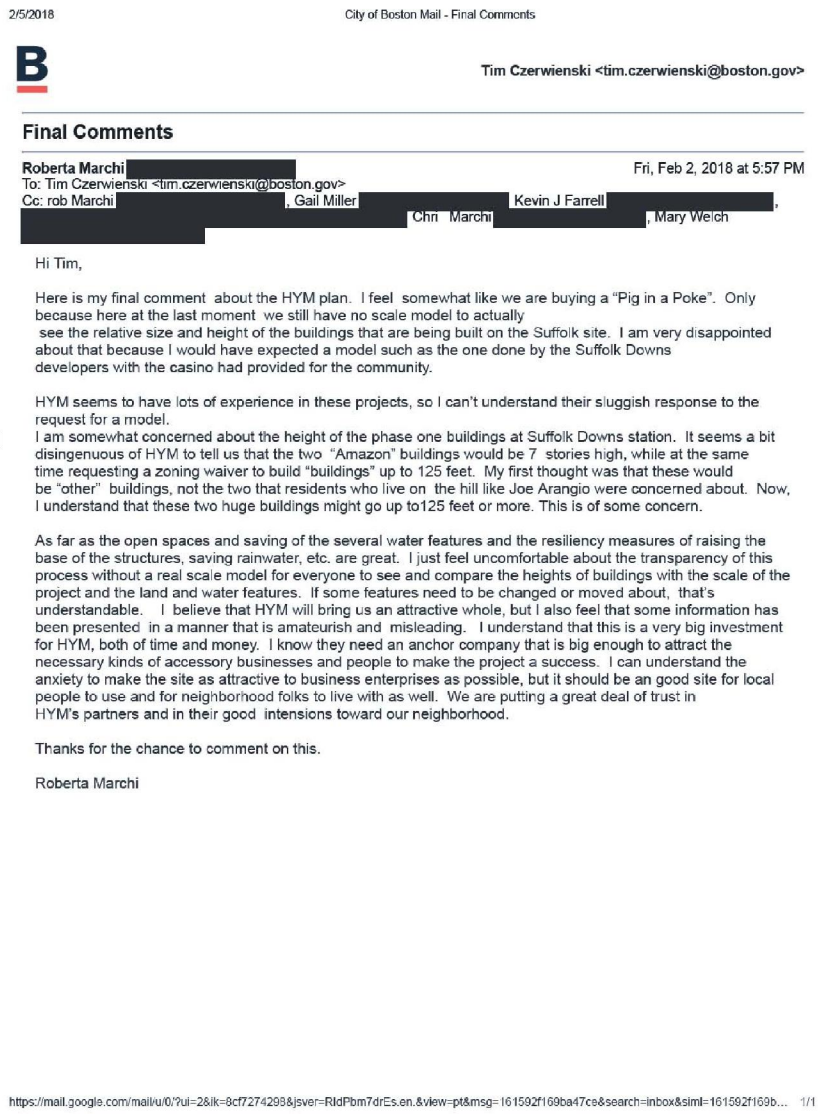
(Cell) [redacted]

[redacted]

East Boston Social Centers, Inc.

Celebrating 100 years of service to the community

1918 ~2018



2/5/2018 City of Boston Mail - Final Comments

B

Tim Czerwienski <tim.czerwienski@boston.gov>

Final Comments

Roberta Marchi [redacted] Fri, Feb 2, 2018 at 5:57 PM
To: Tim Czerwienski <tim.czerwienski@boston.gov>
Cc: rob Marchi [redacted], Gail Miller [redacted] Kevin J Farrell [redacted], Chri Marchi [redacted], Mary Welch [redacted]

Hi Tim,

Here is my final comment about the HYM plan. I feel somewhat like we are buying a "Pig in a Poke". Only because here at the last moment we still have no scale model to actually see the relative size and height of the buildings that are being built on the Suffolk site. I am very disappointed about that because I would have expected a model such as the one done by the Suffolk Downs developers with the casino had provided for the community.

HYM seems to have lots of experience in these projects, so I can't understand their sluggish response to the request for a model.

042-001 I am somewhat concerned about the height of the phase one buildings at Suffolk Downs station. It seems a bit disingenuous of HYM to tell us that the two "Amazon" buildings would be 7 stories high, while at the same time requesting a zoning waiver to build "buildings" up to 125 feet. My first thought was that these would be "other" buildings, not the two that residents who live on the hill like Joe Arangio were concerned about. Now, I understand that these two huge buildings might go up to125 feet or more. This is of some concern.

As far as the open spaces and saving of the several water features and the resiliency measures of raising the base of the structures, saving rainwater, etc. are great. I just feel uncomfortable about the transparency of this process without a real scale model for everyone to see and compare the heights of buildings with the scale of the project and the land and water features. If some features need to be changed or moved about, that's understandable. I believe that HYM will bring us an attractive whole, but I also feel that some information has been presented in a manner that is amateurish and misleading. I understand that this is a very big investment for HYM, both of time and money. I know they need an anchor company that is big enough to attract the necessary kinds of accessory businesses and people to make the project a success. I can understand the anxiety to make the site as attractive to business enterprises as possible, but it should be an good site for local people to use and for neighborhood folks to live with as well. We are putting a great deal of trust in HYM's partners and in their good intensions toward our neighborhood.

Thanks for the chance to comment on this.

Roberta Marchi

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042-001

The Secretary of EEA granted the Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The Phase 1 Project office buildings will be developed as part of Phase 1 - Boston, which is further detailed in Chapter 3, *Urban Design*.

B

Tim Czerwienski <tim.czerwienski@boston.gov>

Comments re Suffolk Downs Masterplan

Gail Miller [redacted] Fri, Feb 2, 2018 at 9:33 PM
To: Tim.Czerwienski@boston.gov

BP&DA
Attn: Tim Czerwienski
City Hall
Boston, MA

Re: Suffolk Downs Master Plan Comments

I begin writing by commenting on the fact that this process for permitting and public meetings coinciding with so many moving parts has been difficult to follow. It seems the information changes swiftly and it is difficult to know if the information was noted in the large document or whether some details within the project came to light on and after. For instance, I know I went to a meeting where the height of the two Amazon buildings was described as being 6-7 stories and shadows were questioned. Several days later, an article appeared in the East Boston Times highlighting the fact that HYM was requesting a height variance to 120 feet for this PHASE 1 buildout. Surely this was known before the meeting. I AM OPPOSED TO ANY BUILDINGS THIS HEIGHT ON THE BACKYARDS OF THE NEIGHBORS EVEN IF IT IS 1500 FEET AWAY (AND BY WHAT MEASURE?). **043-001**

The process has been made more confusing because there is also the request for a waiver from the usual environmental review before a project goes forward. We need Philadelphia lawyers to read the fine print.

Then on the back of the Article 53 height variance process comes the meeting next Wednesday at the Conservation Commission.

The community should have the true benefit of a consultant to guide folks through this project, particularly because it is getting rolled out over about 15 years. Hard to project impacts looking so far ahead.

A request was made for a model so we might gauge better what the site will look like somewhat...hard to appreciate the buildout otherwise. Not certain when the model will be available.

I am personally concerned about what the 40 acres of open space entails...is it just the existing wetlands, it is decks, is it walkways, etc. No opportunity to really discuss same but yet we are asked to comment on it. **043-002**

The same is true for all other features of the proposal. Concerns for resiliency and future storm events were not talked about in any details so that the public have a certain level of buy in and understanding.

Before something goes forward for permits, it should be discussed with the communities what those permits are as the residents will be speaking to concerns as such. **043-003**

I repeat, there are so many moving parts to this huge development that it is truly difficult to comment in this fashion.

Not having touched upon the impacts to Belle Isle Marsh which is of utmost concern, we have not had the opportunity to have a back and forth discussion to feel comfortable about protecting and enhancing this natural resource. **043-004**

With all the community meetings, I have found that they are pretty much the same presentations but the concerns enclosed therein have not had the full vetting of residents.

I will continue to be concerned and hopefully will comment again shortly.

I will say, however, that it behooves the neighborhoods and the developer to attempt a win/win for this HYM proposal...I hope we can work together for the greater good.

Gail Miller
232 Orient Avenue
East Boston, MA 02128

043-001

The Secretary of EEA granted a Phase 1 Waiver for the Phase 1 Project on February 28, 2018. The proposed office buildings have been designed to be set back, or incrementally step away as the building gets taller with a series of outdoor terraces. These terraces are adequately sized to accentuate the intimate nature of this area and are visually connected to create a sense of community. Furthermore, by terracing the massing, more daylight gets into both the open-air walkway and inside the buildings, making the entire spaces feel more open and inviting. Additionally, the proposed pedestrian passageway between the two office buildings aims to break up the massing, and create a safe and active urban space by animated ground floors and building terraces. The design of the buildings also aims to establish a strong presence along the central common reinforcing its curved design.

043-002

Refer to Chapter 3, *Urban Design.*

043-003

The main purpose of the MEPA and Article 80 review processes to which the Master Plan Project is subject to are to identify the state and local permits/approvals, assess the environmental and community impacts associated with those actions, and identify proposed commitments to reducing, minimizing, or eliminating impacts prior to issuance of state/local permits/approvals.

Also, the Proponent has held extensive community and public meetings to date providing detail of the Master Plan Project and will continue to do so after the submission of the DEIR/DPIR.

043-004

Impacts to Belle Isle Marsh are not proposed or anticipated as a result of

2/5/2018 City of Boston Mail - Comments re Suffolk Downs Masterplan

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the Master Plan Project. As discussed in Chapter 10, the treatment of stormwater discharging to Sales Creek, and ultimately to Belle Isle Marsh, will be substantially improved over existing conditions.

2/5/2018 City of Boston Mail - Re: Suffo k Downs Comment Period, Upcoming Meetings

Tim Czerwienski <tim.czerwienski@boston.gov>

Re: Suffolk Downs Comment Period, Upcoming Meetings

Skipdot54 [redacted] Fri, Feb 2, 2018 at 8:52 PM
To: tim.czerwienski@boston.gov

Hi Tim,

I am overall very pleased with the presentations and discussions that Tom O'Brien and his group have conducted.

044-001 One of the concerns I have is to ensure that the height that Suffolk Downs will be asking for will not translate into other developers being able to utilize this in their presentations and state a precedent has been set so that they can get their projects at unreasonable heights.

In presentations I have been at there was no mention of trucking in soil to raise the level of the project and yet I saw that in a newspaper article. I was surprised that there was never any mention of this aspect of the project. Is there anything else that we may not be hearing about?
The other day I saw that Amazon was looking for water planes and that the city may have been working on this for years, prior to the Amazon bid. I just feel that with a project of this size we may not be getting all the information.

044-002 I am very concerned about safety and emergency services and I hope that East Boston will not be short changed and additional services will be negotiated for this project.
I wish that with all of the housing being proposed for this project that the mayor would be satisfied and stop the overdevelopment in East Boston and the deterioration of neighborhoods with oversized block buildings. This is an area where the development of various types of housing and businesses works.
I am very pleased with the percentage of green space in this project and I do hope that they will have a shell entertainment area to replace the one that we lost when Wood Island was taken by the airport.

044-003 As a resident I am extremely worried about the traffic on the highway and I hope that some mitigation can improve the already unacceptable roadway traffic and congestion.

044-004 We do need to look at additional schools in East Boston to manage the number of housing units and hopefully families that will move to this development. It is difficult for neighborhood families to get their children in local schools as it is.
Lastly the Blue Line is in need of much attention and since this project will depend on it at Beachmont and Suffolk Downs I hope improvements can happen to improve the current over crowded trains.

Thank you for listening,
Skip

-----Original Message-----
From: Tim Czerwienski <tim.czerwienski@boston.gov>
To: undisclosed-recipients:;
Sent: Fri, Feb 2, 2018 10:19 am
Subject: Suffolk Downs Comment Period, Upcoming Meetings

Good morning,

This message is a reminder that the comment period for the first stage of review for the Suffolk Downs Master Plan project ends at midnight tonight. You can email your comments directly to me, or submit them through the form at the bottom of this site: http://www.bostonplans.org/projects/development-projects/suffolk-downs

The Zoning Commission will be holding a hearing on the proposed text amendment to Article 53 to enable increased height for the Phase 1 project on February 7. That meeting starts at 9AM and will be held in the BPDA Board Room on the 9th Floor of City Hall.

A public hearing before the BPDA Board for the Phase 1 project will take place on Thursday, February 8. The hearing is scheduled to begin at 5:40PM, and will take place in the BPDA Board Room on the 9th Floor of City Hall.

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Tim Czerwienski, AICP

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044-001

The building heights proposed as part of the Mater Plan Project, as shown on Figure 2.1, are specific to the Project Site through local zoning approvals. The building heights for Revere portion were approved as part of the City of Revere overlay zoning district for the Project Site in March 2018. The building heights within the Boston portion will be allowed through the PDA zoning, as explained in Section 2.4.1 of Chapter 2, *Regulatory Context and General Information*.

044-002

The Proponent conducted a municipal fiscal impacts analysis and concluded at the Master Plan Project will generate significant annual revenue through new property taxes that could contribute to fire and safety services for East Boston and Revere.

044-003

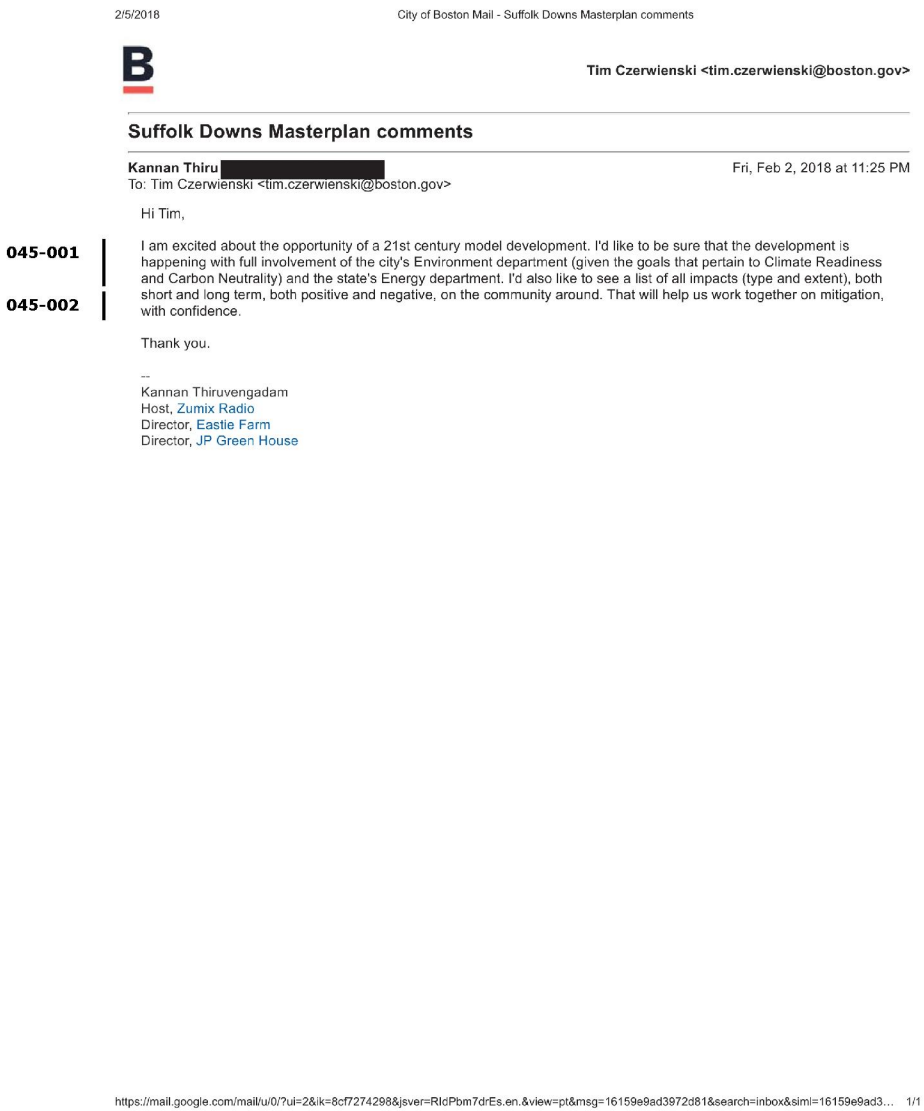
Refer to Chapter 6, *Transportation.*

044-004

The Master Plan Project will generate a positive annual net fiscal impact of $56.8 million for Boston accounting for estimated education costs.

Project Manager
617.918.5303

Boston Planning & Development Agency (BPDA)
One City Hall Square | Boston, MA 02201
bostonplans.org



2/5/2018 City of Boston Mail - Suffolk Downs Masterplan comments

Tim Czerwienski <tim.czerwienski@boston.gov>

Suffolk Downs Masterplan comments

Kannan Thiru [redacted] Fri, Feb 2, 2018 at 11:25 PM
To: Tim Czerwienski <tim.czerwienski@boston.gov>

Hi Tim,

045-001 | I am excited about the opportunity of a 21st century model development. I'd like to be sure that the development is happening with full involvement of the city's Environment department (given the goals that pertain to Climate Readiness and Carbon Neutrality) and the state's Energy department. I'd also like to see a list of all impacts (type and extent), both short and long term, both positive and negative, on the community around. That will help us work together on mitigation, with confidence.

045-002 |

Thank you.

--
Kannan Thiruvengadam
Host, Zumix Radio
Director, Eastie Farm
Director, JP Green House

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045-001

Refer to Chapter 7, *Greenhouse Gas Assessment.*

045-002

The intent of this DEIR/DPIR filing is to evaluate potential environmental and community impacts and propose mitigation measures to avoid, minimize, and reduce those impacts. Refer to Chapter 1 for a summary of public benefits and Chapter 12 for a summary of mitigation measures.

Tim Czerwienski <tim.czerwienski@boston.gov>

Suffolk Downs Comment Period, Upcoming Meetings

Kathi Wyatt :) [redacted] Fri, Feb 2, 2018 at 10:16 PM
To: Tim Czerwienski <tim.czerwienski@boston.gov>

047-001

I was talking to someone on the IAG today and she wanted to mention that it would be nice to have the land that would be between the abutter on Waldemar Ave and the development ite be limited to re idential building and/or a buffer zone of trees.

Thank you,
Kathi Wyatt, abutter
17 Waldemar Ave.

Sent from Yahoo Mail for iPad
[Quoted text hidden]

047-001

Refer to Chapter 3, *Urban Design.*

February 9, 2018

Dear Mr. Czerwienski:

Enclosed you will find what you asked for concerning Suffolk Downs. I was born across the street from the track. Everything I write can be verified. It is my opinion that the Suffolk Downs Property would be the *last* place for the proposed project.

Patrick Catrone
PO Box 277
Revere, MA 02151

The Big Hoax

I was born across the street from Suffolk Downs Race Track on 19 Sea View Avenue, in East Boston. It is my position, based upon my personal experience that the Suffolk Downs property should be the *last* place for the proposed project.

First of all, Suffolk Downs was built on wetlands. Governor Curly, used all his influence and power to bend and break the rules to build the track. A few years later, he was convicted of a variety of charges and went to jail.

One must understand the period; it was in 1935 during the middle of the Depression. Unemployment was running over 20%. I personally had two uncles that worked at the "track" 10 hours for five dollars, and they were glad to get it.

Years later, my Uncle Fred told me that they used asbestos in the walls and on all the pipes. At the time, nobody knew the danger of this deadly material. Today, it is outlawed all over the world. It is the second biggest cause of cancer after smoking.

My uncle told me that they trucked in tones of sand from Revere Beach to cover the 'wet lands" that is now the grandstand. They used gravel and cement to cover the floor. In 1969, after repaving the floor many times, they decided to tear up the floor on the north side of the grandstand and laid an asbestos mesh. I asked one of the workers what that was for? He said, "It would hopefully keep the ocean water running through". However, it didn't work, and the floors are now in worse shape than ever. Nobody will stop the tide from coming in; and with increase in global warming, building at the Suffolk Downs is inadvisable due to environmental, health and eventual fiscal concerns.

049-001

In 1943, one of the oil tanks had a major leak it was in the month of October. Suffolk Downs was closed at least ten fire trucks on site. I could see the disaster from my house. The firemen worked 24 hours a day for a month to clean up the oil. The fear was a fire.

In the mid 1940s, my friends and I used to walk to Revere Beach through Suffolk Downs' main road during the summer when it closed. One day we noticed a small pick-up in the south end opposite the grandstand. There was a man with a

049-001

Refer to Chapter 8, *Climate Change Resiliency*.

shovel and sand on a truck. We thought he was cleaning up water, but he told us it was oil that leaked from the tanks. In our brief conversation, he said, "They all leak because they are old and in bad shaped." The parking lots are "wet lands" that have been filled in. Most of the trees that border the oil tanks are dead. The dangers working on this project are clear. In addition, the demolition of the Wonderland Dog Track was ordered to stop because of the huge danger of asbestos.

At the meeting the other night, the narrator said, "Eventually, the oil tanks would go." I wonder where they are going to go. He also said, "The grandstand would go at a later date". Tearing down the grandstand is going to be a major problem. The environmentalists will have a lot to say and the people on Waldermare Avenue will protest the asbestos problem.

049-002

Poppy Cavalari lived at 15 Sea View Avenue. He was our next-door neighbor. He was very elderly and would tell us many stories. He said, "They used to go swimming at Waldermare Avenue when I was a kid." He said, "They filled it in so the street cars could go into the track."

Finally, I find it inconceivable that in this day and age with our knowledge of climate change and understanding of environmental contamination a municipality would build on such unsuitable wetland. Therefore, I am requesting that the proposed development of the Suffolk Downs Racetrack be denied.

Respectfully,

Patrick Catrone

049-002

All building demolition activities will be conducted in accordance with applicable rules and regulations related to potential exposure to contamination and disposal.

Name	Date	Organization
Joshua Acevedo	**1/4/18**	
I have now attended numerous presentations regarding the development of Suffolk Downs and am very supportive of the plans that Hym Investment group has for the site. I believe the site has been under utilized for a very time and am eager to see new life breathed into the very large site. Soon I will be a direct abutter, as I will be moving to Waldemar Avenue, and while I would love if Amazon chooses the site will be glad to see the vision Hym has of a mixture of retail, housing and commercial come to fruition. I am also supportive of the expedited approval process for the two commercial buildings. It would be nice though if in addition to the required funds given to affordable housing that some funds be donated to Salesian, Zumix and Piers Park Sailing Center as these are very important local organizations.		
Anthony Cherry	**1/9/18**	
I strongly, strongly oppose any further development of East Boston unless it can be wholly assured that such development would benefit the people already living here. In the last few years or so, development of East Boston has resulted in heart-breaking gentrification and skyrocketing housing costs that make it impossible for low-income people, people of color, and immigrant communities to continue living here. This is problem faced all across Boston. Some changes I would suggest: 1. We definitely do not need an office building because that will only invite more white collar workers into East Boston, pushing current residents out. 2. Any new residential area should have a substantial amount (at least half) of apartments/units/whatever set aside for low income people, especially low-income people who have lived in East Boston for years but cannot continue to pay rent at their current home. "Low-income" should be more strictly defined than it is across the rest of Boston. There's a building in downtown Boston that defines "low-income" as making less than $70,000 a year. The median income of the United States is less than $60,000. $70,000 cannot be low income. 3. Any new marketplaces should do their best to reflect the makeup of East Boston, and current residents of East Boston should be given priority in buying/renting them. That way, we can avoid the gentrifying nature of development. Unless all of these parameters are met, I cannot and will not support this plan. It's awful and it's a shame what's happening to East Boston. It's heartbreaking to watch a neighborhood that has historically had such a vibrant culture (especially a vibrant immigrant culture) fall apart. Mayor Walsh would do well to actually support the people of Boston. Thank you for reading.		
Elisabeth L. Daley	**1/16/18**	
I live in Lynn and work in Quincy and I drive or use transit to get to work. I am super concerned about traffic in the Suffolk Downs area. Every day, during and outside of rush hour, it is bumper to bumper, crawling along. A new development at Suffolk downs is only going to add to what is already a bad situation. Please make sure that any development MUST include road enhancements and incentives for use of transit, NOT incentives for owning and using a car. Contributions to extending the Blue Line to Lynn would be excellent, as (when completed) use of the Blue Line by Lynners and others would go a long way to limit automobile use into Boston from this area. Thank you.		
NK Acevedo	**1/17/18**	
I used to live at Beachmont & am happy to see the horse track leave. I am not happy if you make luxury condos & don't have anything that is affordable for people making less than $50k/yr.		
Derek Edwards	**1/29/18**	
Please include high quality bicycle linkages (bike paths, bike lanes, etc.) to all surrounding neighborhoods. Please encourage surrounding neighborhoods to expand their bike facilities as well. East Boston and Revere should have much higher-quality bicycle infrastructure than they currently do. This large project, that spans both of those cities, can push the needle in the right direction for creating safe and practical bicycle infrastructure. Also, don't forget a Hubway station (or two)!		
Maure Aronson	**1/29/18**	**World Music/CRASHarets**
A recent study completed by the City of Boston draws attention to the dire need for artist rehearsal and		

052-001

Refer to Chapter 1, *Project Description and Alternatives,* for a summary of public benefits associated with the Master Plan Project.

052-002

As discussed in Chapter 3, *Urban Design*, a key project goal of the Master Plan Project is to offer a dynamic mix of uses to enhance and expanding job creation and economic opportunity, as well as new housing. This goal is consistent with both cities' redevelopment plans.

052-003

The Master Plan Project provides a significant amount of new housing, including affordable units on-site meeting the City of Boston's Inclusionary Development Policy requirements.

052-004

The Proponent is committed to making up to 10% of retail space across the Master Plan Project available with flexible lease terms for promising local businesses from East Boston and Revere. Refer to Chapter 3, Urban Design, for a description of the proposed retail strategy.

052-005

Thank you for your comment. Please refer to Chapter 6, *Transportation*, for a discussion of the Proponent's Transportation Demand Management (TDM) Plan and for proposed mitigation measures developed to incentivize transit use.

052-006

The Master Plan Project provides the opportunity for a significant amount of new housing, including affordable units on-site meeting the City of Boston's Inclusionary Development Policy requirements.

	Name	Date	Organization
052-008	performance space in Boston. I encourage the developers to include affordable rehearsal space for Boston's theater and dance community. I also encourage the developers to plan for an outdoor concert venue with a capacity of 1000-1500 which will make Suffolk a summer destination.		
	Jason Kaplan	**1/29/18**	
	I support this project as proposed.		
	Maggie Simeone	**1/29/18**	
052-009	Bicycle infrastructure should be an integral part of the design. Please prioritize creating protected bike lanes to this location, as it would benefit both the businesses in this development as well as the residents of East Boston.		
	Gary Dunning	**1/30/18**	**Celebrity Series of Boston**
052-010	As the President and Executive Director of Celebrity Series of Boston, I am writing to recommend that the BPDA give strong consideration to the arts and cultural component of any plan submitted for the Suffolk Downs development project. The City and the BDPA demonstrated a laudable commitment to the creative sector in two recent developments: Seaport Square and 252-264 Huntington Avenue projects. In both cases, the BPDA responded to specific needs identified by the arts sector as well as by the City's own, detailed Facility Needs Assessment. I would urge that the Suffolk Downs developer be required to respond to how their project would help solve the needs identified in the City's study. While the response in the other two projects focused on performing arts venues, the City's study also identified rehearsal space, artist spaces and artists' live/work spaces as facilities essential to a healthy and vibrant city that are currently lacking in Boston.
052-011	I would urge the developer to engage with the arts community to assess, from their own perspective, the cultural needs of the city and to include some proposed solutions in their subsequent development plans. BPDA has already demonstrated that such dialogue and research can lead to mutually beneficial and exciting enhancements to development projects. Founded in 1938, Celebrity Series has established itself as the largest and preeminent non-profit presenting organization in New England. Excellence, innovation, and agility are at the core of who we are and what we do. Collaboration is embedded in our organizational DNA. Over eight decades, Celebrity Series has gained the trust of audiences and artists, and developed a reputation for artistic excellence with programmatic diversity. With over sixty-five annual main stage performances in eight to ten different performance halls and over 150 annual community engagement events throughout the Boston area as part our Arts for All! program, Celebrity Series is now a crucial part of the cultural fabric of Boston, introducing audiences to new artists, new art forms, and new artistic experiences. Without Celebrity Series, Bostonians would have to travel to New York City, London, Paris, Shanghai or other cultural capitals to see the quality and variety of artists that regularly appear on our roster. I applaud the work of the BPDA and urge you to continue to include arts and cultural as beneficial components of large scale development projects such as Suffolk Downs.		
	Tania Del Rio	**2/1/18**	**City of Boston**
052-012	So far, the information about this project that we learned from HYM during the Eagle Hill Civic Association meeting and in the information provided by the BPDA is encouraging and welcome. The rendering looks great and I welcome the focus on transit-oriented development. My input for this huge project would be: 1) Consider including an outdoor public aquatic facility in one of the open space sections of the project. Pools like the Mirabella in the North End are a tremendous community resource as a place for recreation for people of all ages, they encourage healthy living, and promote community building. As a neighborhood with a rich maritime history, such a facility could be a space to celebrate this heritage. Eastie only has one indoor pool, at the Paris St. Community Center. In the summer, the only outdoor alternative is Constitution Beach, but it does not allow for a swim team or fitness swimming. I think this would be a tremendous addition to the
052-013	neighborhood. Aquatic facilities also add to the area's resilience as climate changes. 2) Green spaces. No need to explain why these add value in many ways. Please do not over-develop. Also, the NOAH affiliated youth
052-014	have raised awareness about the dire shortage of trees in East Boston. Tree canopy is important to avoid heat islands, which affect our seniors, and it is BEAUTIFUL. Please consider investing in tree planting on this site and also in the rest of the neighborhood when you consider mitigation investments.

052-007

Refer to Chapter 6, *Transportation.*

052-008

Refer to Chapter 3, *Urban Design.* The Central Common includes an outdoor performance theatre. The Proponent will continue to work with the BPDA, City of Revere, and community on how best to integrate civic and/or community spaces in the Master Plan Project.

052-009

Refer to Chapter 6, *Transportation.*

052-010

Refer to Chapter 3, *Urban Design.* The 40-acre open space network includes an outdoor performance theatre. The Proponent will continue to work with the BPDA, City of Revere, and community on how best to integrate civic and/or community spaces in the Master Plan Project.

052-011

Refer to Chapter 3, *Urban Design,* for a description of proposed civic/community spaces within the open space network. The 40-acre open space network includes an outdoor performance theatre. The Proponent will continue to work with the BPDA, City of Revere, and community on how best to integrate civic and/or community spaces in the Master Plan Project.

052-012

A very robust tree canopy plan is being implemented as part of the master plan. See Chapter 3, *Urban Design*, for additional detail.

Name	Date	Organization
Luz Zambrano	2/2/18	CSIO
I oppose the idea of just creating a mega project that is not going to really benefit the most marginalized and disadvantage people in East Boston. People are being displaced in a daily basis. People of color have being displaced in alarm #s but doesn't seem that the developers or the city are concern about this. Immigrants in particular have sustained and helped develop Boston neighborhoods for decades but now with the rapid development of East Boston even the ones that say they are building affordable housing.. they are not... because the question is affordable for whom? Do you think this mega project in Suffolk Downs can invest some of its profits in projects that really help move all of us forward. In my neighborhood, East Boston, we are trying to find a little lot to create cooperative housing but just getting info from the city about this or to have anybody willing to seat with us and talk about this idea is out of our reach. Please do not forget the poor and invest in them. Thanks:)		
Matthew Barison	2/2/18	
I support this project, but I have a few caveats. I think the project team has done a great job designing the site to take advantage of natural resources, such as the creek, pond, and green space. I hope that their commitment to 25% green space can be memorialized and enforced. However, I am concerned that in all the space, not one parcel has been set aside for non-commercial community use. While outdoor walking paths are nice, the truth of the matter is that in this climate, year-round indoor space is necessary. I would implore the BPDA to insist that the developer set aside one to three parcels on the site purely for non-commercial community use. Amenities that would benefit the community include: a performing arts theater and black box, a community recreation center (gym and pool), and art gallery/event space. Reserving some 2nd floor spaces above stores is not sufficient. In addition to community uses, I hope to see some civic space at the site, such as a school, post office, police station, or adult educational center. As Boston will apparently be shouldering most if not all of the residential development, allotting space for a new PUBLIC school (something East Boston desperately needs anyway) would be a wonderful gesture. There is a great need for a middle school and a vocational technical high school. Furthermore, I would request that the BPDA work with the proponents of this project and the Walley St. development by the Suffolk Downs MBTA station to preserve the old streetcar tracks on Walley St. I have suggested that the Suffolk Downs development incorporate an internal circulator; while a bus would suffice, a streetcar would be a real place maker. East Boston used to have a lot of streetcar routes, and one connecting Suffolk Downs and Beachmont, through the project site, would be a wonderful addition.		
Catherine Peterson	2/2/18	ArtsBoston
On behalf of ArtsBoston, Greater Boston's largest arts service organization and a leading champion for the power of arts and culture to transform communities, I writing to encourage the Boston Planning and Development Agency to prioritize the inclusion of an arts and cultural component in any plan submitted for the redevelopment of Suffolk Downs. Among ArtsBoston?s core constituencies are our 175 arts member groups, which cross all budget sizes and disciplines. We also help the broader arts sector raise awareness of performances, events, and other arts and culture experiences that are happening in every corner of the City and the Greater Boston region. From this work, we know how important arts and culture activity is to a vibrant sense of community and place, and how the inclusion of cultural facilities in development plans can catalyze incredible, positive change and growth in a neighborhood. In our 2014 cultural impact report, The Arts Factor, we used as a case study the story of the development of the Stanford Calderwood Pavilion at the Boston Center for the Arts as a perfect example of the transformative power of cultural facilities development. From this perspective, we are very pleased that the City and BDPA have embraced similarly ambitious plans that integrate arts and cultural facilities for the 252-264 Huntington Avenue and Seaport Square projects. In both cases, the BPDA responded to specific needs identified by the arts sector as well as by the City's own, detailed Facility Needs Assessment. As proposals are solicited for Suffolk Downs, I would encourage the BPDA to apply these same recommendations. The Seaport and Huntington Avenue projects do indeed address the need for more performing arts venues, but there are still many outstanding challenges, including a lack of artists' live/work space, rehearsal space, and studio spaces. A healthy arts infrastructure will have all of these kinds of facilities, and if Boston is to build a truly sustainable arts and culture ecosystem,		

052-015

052-016

052-017

052-018

052-013

Currently a public pool is not planned as part of the Open Space system. Refer to Chapter 3, *Urban Design,* for a description of civic and community amenities included within the proposed open space plan.

052-014

Refer to Chapter 3, *Urban Design.*

052-015

The Master Plan Project will meet the requirements of the City of Boston's Inclusionary Housing Policy by providing a significant number of affordable housing units on-site. In addition, 10% of the retail space will be made available with flexible lease terms for promising local businesses from East Boston and Revere. Refer to Chapter 1, *Project Description and Alternatives*, for additional public benefits associated with the Master Plan Project, including increased property tax revenue.

052-016

Refer to Chapter 3, *Urban Design.*

052-017

Refer to Chapter 3, *Urban Design.*

052-018

Thank you for your comment. Please refer to Chapter 6, *Transportation*, for a discussion of the proposed site circulator shuttle services.

Name	Date	Organization
we need the City and the BPDA to take the lead on making them happen. I look forward to engaging both our ArtsBoston team as well as our arts member groups in a generative conversation with the Suffolk Downs developer so that it can better understand the need for and value of including arts and cultural facilities in its plans, and perhaps explore some new ideas that can help fill in the gaps that remain unaddressed by the existing projects. Thank you for the work that the BPDA has already accomplished and for your continued attention to the critical role that the arts and culture sector can and should play as we transform our City through creative redevelopment projects like Suffolk Downs.		
Magdalena Ayed	**2/2/18**	**Harborkeepers**
Thank you for the opportunity to provide comments on the Suffolk Downs redevelopment project Master Plan. While I note that HYM Investments made a good faith effort in a fair community process, it isn't enough to assure wholistic community engagement regarding what they are proposing and how their development plans interplay with the City of Boston's Amazon bid. As the leader of an environmental advocacy organization, The Harborkeepers, I have the opportunity to work on environmental impacts closely with community and especially with respect to waterfront and Harbor issues. While I see and promote opportunities to collaborate to mitigate impacts, I also see how environmental impacts affect our community. East Boston suffers a disproportionate amount of impacts of a socio-economic and environmental nature. Our neighborhood is a hub for many things: an airport, ground transportation, industrial terminals, a gateway for new immigrants and now a rapid luxury development phase, all factors that cumulatively through the years until today has caused displacement, environmental and transportation degradation and economic fragility and disparities, public health impacts; impacts which remain a threat to socio-economically challenged populations in East Boston today. Clearly, the existing Suffolk Downs racetrack and facilities do not offer any opportunities for growth in its current state and hence, I welcome any opportunities for growth and development that will improve the neighborhoods character, infrastructure, public safety, climate resiliency and adaption, environmental quality, economic opportunities and so forth. My concern is that the opportunitites that will be created will remain for those who are already well-suited to benefit. Many entrepeneurs, wealthier residents and businesses will be from outside of East Boston. As an environmental justice community, as is designated by the Commonwealth, our communities are already 'behind the 8 ball', meaning we are at a disadvanatage. This means existing residents may not have the buying power to purchase property from any of the housing development that may arise at Suffolk Downs nor they may not necessarily be able to live there, given there will only be a minimum committment of 12% affordable housing, nor may they even perhaps have disposable wealth or credit to invest in a business, leaving the local business community at a disavantage over other regional business profiteers who may easily have the resources to rent, lease, purchase property and establish business ventures. Furthermore, based on documents I have read, I am really concerned about lack of ground transportation mitigation proposed to accomodate for the proposed number of trips. According to the MEPA document on Project Size and Environmental Impacts, footnote #4 proposes that the adjusted DAILY vehicular trip estimate is over 32,000		
Indira Garmendia	**2/2/18**	**Centro Cooperativo de Desarrollo y Solidaridad**
Nuestra preocupación con el proyecto es sobre la accesibilidad de la vivienda en East Boston para la comunidad inmigrante de bajo ingreso residente en East Boston. Cómo este proyecto realmente va a apoyar la crisis de vivienda que esta pasando East Boston? Cuáles son los beneficios concretos que van a recibir los residentes de East Boston con la construcción de este mega proyecto, tomando encuenta que aumentará el tráfico vehicular, habrá más personas consumiendo servicios públicos, contaminación en el ambiente por la construcción: Ruido y polvo?		
Cyrus Tehrani	**2/2/18**	
I would like to voice my full support for this project and, in particular, the housing density of the master plan. We're in the midst of a housing crisis and should be building 7,500 units at a minimum, depending on Amazon's choice. Though I am not an East Boston resident (I reside in South Boston), this project positively affects the affordability of housing across the city considering the scope of additional housing supply it will add to the market. 7,500 units is more units than than the city approved across all neighborhoods in 2017 and		

052-019

052-019

The *Imagine Boston 2030* plan identifies Suffolk Downs as one of the key sites that could create new housing for the City of Boston as creative reuse of a currently underutilized former horse racing facility. The Master Plan Project presents a unique opportunity that can materially add to the housing stock in East Boston. The Master Plan Project will create new affordable housing units on-site, in compliance with the Boston Inclusionary Development Policy requirements.

El plano de *Imagine Boston 2030* identifica a Suffolk Downs como uno de los sitios claves que podrían crear nuevas viviendas para la Ciudad de Boston como una forma creativa de reutilizar la instalación de carrera de caballos que actualmente se encuentra infrautilizada. El Proyecto de Plan Maestro presenta una oportunidad única que puede agregar materialmente a la provisión de viviendas en East Boston. El Proyecto de Plan Maestro creará nuevas unidades de viviendas asequibles en el lugar, conforme a los requerimientos de la Política de Desarrollo Inclusivo de Boston.

Name	*Date*	*Organization*
represents 12% of the city's goal to build 59,000 new units by 2029. That's why this project is so important to every Bostonian. This project also eases the pressure on low income vulnerable communities across Boston who are currently being displaced due to our low housing supply. 1,000 IDP units as well as the market rate units will truly help affordability for all Bostonians across every income level. I hope that you approve the master plan as proposed.		
Glynece Kokkalis	**2/3/18**	
Attended the Tuesday 1/30/18 meeting at Suffolk Downs. Heard a lot of good things. Is there any similar projects comparable to this Master Plan currently in progress any where in the country. It would be interesting to me to look at that. Traffic is a major concern to all us. Please let the Revere and East Boston communities know what we can do to help lead the charge on a state and federal level to improve the North Shore commute on a Daily basis. I have worked in the luxury apartment industry in Boston for the last 5 years. Projections of smaller cars, usage of zip cars and the like have been over estimated and new residents will still use their cars a lot. In fact the number of parking spaces have became less along with the atual size of spaces in garages and dissatisfaction in a lot of the newer communities. Please make sure the communities residents are involved in the every day use of this project. YMCA, Meeting facilities, Historic component how about a History Museum/ A Maratime Museum....there are none in Boston. Community Gardens where students can manage and learn... also feature the arts with community participation. I love to be an active participant in this project and have taken a sabbatical from work and would love to help any way I can.		

052-020

052-021

052-020

Refer to Chapter 6, *Transportation.*

052-021

Refer to Chapter 3, *Urban Design.*

Appendix A: MEPA DEIR Distribution List

Appendix A: DEIR Distribution List

Commonwealth of Massachusetts

Secretary Matthew A. Beaton
Executive Office of Energy and
Environmental Affairs
Attn: MEPA Office
100 Cambridge Street, Suite 900
Boston, MA 02114

Commissioner Martin Suuberg
Department of Environmental Protection,
One Winter Street
Boston, MA 02108

DEP/Northeast Regional Office
Attn: MEPA Coordinator
205B Lowell Street
Wilmington, MA 01887

DEP/Northeast Regional Office
Surface Water Permitting (NPDES)
Attn: Kevin Brander
205B Lowell Street
Wilmington, MA 01887

DEP/Northeast Regional Office
Wetlands
Attn: Rachel Freed
205B Lowell Street
Wilmington, MA 01887

Massachusetts Department of
Transportation
Public/Private Development Unit
Attn: Lionel Lucien
10 Park Plaza
Boston, MA 02116

Massachusetts Department of
Transportation – District #6
Attn: MEPA Coordinator
185 Kneeland Street
Boston, MA 02111

Massachusetts Historical Commission
Attn: Brona Simon
The MA Archives Building
220 Morrissey Boulevard
Boston, MA 02125

Metropolitan Area Planning Council
60 Temple Place, 6th Floor
Boston, MA 02111

Coastal Zone Management
Attn: Erin Flaherty
251 Causeway Street, Suite 800
Boston, MA 02114

Division of Marine Fisheries
Attn: David E. Pierce
251 Causeway Street, Suite 400
Boston, MA 02114

Department of Conservation and
Recreation
Attn: Leo Roy
251 Causeway St. Suite 600
Boston MA 02114

Department of Energy Resources
Attn: Paul F. Ormond
100 Cambridge Street, Suite 1020
Boston, MA 02114

Massachusetts Water Resources Authority
Attn: Marianne Connolly
100 First Avenue, Building 39
Charlestown Navy Yard
Boston, MA 02129

Massachusetts Bay Transportation Authority
Attn: MEPA Coordinator
10 Park Plaza, 6th Fl.
Boston, MA 02116-3966

Massachusetts Bay Transportation Authority
Attn: Andrew D. Brennan
10 Park Plaza, Suite 3910
Boston, MA 02116

Massachusetts Port Authority
Attn: Gordon M. Carr
One Harborside Drive, Suite 200S
East Boston, MA 02128-2909

City of Boston

Boston City Council
One City Hall Square, 5th Floor
Boston, MA 02201

Boston Planning & Development Agency
Attn: Brian P. Golden, Director
One City Hall Square, 9th Floor
Boston, MA 02201

Boston Conservation Commission
One City Hall Square, Room 805
Boston, MA 02201

Boston Public Health Commission
Attn: Monica Valdes Lupi
1010 Massachusetts Avenue
Boston, MA 02118

Chief of Environment, Energy & Open Space
One City Hall Square, Room 709
Boston, MA 02201

Chief of Economic Development
Attn: John Barros
One City Hall Square, 9th Floor
Boston, MA 02201

Boston Transportation Department
One City Hall Square, Room 721
Boston, MA 02201

Boston Department of Public Works
One City Hall Square, Room 714
Boston, MA 02201

Boston Landmarks Commission
One City Hall Square, Room 805
Boston, MA 02201

Boston Water and Sewer Commission
Attn: John P. Sullivan
980 Harrison Avenue
Boston, MA 02119

Boston Public Library
700 Boylston Street
Boston, MA 02116

Boston Public Library
East Boston Branch
365 Bremen Street
East Boston, MA 02128

City of Revere

Mayor Brian Arrigo
City of Revere
281 Broadway
Revere, MA 02151

City Council
City of Revere
Attn: Ashley E. Melnik
281 Broadway
Revere, MA 02151

Revere Economic Development Department
Attn: Robert O'Brien
281 Broadway
Revere, MA 02151

Revere Planning Board
Attn: Frank Stringi, City Planner
281 Broadway
Revere, MA 02151

Revere Conservation Commission
City Hall, Mezzanine Level
Attn: Andrew B. DeSantis
281 Broadway
Revere, MA 02151

Revere Department of Public Works
Attn: Donald Goodwin
321 Charger Street Rear
Revere, MA 02151

Revere Health Department
281 Broadway
Revere, MA 02151

Revere Public Library
179 Beach Street
Revere, MA 02151

Other Interested Parties

Metropolitan Area Planning Council
Attn: Marc D. Draisen
60 Temple Place
Boston, MA 02111

Conservation Law Foundation
Attn: Deanna Moran
62 Summer Street
Boston, MA 02110

Boston Harbor Now
Attn: Jill Valdes Horwood
15 State Street, Suite 1100
Boston, MA 02109

WalkBoston
Attn: Wendy Landman
45 School Street
Boston, MA 02108

Mystic River Watershed Association
Attn: Patrick Herron
20 Academy Street, Suite 306
Arlington, MA 02476-6401

GreenRoots
Attn: John Walkey
227 Marginal Street, Suite 1
Chelsea, MA 02150

Residents:

Stephen H. Kaiser
Kannan Thiruvengadam
Andee Krasner
Bart DeWolf
Lucy DeWolf

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Appendix B: BPDA Checklists

boston planning & development agency

Climate Resiliency Checklist

NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

A.1 - Project Information

Project Name:	**Suffolk Downs Redevelopment**			
Project Address:	**525 William F McClellan Highway, Boston, MA 02128**			
Project Address Additional:				
Filing Type (*select*)	*Initial (PNF, EPNF, NPC or other substantial filing -* **DPIR***)* *Design / Building Permit (prior to final design approval), or* *Construction / Certificate of Occupancy (post construction completion)*			
Filing Contact	**Doug Manz**	**The HYM Investment Group, LLC**	**dmanz@hyminvestments.com**	**617.248.2378**
Is MEPA approval required	***Yes****/no*		*Date* **DEIR filed jointly with DPIR**	

A.3 - Project Team

Owner / Developer:	**The McClellan highway Development Company, LLC c/o The HYM Investment Group, LLC**
Architect:	**CBT Architects**
Engineer:	**AKF**
Sustainability / LEED:	**ARUP**
Permitting:	**VHB**
Construction Management:	**HYM**

A.3 - Project Description and Design Conditions

List the principal Building Uses:	**Residential, Office, Lab, Commercial, Retail, Hotel**
List the First Floor Uses:	**Active Public Uses, Residential, Parking**
List any Critical Site Infrastructure and or Building Uses:	No critical buildings are planned.

Site and Building:

Site Area:	**161 Acres (Total) 109 Acres (Boston)**	Building Area:	**16.5 MSF (Total) 11 MSF (Boston)**
Building Height:	***50-220 Ft.***	Building Height:	***Varies (Stories)***
Existing Site Elevation – Low:	**2.5 Ft BCB**	Existing Site Elevation – High:	**49 Ft BCB**
Proposed Site Elevation – Low:	**2.5 Ft BCB**	Proposed Site Elevation – High:	**49 Ft BCB**
Proposed First Floor Elevation:	**20.5 – 21.5 Ft BCB**	Below grade levels:	**Yes / 1-2 levels**

Article 37 Green Building:

LEED Version - Rating System:	**Various rating systems; Version4**	LEED Certification:	**Yes** */ No*
Proposed LEED rating:	*Certified/***Silver/ Gold/Platinum**	Proposed LEED point score:	**Varies by Building Typology** *Pts.*

Refer to Section 4.4 of Chapter 4, *Sustainability/Green Building*, of this DEIR/DPIR for a discussion of compliance with Article 37.

Building Envelope

When reporting R values, differentiate between R discontinuous and R continuous. For example, use "R13" to show R13 discontinuous and use R10c.i. to show R10 continuous. When reporting U value, report total assembly U value including supports and structural elements.

Envelope values vary by building typology. Refer to Section 7.3.2 of Chapter 7, *Greenhouse Gas Emissions Assessment*, of this DEIR/DPIR for the envelope values by building typology.

Roof:	**Varies** *(R)*	Exposed Floor:	**Varies** *(R)*
Foundation Wall:	**Varies** *(R)*	Slab Edge (at or below grade):	**Varies** *(R)*

Vertical Above-grade Assemblies (%'s are of total vertical area and together should total 100%):

Area of Opaque Curtain Wall & Spandrel Assembly:	**Varies** *(%)*	Wall & Spandrel Assembly Value:	**Varies** *(U)*
Area of Framed & Insulated / Standard Wall:	**Varies** *(%)*	Wall Value	**Varies** *(R)*
Area of Vision Window:	**Various** *%*	Window Glazing Assembly Value:	**Varies** *(U)*
		Window Glazing SHGC:	**Varies** *(SHGC)*
Area of Doors:	**Varies** *%*	Door Assembly Value:	**Varies** *(U)*

Energy Loads and Performance

For this filing – describe how energy loads & performance were determined	**Preliminary energy modeling for eight building typology models was conducted using IES-VE software version 2017. Calculations were conducted for peak loads.**		
Annual Electric:	**131,197,906 kWh**	Peak Electric:	**55,903 kW**
Annual Heating:	**282.42 MMbtu/hr**	Peak Heating:	**265.05 MMbtu**
Annual Cooling:	**4,536 Tons/hr**	Peak Cooling:	**29,608 Tons**
Energy Use - Below ASHRAE 90.1 - 2013:	**20.9% Master Plan Project (with parking)**	Have the local utilities reviewed the building energy performance?:	*Yes /* **No**
Energy Use - Below Mass. Code:	**20.9% Master Plan Project (with parking)** **19.4% Master Plan Project (without parking)**	Energy Use Intensity:	**39.8 kBtu/SF Master Plan Project (with parking)** **52.9 kBtu/SF Master Plan Project (without parking)**

Back-up / Emergency Power System

Electrical Generation Output:	8.8 MW	Number of Power Units:	22
System Type:	Diesel	Fuel Source:	Mix of natural gas and diesel

Emergency and Critical System Loads (in the event of a service interruption)

No critical systems are planned for the Master Plan Project.

Electric:	*(kW)*	Heating:	*(MMbtu/hr)*
		Cooling:	*(Tons/hr)*

B – Greenhouse Gas Reduction and Net Zero / Net Positive Carbon Building Performance

Reducing GHG emissions is critical to avoiding more extreme climate change conditions. To achieve the City's goal of carbon neutrality by 2050 new buildings performance will need to progressively improve to net carbon zero and positive.

B.1 – GHG Emissions - Design Conditions

For this Filing - Annual Building GHG Emissions: 70,747 Tons Master Plan Project (without parking)
72,554 Tons Master Plan Project (with parking)

For this filing - describe how building energy performance has been integrated into project planning, design, and engineering and any supporting analysis or modeling:

Early phase energy modeling has been conducted to review the proposed design performance and alternative design scenarios have been explored for each building typology. Benchmarking of building window to wall ratios and energy performance has also been completed in developing the proposed designs for each building typology. Passive House performance has also been investigated and modeled for multi-family residential building typology. Refer to Ch. 7 of the DPIR for details on the energy modeling results.

Describe building specific passive energy efficiency measures including orientation, massing, envelop, and systems:

Passive strategies include self-shading of buildings to reduce solar exposure. Roof and slab (unconditioned to conditioned space) insulation values exceed minimum code requirements and vary from R-40 to R-50 for roof and R-35 for slab. Glazing thermal performance exceeds prescriptive code values for U-value and solar heat gain coefficient. A combination of green roof and roof mounted photovoltaic systems are being considered to enhance thermal performance and/or generate carbon free electricity on site. As part of the long-term sustainability plan, the Proponent has committed to reviewing the massing of the tower as each parcel develops to enhance solar exposure while balancing other factors, such as views.

Describe building specific active energy efficiency measures including equipment, controls, fixtures, and systems:

Active system strategies vary per building typology and have been discussed in detail in Chapter 7 of the DPIR. In general, efficiency measures include high efficiency condensing boilers, chiller plants with VFDs, dedicated outdoor air systems with energy recovery, LED lighting, and lighting controls. Refer to Chapter 7 of the DPIR for proposed energy efficiency measures and efficiency results.

Describe building specific load reduction strategies including on-site renewable, clean, and energy storage systems:

A district energy feasibility study has been conducted as well as building level solar photovoltaic, and combined heat and power (CHP) analysis for hotel and residential typologies. As part of the long-term sustainability plan, the Proponent has committed to assessing energy storage opportunities as each parcel develops and reviewing the HVAC system strategy for a building typology to reduce scope 1 emissions related to on-site combustion. All electric buildings are net zero ready such that the supply of electricity is carbon free.

Describe any area or district scale emission reduction strategies including renewable energy, central energy plants, distributed energy systems, and smart grid infrastructure:

The Proponent has conducted feasibility analyses of various on-site clean/renewable energy sources, including a district energy/microgrid system, rooftop solar PV systems, CHP systems and wind. Refer to Section 7.3.6 of Chapter 7, *Greenhouse Gas Emissions Assessment*, of this DEIR/DPIR

Describe any energy efficiency assistance or support provided or to be provided to the project:

Based on preliminary meetings with utilities, the Proponent is aware of potential incentives, which will likely change over the 15- to 20-year build out of the Master Plan Project. A discussion of current energy efficiency and renewable energy programs that the Proponent intends to leverage follows. Refer to Section 7.3.7 of Chapter 7, *Greenhouse Gas Emissions Assessment*, of this DEIR/DPIR

B.2 - GHG Reduction - Adaptation Strategies

Describe how the building and its systems will evolve to further reduce GHG emissions and achieve annual carbon net zero and net positive performance (e.g. added efficiency measures, renewable energy, energy storage, etc.) and the timeline for meeting that goal (by 2050):

The Master Plan Project has provided a long-term sustainability plan in Ch4 of the DPIR outlined by transportation, buildings and waste. The Proponent has committed to LEED certify Master Plan Project buildings at varying ranges from Silver to Platinum.

A solar PV analysis has also been provided in Ch. 7, *Greenhouse Gas Emissions Assessment*, of this DEIR/DPIR indicating a 11.5-year payback and will be studied further are parcels are developed. Energy storage systems will also be studied for a particular building as this technology is anticipated to advance significantly within the next 5 years. HVAC systems will also be further reviewed as parcels develop to explore emerging technologies and all-electric systems to be positioned as net zero ready. Energy efficiency measures are discussed in detail in Ch 7 of the DPIR, as well as Section B.1 above.

C - Extreme Heat Events

Annual average temperature in Boston increased by about 2˚F in the past hundred years and will continue to rise due to climate change. By the end of the century, the average annual temperature could be 56° (compared to 46° now) and the number of days above 90° (currently about 10 a year) could rise to 90.

C.1 – Extreme Heat - Design Conditions

Temperature Range - Low:	0 Deg.	Temperature Range - High:	95 Deg.
Annual Heating Degree Days:	5512	Annual Cooling Degree Days	776

What Extreme Heat Event characteristics will be / have been used for project planning

Days - Above 90°:	30	Days – Above 100°:	2
Number of Heatwaves / Year:	3-5	Average Duration of Heatwave (Days):	3

Describe all building and site measures to reduce heat-island effect at the site and in the surrounding area:

The Master Plan Project will reduce heat island impacts through the use of green space and trees throughout the Project Site in addition to hardscape materials with low solar reflectance, and use of a combination of a white membrane and green roof. Shade is also provided to further reduce heat island impacts across the Project Site.

C.2 - Extreme Heat – Adaptation Strategies

Describe how the building and its systems will be adapted to efficiently manage future higher average temperatures, higher extreme temperatures, additional annual heatwaves, and longer heatwaves:

Increases in extreme heat are predicted as early as 2030, which is within the first equipment lifecycle for the Project. As such, the future buildings are being designed for higher peak cooling and heating temperatures (95F cooling and 0F heating) compared to ASHRAE Fundamentals design temperatures at initial construction. As equipment is replaced at end of life, increasing cooling and/or heating capacity will also be evaluated. Additionally, maintenance projects, such as roof replacements at end of life will evaluate increasing insulation for enhanced thermal performance.

Describe all mechanical and non-mechanical strategies that will support building functionality and use during extended interruptions of utility services and infrastructure including proposed and future adaptations:

Resilient building design strategies that are currently incorporated into building design for the Master Plan Project include: raising critical electrical and mechanical equipment above ground floor elevation; operable windows; backflow preventers; and HVAC systems sized for higher peak cooling and heating days. As design advances for each development phase and/or individual building with the goal of being shelter in place for residential buildings, the Proponent and design team may consider additional potential measures, where feasible. Such measures may include increased generator loads to maintain some portion of heating and ventilation operations, domestic water pumps and/or additional common area electricity for plug loads.

D - Extreme Precipitation Events

From 1958 to 2010, there was a 70 percent increase in the amount of precipitation that fell on the days with the heaviest precipitation. Currently, the 10-Year, 24-Hour Design Storm precipitation level is 5.25". There is a significant probability that this will increase to at least 6" by the end of the century. Additionally, fewer, larger storms are likely to be accompanied by more frequent droughts.

D.1 – Extreme Precipitation - Design Conditions

10 Year, 24 Hour Design Storm:	6 In.

Describe all building and site measures for reducing storm water run-off:

Where feasible, roof runoff will be directed to cisterns where it can be reused as irrigation water for the proposed landscape elements, particularly in the central common, located between Sales Creek and the Horseshoe Pond in the east-central portion of the Project Site. The extensive street tree network will be designed as a filtration system to provide treatment for sidewalk and plaza runoff. Pocket rain gardens/ biofiltration systems will potentially be sited within plaza areas, and/or within the roadway network system. It is also important to note that many of the buildings will incorporate green roofs into a portion of the roof areas, thereby reducing impervious surfaces across the Project Site.

D.2 - Extreme Precipitation - Adaptation Strategies

Describe how site and building systems will be adapted to efficiently accommodate future more significant rain events (e.g. rainwater harvesting, on-site storm water retention, bio swales, green roofs):

On-site retention systems & ponds, infiltration galleries & areas, vegetated water capture systems and vegetated roofs. Refer to Section 3.9.3 of Chapter 3, *Urban Design,* and Chapter 8, *Climate Change Resiliency*, of this DEIR/DPIR for site and building adaptation strategies.

E – Sea Level Rise and Storms

Under any plausible greenhouse gas emissions scenario, sea levels in Boston will continue to rise throughout the century. This will increase the number of buildings in Boston susceptible to coastal flooding and the likely frequency of flooding for those already in the floodplain.

Is any portion of the site in a FEMA SFHA?	**Yes** / *No*	What Zone:	A, **AE**, AH, AO, AR, A99, V, VE
		Current FEMA SFHA Zone Base Flood Elevation:	**16.5 – 17.5 Ft BCB**

Is any portion of the site in a BPDA Sea Level Rise - Flood Hazard Area? Use the online BPDA SLR-FHA Mapping Tool to assess the susceptibility of the project site.	**Yes** / *No*

If you answered YES to either of the above questions, please complete the following questions.
Otherwise you have completed the questionnaire; thank you!

E.1 – Sea Level Rise and Storms – Design Conditions

Proposed projects should identify immediate and future adaptation strategies for managing the flooding scenario represented on the BPDA Sea Level Rise - Flood Hazard Area (SLR-FHA) map, which depicts a modeled 1% annual chance coastal flood event with 40 inches of sea level rise (SLR). Use the online BPDA SLR-FHA Mapping Tool to identify the highest Sea Level Rise - Base Flood Elevation for the site. The Sea Level Rise - Design Flood Elevation is determined by adding either 24" of freeboard for critical facilities and infrastructure and any ground floor residential units OR 12" of freeboard for other buildings and uses.

Sea Level Rise - Base Flood Elevation:	**19.3 – 19.5 Ft BCB**		
Sea Level Rise - Design Flood Elevation:	**20.3 – 21.5 Ft BCB**	First Floor Elevation:	**20.5 – 21.5 Ft BCB**
Site Elevations at Building:	**Varies Ft BCB**	Accessible Route Elevation:	**Varies Ft BCB**

Describe site design strategies for adapting to sea level rise including building access during flood events, elevated site areas, hard and soft barriers, wave / velocity breaks, storm water systems, utility services, etc.:

To reduce the risk of future flooding, the site has been designed with approximately 2 to 4 feet of fill to raise site grades from the existing average elevation of 17.1± (Boston City Base). Proposed roadways and building first floor elevations are proposed to be higher than the 2070 1% probability flood elevation.

Describe how the proposed Building Design Flood Elevation will be achieved including dry / wet flood proofing, critical systems protection, utility service protection, temporary flood barriers, waste and drain water back flow prevention, etc.:

Hardened / Resilient Ground Floor Construction, temporary shutters and or barricades, resilient site design, materials and construction.

Describe how occupants might shelter in place during a flooding event including any emergency power, water, and waste water provisions and the expected availability of any such measures:

The Project includes a shelter in place strategy for future residence through 2070 for a majority of the Project Site where reasonable and feasible. This will be achieved by substantially raising portions of the Project Site to provide a roadway network that will have passable corridors during significant storm-events providing access to the Project Site and enabling most buildings to be located above projected flood elevations.

Resilient building design strategies that are currently incorporated into building design for the Master Plan Project include: raising critical electrical and mechanical equipment above ground floor elevation; operable windows; backflow preventers; and HVAC systems sized for higher peak cooling and heating days.

Describe any strategies that would support rapid recovery after a weather event:

A large portion of the Project Site is anticipated to be designated as temporary storm and sea level rise storage and will remain at the existing grade. Additionally, the Project Site will use low impact development standards designed to infiltrate and detain regular stormwater runoff. Refer to Chapter 8, *Climate Change Resiliency*, of this DEIR/DPIR for further details.

E.2 – Sea Level Rise and Storms – Adaptation Strategies

Describe future site design and or infrastructure adaptation strategies for responding to sea level rise including future elevating of site areas and access routes, barriers, wave / velocity breaks, storm water systems, utility services, etc.:

The Resiliency Study presented in Chapter 8, *Climate Change Resiliency*, of this DEIR/DPIR identifies on- and off-site adaptation strategies both near- and long-term.

Describe future building adaptation strategies for raising the Sea Level Rise Design Flood Elevation and further protecting critical systems, including permanent and temporary measures:

Critical systems will be elevated above the 2070 SLR-DFE. Temporary flood-proofing measures and/or additional elevation will be explored should those measures become necessary in the future.

A pdf and word version of the Climate Resiliency Checklist is provided for informational use and off-line preparation of a project submission. NOTE: Project filings should be prepared and submitted using the online Climate Resiliency Checklist.

For questions or comments about this checklist or Climate Change best practices, please contact: John.Dalzell@boston.gov

Article 80 – Accessibility Checklist

A requirement of the Boston Planning & Development Agency (BPDA)
Article 80 Development Review Process

The Mayor's Commission for Persons with Disabilities strives to reduce architectural, procedural, attitudinal, and communication barriers that affect persons with disabilities in the City of Boston. In 2009, a Disability Advisory Board was appointed by the Mayor to work alongside the Commission in creating universal access throughout the city's built environment. The Disability Advisory Board is made up of 13 volunteer Boston residents with disabilities who have been tasked with representing the accessibility needs of their neighborhoods and increasing inclusion of people with disabilities.

In conformance with this directive, the BDPA has instituted this Accessibility Checklist as a tool to encourage developers to begin thinking about access and inclusion at the beginning of development projects, and strive to go beyond meeting only minimum MAAB / ADAAG compliance requirements. Instead, our goal is for developers to create ideal design for accessibility which will ensure that the built environment provides equitable experiences for all people, regardless of their abilities. As such, any project subject to Boston Zoning Article 80 Small or Large Project Review, including Institutional Master Plan modifications and updates, must complete this Accessibility Checklist thoroughly to provide specific detail about accessibility and inclusion, including descriptions, diagrams, and data.

For more information on compliance requirements, advancing best practices, and learning about progressive approaches to expand accessibility throughout Boston's built environment. Proponents are highly encouraged to meet with Commission staff, prior to filing.

Accessibility Analysis Information Sources:

1. Americans with Disabilities Act – 2010 ADA Standards for Accessible Design
   http://www.ada.gov/2010ADAstandards_index.htm
2. Massachusetts Architectural Access Board 521 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/aab/aab-rules-and-regulations-pdf.html
3. Massachusetts State Building Code 780 CMR
   http://www.mass.gov/eopss/consumer-prot-and-bus-lic/license-type/csl/building-codebbrs.html
4. Massachusetts Office of Disability – Disabled Parking Regulations
   http://www.mass.gov/anf/docs/mod/hp-parking-regulations-summary-mod.pdf
5. MBTA Fixed Route Accessible Transit Stations
   http://www.mbta.com/riding_the_t/accessible_services/
6. City of Boston – Complete Street Guidelines
   http://bostoncompletestreets.org/
7. City of Boston – Mayor's Commission for Persons with Disabilities Advisory Board
   www.boston.gov/disability
8. City of Boston – Public Works Sidewalk Reconstruction Policy
   http://www.cityofboston.gov/images_documents/sidewalk%20policy%200114_tcm3-41668.pdf
9. City of Boston – Public Improvement Commission Sidewalk Café Policy
   http://www.cityofboston.gov/images_documents/Sidewalk_cafes_tcm3-1845.pdf

Glossary of Terms:

1. ***Accessible Route*** – A continuous and unobstructed path of travel that meets or exceeds the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 20
2. ***Accessible Group 2 Units*** – Residential units with additional floor space that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 9.4
3. ***Accessible Guestrooms*** – Guestrooms with additional floor space, that meet or exceed the dimensional and inclusionary requirements set forth by MAAB 521 CMR: Section 8.4
4. ***Inclusionary Development Policy (IDP)*** – Program run by the BPDA that preserves access to affordable housing opportunities, in the City. For more information visit: http://www.bostonplans.org/housing/overview
5. ***Public Improvement Commission (PIC)*** – The regulatory body in charge of managing the public right of way. For more information visit: https://www.boston.gov/pic
6. ***Visitability*** – A place's ability to be accessed and visited by persons with disabilities that cause functional limitations; where architectural barriers do not inhibit access to entrances/doors and bathrooms.

Article 80 | ACCESSIBILTY CHECKLIST

1. Project Information:

If this is a multi-phased or multi-building project, fill out a separate Checklist for each phase/building.

Project Name:	**Suffolk Downs Redevelopment**
Primary Project Address:	**525 William F McClellan Highway, Boston, MA 02128**
Total Number of Phases/Buildings:	**5 phases are anticipated**
Primary Contact (Name / Title / Company / Email / Phone):	**Douglas J. Manz / Director of Development / The HYM Investment Group, LLC / dmanz@hyminvestments.com / 617.248.2378**
Owner / Developer:	**The McClellan Highway Development Company, LLC c/o The HYM Investment Group, LLC**
Architect:	**CBT Architects**
Civil Engineer:	**Beals + Thomas, Inc.**
Landscape Architect:	**Stoss Landscape Urbanism**
Permitting:	**VHB**
Construction Management:	**TBD**

At what stage is the project at time of this questionnaire? Select below:

PNF / Expanded PNF Submitted	**Draft / Final Project Impact Report Submitted**	BPDA Board Approved
BPDA Design Approved	Under Construction	Construction Completed:

Do you anticipate filing for any variances with the Massachusetts Architectural Access Board (MAAB)? ***If yes,*** identify and explain.	**Unknown at this time.**

2. Building Classification and Description:

This section identifies preliminary construction information about the project including size and uses.

What are the dimensions of the project?

Site Area:	**161 Acres (Total); 109 Acres (Boston)**	Building Area:	**±16.2 Million GSF**
Building Height:	**50 to 220 Ft**	Number of Stories:	**Varies**

First Floor Elevation:	**20.5 – 21.5 Ft BCB**	Is there below grade space:		***Yes** / No*
What is the Construction Type? (Select most appropriate type)				
	Wood Frame	**Masonry**	**Steel Frame**	**Concrete**
What are the principal building uses? (IBC definitions are below – select all appropriate that apply)				
	Residential – One - Three Unit	**Residential - Multi-unit, Four +**	Institutional	Educational
	Business	**Mercantile**	Factory	**Hospitality**
	Laboratory / Medical	Storage, Utility and Other		
List street-level uses of the building:	**Streetfront Retail, building entrances/lobbies for various uses, parking & loading dock entrances**			

3. **Assessment of Existing Infrastructure for Accessibility:**

This section explores the proximity to accessible transit lines and institutions, such as (but not limited to) hospitals, elderly & disabled housing, and general neighborhood resources. Identify how the area surrounding the development is accessible for people with mobility impairments and analyze the existing condition of the accessible routes through sidewalk and pedestrian ramp reports.

Provide a description of the neighborhood where this development is located and its identifying topographical characteristics:	**The Project Site is currently home to the underutilized Suffolk Downs race track facility. The western side of the Project Site is bordered by land that includes a retail shopping center, properties containing fuel storage tanks owned by Irving Oil Terminals Inc. and Global Petroleum, and McClellan Highway (Route 1A). Winthrop Avenue is located along the northern boundary of the Project Site. The residential neighborhood north of Winthrop Avenue is bordered by Revere Beach and the Atlantic Ocean; the Project Site is located less than one mile from the beach and ocean. Washburn Avenue, the Beachmont neighborhood, the MBTA Blue Line, and Bennington Street (which connects East Boston to the City of Revere lie east of the Project Site. Waldemar Avenue and the Orient Heights residential neighborhood of East Boston are located immediately south of the Project Site. The existing site topography is generally flat with a lower elevation wetlands including the Horseshoe Pond and Sales Creek which are to be retained as public open space. The existing conditions of the site have very limited if any on-site pedestrian and bicycle infrastructure and there are very little connections to off-site destinations.**
List the surrounding accessible MBTA transit lines and their proximity to development site: commuter rail / subway stations, bus stops:	**One of the Project Site's greatest strengths is its two direct connections to the MBTA Blue Line - Beachmont and Suffolk Downs stations. Using the Blue Line, the Project Site is just five minutes from Logan Airport and 11 minutes from State Street, in the heart of Boston's financial district. The Blue Line also offers connections to South Station and its commuter rail lines via the Silver Line, and to North Station and Back Bay Station and their respective commuter rail lines via the Orange Line. Both Beachmont and Suffolk Downs**

	stations are accessible. The Master Plan Project will provide accessible routes from all buildings to these stations. In addition, the Proponent recently constructed a new on-site bus stop for the local MBTA Route 119 Route which provides local access between local neighborhoods and the MBTA Beachmont Blue Line Station.
List the surrounding institutions: hospitals, public housing, elderly and disabled housing developments, educational facilities, others:	Boston Housing Authority at Orient Heights, Don Orione Home at Orient Heights, Curtis Guild Elementary School at Orient Heights, Beachmont Veterans Memorial School on Bennington Street, Garfield Elementary School in Crescent Beach neighborhood, Manassah Bradley School at Orient heights,
List the surrounding government buildings: libraries, community centers, recreational facilities, and other related facilities:	Revere Police and Fire stations on Revere Beach Boulevard
4. Surrounding Site Conditions – Existing: *This section identifies current condition of the sidewalks and pedestrian ramps at the development site.*	
Is the development site within a historic district? ***If yes,*** identify which district:	No
Are there sidewalks and pedestrian ramps existing at the development site? ***If yes***, list the existing sidewalk and pedestrian ramp dimensions, slopes, materials, and physical condition at the development site:	There is only one existing limited distance sidewalk on the Project Site, which connects Winthrop Avenue to the adjacent shopping center along the north side of Tomasello Road. There is also one pedestrian ramp associated with the existing Clubhouse. The pedestrian ramp leads to the front door of the existing grandstand building from the adjacent parking lot. This is a concrete ramp. The Grandstand will be demolished and replaced with the new improvements as part of the Master Plan Project, consisting of new streets defining building development parcels. All streets constructed on the Project Site will be accessible in compliance with MAAP, ADAAG, and Boston Complete Streets Guidelines
Are the sidewalks and pedestrian ramps existing-to-remain? ***If yes,*** have they been verified as ADA / MAAB compliant (with yellow composite detectable warning surfaces, cast in concrete)? ***If yes,*** provide description and photos:	No. All existing sidewalks and pedestrian ways are to be removed and replaced. Any non-compliant conditions will be improved and brought into compliance.
5. Surrounding Site Conditions – Proposed	

This section identifies the proposed condition of the walkways and pedestrian ramps around the development site. Sidewalk width contributes to the degree of comfort walking along a street. Narrow sidewalks do not support lively pedestrian activity, and may create dangerous conditions that force people to walk in the street. Wider sidewalks allow people to walk side by side and pass each other comfortably walking alone, walking in pairs, or using a wheelchair.	
Are the proposed sidewalks consistent with the Boston Complete Street Guidelines? ***If yes***, choose which Street Type was applied: Downtown Commercial, Downtown Mixed-use, Neighborhood Main, Connector, Residential, Industrial, Shared Street, Parkway, or Boulevard.	**Yes, varies. Street types contemplated include Neighborhood Main Street, Connector Streets, Parkway, or Boulevard, Residential, and Shared Streets**
What are the total dimensions and slopes of the proposed sidewalks? List the widths of the proposed zones: Frontage, Pedestrian and Furnishing Zone:	**Varies. Project is in the master planning stage and individual buildings and phases will go through Design Review process. Minimum pedestrian zone widths will comply with Boston Complete Streets Guidelines**
List the proposed materials for each Zone. Will the proposed materials be on private property or will the proposed materials be on the City of Boston pedestrian right-of-way?	**Varies. As the street designs have not yet been completed, it is contemplated that sidewalks and other pedestrian ways may be concrete, stone, or unit pavers**
Will sidewalk cafes or other furnishings be programmed for the pedestrian right-of-way? ***If yes,*** what are the proposed dimensions of the sidewalk café or furnishings and what will the remaining right-of-way clearance be?	**Undetermined at this time. The design of streets and plazas to support outdoor food service, per the guidelines of the PIC Sidewalk Café and Boston Complete Streets Guidelines, as applicable.**
If the pedestrian right-of-way is on private property, will the proponent seek a pedestrian easement with the Public Improvement Commission (PIC)?	**TBD. The Master Plan Project is in the conceptual master planning stage. As individual buildings and/or phases are advanced more detail about the pedestrian right-of-way will be available.**

Will any portion of the Project be going through the PIC? ***If yes,*** identify PIC actions and provide details.	**TBD. Currently it is not proposed that the City of Boston would take over ownership of the proposed on-site roadways or other portions of the Project Site.**
6. Accessible Parking: *See Massachusetts Architectural Access Board Rules and Regulations 521 CMR Section 23.00 regarding accessible parking requirement counts and the Massachusetts Office of Disability – Disabled Parking Regulations*.	
What is the total number of parking spaces provided at the development site? Will these be in a parking lot or garage?	**Approximately 8,000 structured garage parking spaces are proposed within the Boston portion of the Project Site as part of the total buildout of the Master Plan Project over its various phases. During initial phases of development, certain parking spaces may be provided in onsite parking lots.**
What is the total number of accessible spaces provided at the development site? How many of these are "Van Accessible" spaces with an 8 foot access aisle?	**The Master Plan Project, and each building to be constructed under it will comply with City requirements as to size and overall of parking spaces, and with MAAB and ADAAG with regard to location, number, and other dimensional requirements of accessible spaces. Van spaces will have the required headroom and 8 ft wide passenger access aisles on at least one side.**
Will any on-street accessible parking spaces be required? ***If yes,*** has the proponent contacted the Commission for Persons with Disabilities regarding this need?	**The Master Plan Project is still in the conceptual master planning stage. More detailed drawings of on-site streets will be provided as each building and/or phase moves forward. It is anticipated that on-street accessible parking spaces will be provided. The Proponent will meet CPD and/or BTD requirements regarding on-street accessible parking spaces as each building and/or phase moves forward.**
Where is the accessible visitor parking located?	**Accessible visitor parking locations have not yet been determined.**
Has a drop-off area been identified? ***If yes,*** will it be accessible?	**Drop-off areas have not been identified at this stage of conceptual design. Drop-off areas will be identified as the design of each development phase and/or building phase is advanced.**

7. Circulation and Accessible Routes: *The primary objective in designing smooth and continuous paths of travel is to create universal access to entryways and common spaces, which accommodates persons of all abilities and allows for visitability with neighbors.*	
Describe accessibility at each entryway: Example: Flush Condition, Stairs, Ramp, Lift or Elevator:	**Entries will have a combination of flush conditions, stairs, and accessible ramps.**
Are the accessible entrances and standard entrance integrated? ***If yes,*** *describe.* ***If no,*** what is the reason?	**The Accessible entrances and standard entrances will be integrated for each building to be developed.**
If project is subject to Large Project Review/Institutional Master Plan, describe the accessible routes way-finding / signage package.	**A comprehensive signage system will be developed at a time later in the design process. Many of the contemplated buildings will be subject to Large Project review under Article 80 of the Boston Zoning Code, and each building's contribution to signage will be designed at that time.**
8. Accessible Units (Group 2) and Guestrooms: (If applicable) *In order to facilitate access to housing and hospitality, this section addresses the number of accessible units that are proposed for the development site that remove barriers to housing and hotel rooms.*	
What is the total number of proposed housing units or hotel rooms for the development?	**Approximately 4,300 housing units are proposed in the Boston portion of the Project Site (the remaining approximately 2,900 are proposed within the Revere portion of the Master Plan Project)..**
If a residential development, how many units are for sale? How many are for rent? What is the breakdown of market value units vs. IDP (Inclusionary Development Policy) units?	**The Master Plan Project will comply with the Inclusionary Development Policy, as applicable. The number of for sale and for rent residential units will be determined as the design of each development phase and/or building is advanced.**
If a residential development, how many accessible Group 2 units are being proposed?	**At least 5% of all units will be Group 2 accessible residential units or Group 2A accessible hotel rooms or suites. The location of these units within each building will be determined as the Master Plan Project advances.**
If a residential development, how many accessible Group 2 units will also be IDP units? ***If none***, describe reason.	**The number of affordable accessible residential units will be determined as the Master Plan Project design advances. In general, as the IDP program requires units to be distributed proportionately among all units, the number of accessible IDP units will be approximately 5% of all IDP units**

If a hospitality development, how many accessible units will feature a wheel-in shower? Will accessible equipment be provided as well? ***If yes,*** provide amount and location of equipment.	At least 5% of all hotel units will be Group 2A accessible hotel rooms or suites. The location of these units within the buildings will be determined as the Master Plan Project design advances. Provision of Wheel in Showers will comply in each hotel with Section 8.4.4 of MAAB regulations Accessible equipment will be provided where equipment is provided for hotel guests
Do standard units have architectural barriers that would prevent entry or use of common space for persons with mobility impairments? Example: stairs / thresholds at entry, step to balcony, others. ***If yes,*** provide reason.	The interior building design is early in its development, however, it is not anticipated that either residential units or common spaces will have any architectural barriers.
Are there interior elevators, ramps or lifts located in the development for access around architectural barriers and/or to separate floors? ***If yes,*** describe:	Does not apply. No barriers anticipated.
9. Community Impact: *Accessibility and inclusion extend past required compliance with building codes. Providing an overall scheme that allows full and equal participation of persons with disabilities makes the development an asset to the surrounding community.*	
Is this project providing any funding or improvements to the surrounding neighborhood? Examples: adding extra street trees, building or refurbishing a local park, or supporting other community-based initiatives?	Yes. Such improvements will be determined through the Article 80 review process.
What inclusion elements does this development provide for persons with disabilities in common social and open spaces? Example: Indoor seating and TVs in common rooms; outdoor seating and barbeque grills in yard. Will all	The detailed design of interior common areas will be determined as the Master Plan Project design advances.

of these spaces and features provide accessibility?	
Are any restrooms planned in common public spaces? ***If yes,*** will any be single-stall, ADA compliant and designated as "Family"/ "Companion" restrooms? ***If no***, explain why not.	**The detailed design of interior common public spaces will be determined as the Master Plan Project design advances.**
Has the proponent reviewed the proposed plan with the City of Boston Disability Commissioner or with their Architectural Access staff? ***If yes,*** did they approve? ***If no,*** what were their comments?	**The Proponent is fully committed to delivering a Project that is ADA- and MAAB- compliant. The Master Plan Project is currently in the conceptual master plan stage. The Proponent will meet with the City of Boston Disability Commissioner and staff on the Master Plan Project and will meet them as the design of each development phase and/or building advances.**
Has the proponent presented the proposed plan to the Disability Advisory Board at one of their monthly meetings? Did the Advisory Board vote to support this project? ***If no,*** what recommendations did the Advisory Board give to make this project more accessible?	**The Master Plan Project has not yet been reviewed by the Disability Advisory Board at a monthly meeting. The Proponent expects the Disability Advisory Board to review/approve as the accessibility design details are available for each development phase and/or building.**

10. Attachments

Include a list of all documents you are submitting with this Checklist. This may include drawings, diagrams, photos, or any other material that describes the accessible and inclusive elements of this project.

Provide a diagram of the accessible routes to and from the accessible parking lot/garage and drop-off areas to the development entry locations, including route distances.
Refer to Chapter 3, *Urban Design,* of this DEIR/DPIR.

Provide a diagram of the accessible route connections through the site, including distances.
Refer to Chapter 3, *Urban Design,* of this DEIR/DPIR.

Provide a diagram the accessible route to any roof decks or outdoor courtyard space? (if applicable)
TBD. Given the Master Plan Project is at the conceptual master plan level, the accessible routes of roof decks and courtyard spaces have not been identified yet.

Provide a plan and diagram of the accessible Group 2 units, including locations and route from accessible entry. **TBD. Given the Master Plan Project is at the conceptual master plan level, the locations and routes to accessible Group 2 units have not been identified yet.**
Provide any additional drawings, diagrams, photos, or any other material that describes the inclusive and accessible elements of this project. **Additional information related to inclusive and accessible elements of the Master Plan Project will be provided as the design of each development phase and/or building advances.**

This completes the Article 80 Accessibility Checklist required for your project. Prior to and during the review process, Commission staff are able to provide technical assistance and design review, in order to help achieve ideal accessibility and to ensure that all buildings, sidewalks, parks, and open spaces are usable and welcoming to Boston's diverse residents and visitors, including those with physical, sensory, and other disabilities.

For questions or comments about this checklist, or for more information on best practices for improving accessibility and inclusion, visit www.boston.gov/disability, or our office:

The Mayor's Commission for Persons with Disabilities
1 City Hall Square, Room 967,
Boston MA 02201.

Architectural Access staff can be reached at:

accessibility@boston.gov | patricia.mendez@boston.gov | sarah.leung@boston.gov | 617-635-3682

Appendix C: Wetlands Supporting Documentation

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.

Appendix D: Transportation Supporting Documentation

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.

Appendix E: Greenhouse Gas and Air Quality Supporting Documentation

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.

Appendix F: Resiliency Supporting Documentation

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.

Appendix G: Environmental Supporting Documentation

Phase 1 – Boston: Wind Study

Pursuant to Section IV.B.1 of the BPDA Development Review Guidelines, and at the request of BPDA Urban Design staff, a supplemental analysis of anticipated pedestrian-level wind conditions was conducted for the Phase 1 Project to determine the suitability of particular locations to various activities (e.g. walking, sitting, eating, etc.). The following conditions were simulated:

- **No-Build Condition:** includes the existing on-site pedestrian wind conditions without the proposed development;
- **Phase 1 – Boston Interim Build Conditions:** includes the Phase 1 – Boston development without the remainder of the Master Plan Project built out; and
- **Phase 1 – Boston Full Build Condition:** includes the Phase 1 – Boston development with the remainder of the future Master Plan Project buildings built out.

Methodology

A scale model was equipped with specially designed wind speed sensors at 103 grade level locations, chosen in consultation with the BPDA, which estimated the mean and fluctuating components of wind speed at a full-scale height of five feet above grade in pedestrian areas throughout the Project Site. The results were then combined with long-term meteorological data, recorded during the years 1991 to 2017 at Boston's Logan International Airport, in order to estimate full scale wind conditions. The prevailing winds are between the southwest and northwest directions. In the case of strong winds, northeast and west-northwest are the dominant wind directions.

Pedestrian Wind Comfort Criteria

The BPDA has adopted two standards for assessing the relative wind comfort of pedestrians. First, the BPDA wind design guidance criterion states that an effective gust velocity (hourly mean wind speed +1.5 times the root-mean-square wind speed) of 31 miles per hour (mph) should not be exceeded more than one percent of the time. The second set of criteria used by the BPDA to determine the acceptability of specific location is based on the work of Melbourne.[1] This set of criteria is used to determine the relative level of pedestrian wind comfort for activities such as sitting, standing or walking. The criteria are expressed in terms of benchmarks for the one-hour mean wind speed exceeded one percent of the time (i.e., the 99th percentile mean wind speed) and are presented in Table 9-1.

1 Melbourne, W.H., 1978, "Criteria for Environmental Conditions," Journal of Industrial Aerodynamics, 3 (1978) 241-249.

Table 9-1 BPDA Mean Wind Criteria*

Dangerous	> 27 mph
Uncomfortable for Walking	> 19 and ≤ 27 mph
Comfortable for Walking	> 15 and ≤ 19 mph
Comfortable for Standing	> 12 and ≤ 15 mph
Comfortable for Sitting	< 12 mph

* Applicable to the hourly mean wind speed exceeded one percent of the time.

The wind climate in a typical downtown location in Boston is generally comfortable for the pedestrian use of sidewalks and thoroughfares and meets the BPDA effective gust velocity criterion. However, without any mitigation measures, this typical downtown wind climate is likely to be frequently uncomfortable for more passive activities, such as sitting.

Phase 1 – Boston Pedestrian Wind Impacts

The wind tunnel study demonstrates that the Phase 1 – Boston development set within the full build Master Plan Project is not anticipated to generate any unsafe wind conditions at or near the Project Site. Through the incorporation of appropriate landscape measures, the wind conditions are expected to be improved compared to the existing condition to satisfy the BPDA criteria established for in the Build Condition studied and with the standards of Section 41-16(2) of the Code.

No-Build Condition

The No-Build Condition pedestrian wind conditions are shown in Figure G.1. These wind conditions represent the baseline to which the Project is measured against.

Under the No-Build Condition, which was tested with the existing site conditions, the mean wind speeds across the majority of the Project Site are uncomfortable or comfortable for walking on an average annual basis. Outside of the Project Site along Bennington Street, conditions are generally comfortable for walking, with uncomfortable conditions identified on the western corner of the Suffolk Downs MBTA Blue Line Station and at the entrance to the Belle Isle Marsh Reservation. Conditions in the adjacent residential area around Waldemar Avenue are generally comfortable for walking or better, with one uncomfortable location at the intersection of Waldemar and Orient Avenues.

The effective gust criterion is met seasonally and annually at all locations. Refer to Figure G.2 for the existing wind gust conditions within the Phase 1 – Boston development area.

Future Build Conditions

The Phase 1 – Boston Interim Build Condition pedestrian wind conditions are show in Figure G.3 and the Phase 1 – Boston with the full build Master Plan Project wind

conditions are shown on Figure G.4. With the Phase 1 – Boston alone as the initial development phase, pedestrian-level wind conditions are unchanged or improved at several locations within and around the Project Site. No locations are predicted to experience a dangerous condition. While some sensor locations indicate uncomfortable pedestrian wind conditions, as the Master Plan Project is built out, the majority of locations are further improved to comfortable levels for standing or sitting, specifically at the Parkway end of the Belle Isle public plaza and along the Waldemar Avenue edge.

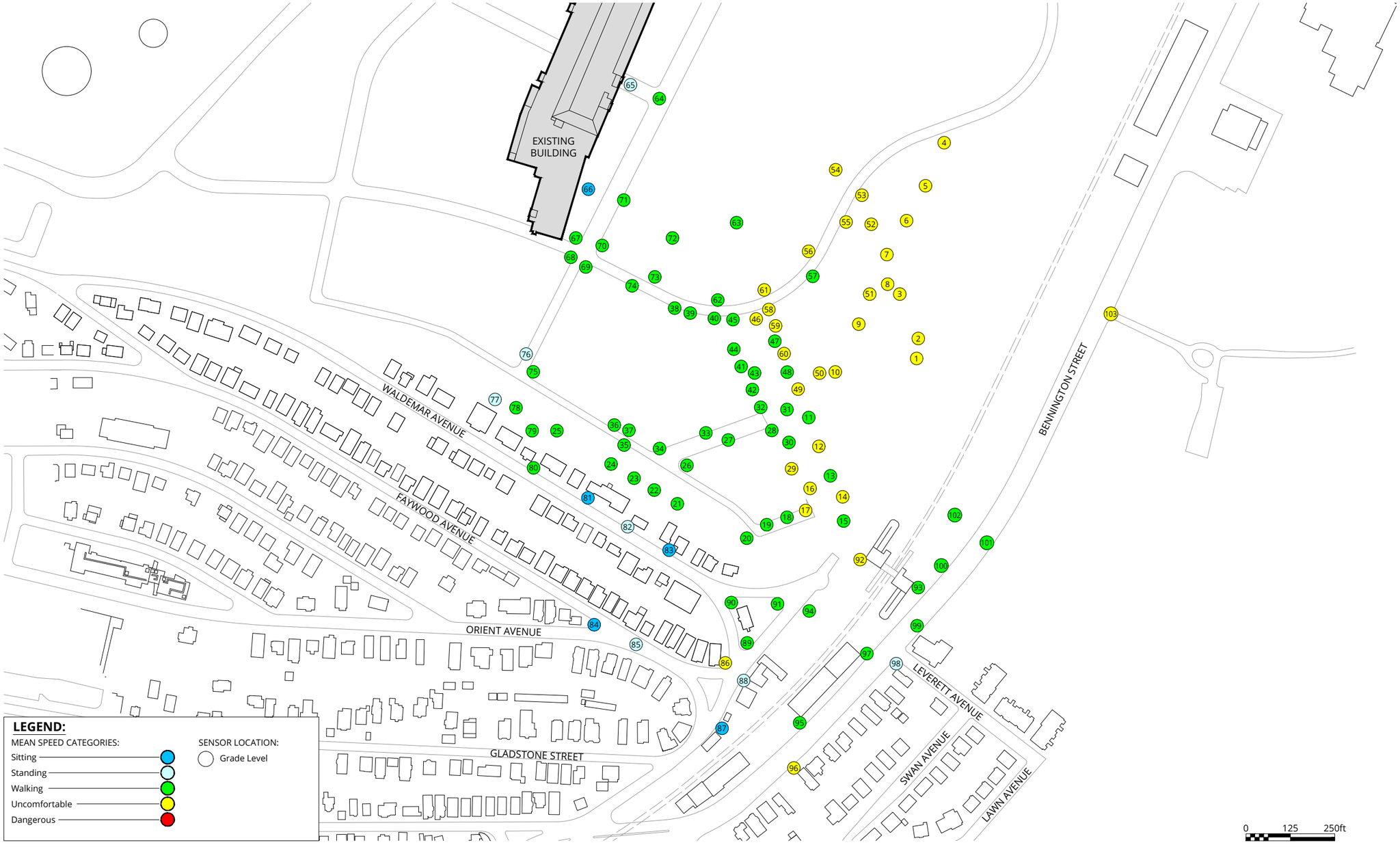
Under the Phase 1 – Boston Interim Build Condition, the effective gust criterion is met seasonally and annually at all locations except 27 and 55, as shown in Figure G.5. With the addition of the future Master Plan Project buildings, these locations return to an acceptable condition, as shown in Figure G.6. The interim build condition will be mitigated through the incorporation of landscape elements and architectural features to maximize pedestrian comfort throughout this phase of the Project.

It should be noted, that the wind test results are based upon simple preliminary massing and this initial wind tunnel test is meant to identify areas which need to be mitigated, either through shaping of the building design or through other mitigation measures. As building design advances, it will consider the results of this initial wind tunnel study and further mitigation or design changes may be made to ensure that the Phase 1 – Boston development will meet BRA wind criteria guidelines.

Preliminary Mitigation (DPIR Scheme)

Wind mitigation in the form of landscape features will be incorporated throughout the Phase 1 – Boston site. With these wind control measures in place, the wind comfort conditions are predicted to improve in the areas of concern and alleviate uncomfortable winds and gust exceedances in the Interim Build Condition. To avoid reduced wind control efficacy of landscaping due to loss of foliage, Marcescent trees are proposed to produce the desired effects in the winter.

At this stage of the Phase 1 – Boston development buildings are not fully designed and generally represent conceptual building height and massing. As the design progresses to a more detailed level in the Article 80 review process for each individual phase, mitigation measures, such as shaping buildings, incorporating setbacks and/or detailed architectural façade elements (i.e., canopies, louvers) and landscape interventions will improve conditions.



Source: RWDI

Figure G.1

No-Build Condition
Wind Comfort

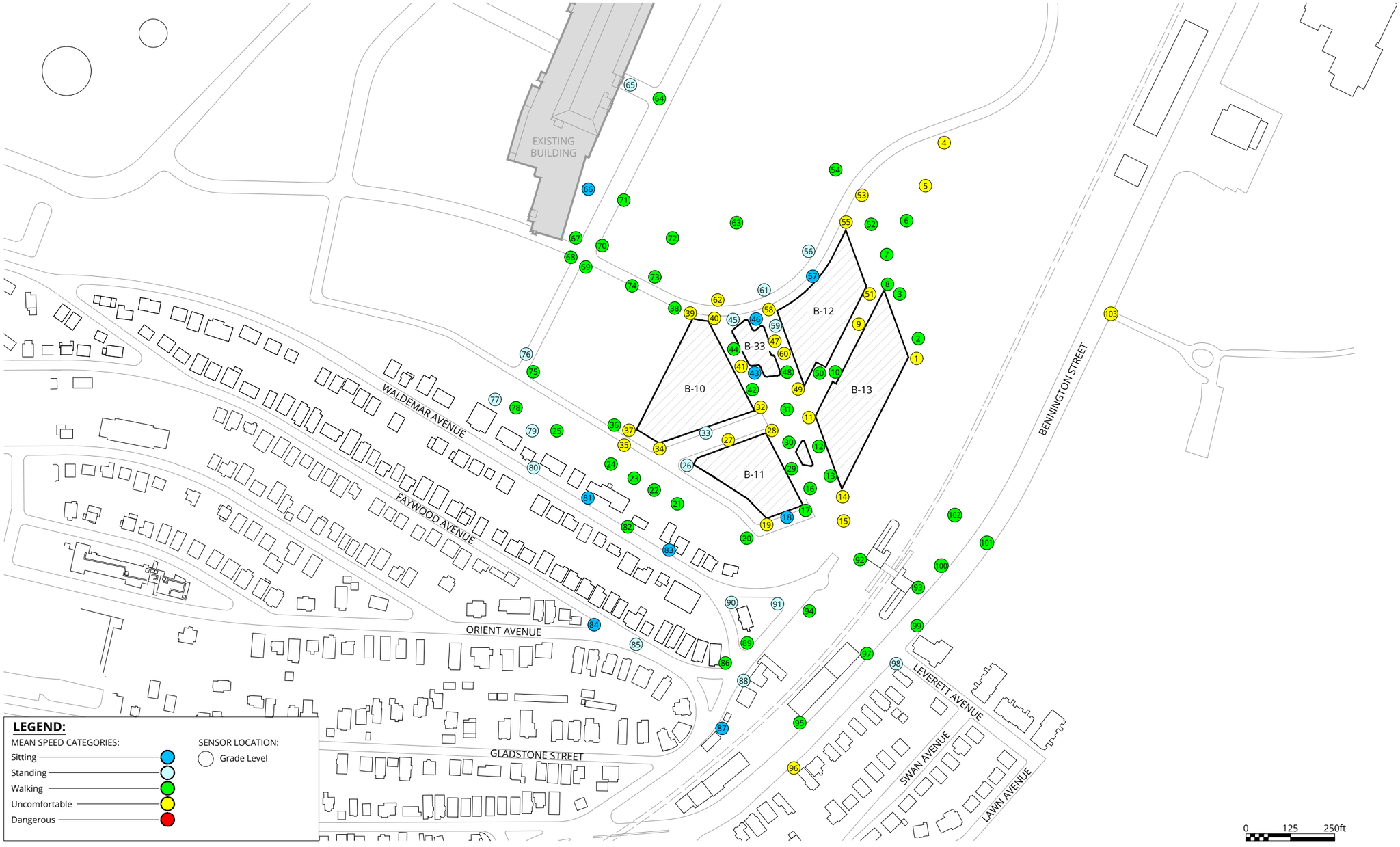
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Source: RWDI

Figure G.2

No-Build Condition
Wind Gust

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



Source: RWDI

Figure G.3

Phase 1-Boston Interim Build Condition
Wind Comfort

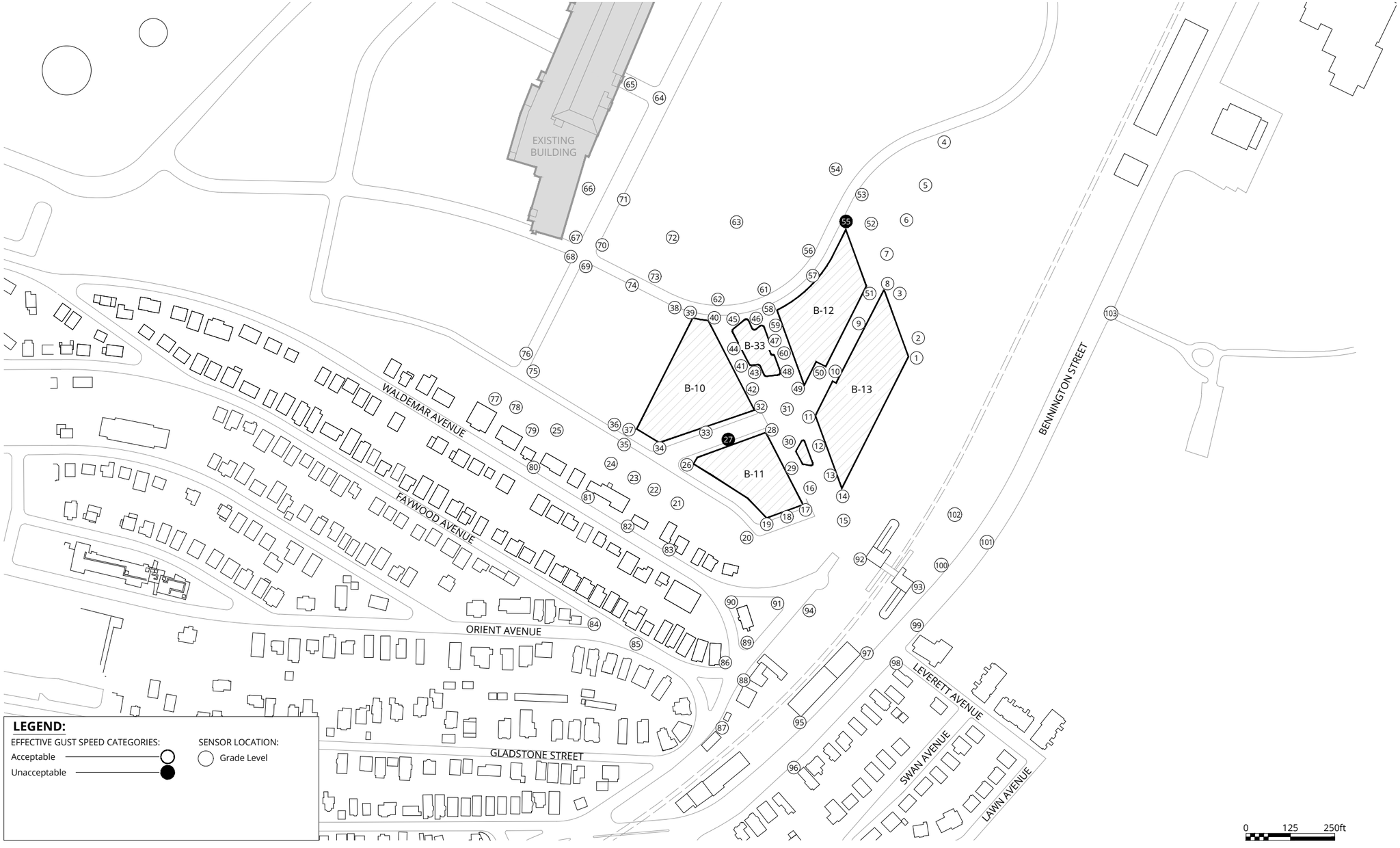
Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Source: RWDI

Figure G.4

Phase 1-Boston Full Build Condition
Wind Comfort

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts



Source: RWDI

Figure G.5

Phase 1-Boston Interim Build Condition Wind Gust

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Source: RWDI

Figure G.6

Phase 1-Boston Full Build Condition
Wind Gust

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Suffolk Downs Redevelopment
Boston and Revere, MA
Phase 1-Boston & Phase 1-Revere
Draft Construction Management Plan
August 2018

This draft Construction Management Plan ("CMP") presents conceptual construction sequencing, staging plans, material deliveries, and feasible mitigation measures that can be implemented to eliminate or minimize temporary construction period-related impacts. As each phase of development progresses through design and into the construction phase, the respective construction managers will refine/modify protection measures of each individual CMP to reflect the input of the regulatory authorities having jurisdiction over CMPs. A CMP for each building or development phase will be submitted to either the City of Revere or City of Boston for approval prior to commencement of construction, and the Proponent's general contractor will be bound by these operational parameters. For on-site construction, the construction team will coordinate a detailed and comprehensive CMP with applicable state agencies and authorities, as appropriate.

1. Overview

This draft CMP was developed for the Phase 1-Boston and Phase 1-Revere portion of the Master Plan Project and will be approved by the Cities of Boston and Revere prior to implementation. It is intended to serve as an example of a typical CMP for future phases of the Project in both cities. The final CMP for each development phase will include the project schedule, which will identify major milestone dates, including mitigation activities designed to reduce potential construction-related impacts on the local community. The individual CMPs will address the hours of construction operations, truck idling, noise levels and monitoring, security, safety and fencing, material staging and deliveries, erosion control and dewatering, air quality control, and traffic control. The Proponent and its contractor will maintain an open dialog with the community to address any concerns throughout construction.

The scope of work for this CMP includes the initial phases of development: Phase 1-Boston; and Phase 1-Revere. Phase 1-Boston is comprised of the two Phase 1 Amazon office buildings, three residential buildings, and Belle Isle Square public plaza with ground floor retail. Phase 1-Revere includes three residential buildings, one hotel, and one innovation building, as well as the Beachmont Square public plaza.

This proposal/plan will be modified as the Master Plan Project proceeds through the Site Plan Review process with the Cities of Revere and Boston and review with the Revere and Boston Conservation Commissions. Modifications are also anticipated due to guidance and requirements offered by MassDOT, DCR, and other stakeholders.

2. Responsible Parties

Owner Representative:	Douglas J. Manz The McClellan Highway Development Company, LLC c/o The HYM Investment Group, LLC One Congress Street Boston, MA 02114
Architect:	Kishore Varanasi CBT Architects 110 Canal Street Boston, MA 02114

Construction Manager: Leo Rusk
The HYM Investment Group, LLC
One Congress Street
Boston, MA 02114

3. Construction Methodology

This section describes the construction schedule and methods that will be used for staging, site access, public safety, and erosion and sediment control. All future phases will adhere to the same methodologies and protections to minimize construction duration, minimize impacts to the surrounding neighborhoods, and continue to allow safe and unobstructed access around the site and use of the MBTA stations.

Construction Activity Schedule

Phase 1 - Revere:
Project construction is expected to take approximately 36-48 months, and typical construction hours will be from 7:00 a.m. to 6:00 p.m., Monday through Saturday. Sunday and 2nd/3rd shift activities will be the exception and will be performed according to permitting restrictions and in a manner that will minimize potential impacts of construction activities.

The contractor will also need to perform some activities, such as material unloading, during off hours. Deliveries of large construction equipment (e.g., cranes, excavation equipment) will be scheduled to avoid and/or minimize impacts to vehicular and pedestrian traffic. No truck idling, construction activity, or staging outside the construction site fencing will be allowed between the hours of 7:00 p.m. and 7:00 a.m. Within the site, activities such as excavation, pile driving, and steel erection will also be prohibited during these hours. The project team will have ongoing meetings with the City of Revere and will provide them with updates on upcoming construction activities.

Phase 1 - Boston
Project construction is expected to take approximately 36-48 months, and typical construction hours will be from 7:00 a.m. to 7:00 p.m., Monday through Saturday. Sunday and 2nd/3rd shift activities will be the exception and will be performed according to permitting restrictions and in a manner that will minimize potential impacts of construction activities.

The contractor will also need to perform some activities, such as material unloading, during off hours. Deliveries of large construction equipment (e.g., cranes, excavation equipment) will be scheduled to avoid and/or minimize impacts to vehicular and pedestrian traffic. No truck idling, construction activity, or staging outside the construction site fencing will be allowed between the hours of 7:00 p.m. and 7:00 a.m. Within the site, activities such as excavation, pile driving, and steel erection will also be prohibited during these hours. The Project team will have ongoing meetings with the City of Boston and will provide them with updates on upcoming construction activities.

Construction Staging and Truck Deliveries

The conceptual staging plans will be designed to isolate all construction staging activities on-site while providing continued and safe access for pedestrians and automobiles surrounding the Project Site during normal daily activities or emergencies. No off-site staging areas will be required for on-site construction activities. All adjacent streets will remain open to the public during construction. Construction storage and staging, and major deliveries of materials, such as structural steel or large mechanical equipment will be on-site and enclosed with a six-foot-high chain link fence with privacy screening. Construction delivery trucks will not be allowed to park or idle on neighborhood streets. Specific language regarding staging locations and the prohibition of staging materials in neighborhood streets will be called out in all subcontracts. All proposed construction staging and logistics plans will be forwarded to the City of Revere and/or Boston for review and approval.

There will be no impact on businesses along Furlong Drive or in Donnelly Square. As part of the phased construction sequence, the Proponent will develop a plan to maintain access at all times throughout construction.

Truck wheel wash stations will be located at all site exits to ensure that soil materials are not tracked onto roadways from the Project Site. During all site work activities, construction personnel will maintain adjacent streets and sidewalks to prevent accumulation of dirt and dust. Mechanical sweeping will be used during the excavation, foundation, and site work phases of the Project to maintain adjacent roadways.

Perimeter Protection and Public Safety

Proper signage will direct pedestrians safely around the Project Site and construction activities. The sidewalk along Winthrop Ave will be closed at times and pedestrians will be re-routed to the North side of Winthrop Ave at the intersections of Washburn Ave and Tomasello Way with Revere Beach Boulevard. The contractor will work to minimize impacts to both pedestrian and vehicular flow. Specific configurations of staging and pedestrian access around the site will vary depending on the phase of work being performed. These configurations will be designed to ensure safe ingress and egress to and from adjacent facilities during operation. As pedestrian access changes with the progression of construction, all changes will be submitted to City of Revere and/or Boston authorities prior to implementation. Fire department access will be continuously maintained at all times. In general, secure fencing will isolate construction areas from public access. Police details will be provided as needed to facilitate traffic flow both on and off the Project Site. In addition, sidewalks and walkways near construction activities will be protected, well-marked, and lighted to ensure pedestrian safety. The contractor will provide sufficient temporary site lighting to ensure the safety of all pedestrians accessing the site until permanent street lighting is installed. Construction safety procedures will be designed to meet all OSHA safety standards for specific site construction activities.

All subcontractors will be required to wear appropriate personal protective equipment, and each subcontractor will implement and manage its own Safety and Health Program. All subcontractors will be under a strict coordinated safety program administered by the construction manager. These programs will be reviewed and monitored for compliance by the construction manager's field staff and Safety Department. This approach will ensure that subcontractors' employees,

subcontractors, and suppliers, regardless of tier, know and understand the safety and health requirements of the Project.

Snow removal and ice mitigation will occur in a timely manner, as required. Trash removal and debris cleanup will be performed on a continual basis throughout the entire construction process. Construction-period way-finding and directional signage will be provided and updated as necessary during construction.

Erosion Control, Dewatering and Mitigation

The Proponent will prepare a SWPPP and submit a Notice of Intent to the U.S. EPA for coverage under EPA's NPDES CGP. The SWPPP will detail methods for preventing soil erosion and pollution of downstream receiving waters due to stormwater runoff from construction zones and will be a "living" document to be revised as construction phasing dictates. The SWPPP will include both structural and non-structural BMPs to be used during construction and will require site inspections in accordance with the CGP during all periods when ground surfaces remain unstable. Locations for material stockpiles, construction staging, construction trailers, and equipment storage will be identified. Construction-period erosion and sediment controls will include the non-structural and structural BMPs described below.

Controls will be designed, installed, and maintained in accordance with the SWPPP as well as the following documents:

- Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices (EPA 832-R92-005, Sept. 1992);
- Storm Water Management for Construction Activities, Developing Pollution Prevention Plans and Best Management Practices – Summary Guidance (EPA 833-R92-001, Oct. 1992);
- Massachusetts Stormwater Management Policy Handbook (Volume I) and Technical Handbook (Volume II) issued by the Massachusetts Department of Environmental Protection, March 1997; and
- Massachusetts Erosion and Sediment Control Guidelines for Urban and Suburban Areas, A Guide for Planners, Designers and Municipal Officials, March 1997.
- Below-grade excavation will be limited. The Proponent will manage precipitation and groundwater accumulated in excavations in accordance with appropriate regulations (i.e., EPA). The Proponent will retain a third-party firm, who will prepare permits if and as necessary to manage dewatering effluent. Construction-period dewatering activities and compliance with applicable regulations are described in Section 8 below.

Non-Structural Controls

One of the most important methods of preventing soil erosion and sedimentation associated with stormwater runoff is to minimize the amount and duration of non-stabilized surfaces. Maintaining an efficient construction sequence that minimizes the size of disturbed areas reduces the exposure of non-stabilized surfaces to the erosive effects of stormwater. As with the SWPPP, the CMP will require contractors to minimize areas of disturbance.

Thoughtful siting of storage and stockpile areas away from downstream receptors will also prevent sedimentation from stormwater runoff. As the Project does not have very deep or steep cuts into the soils, that will also help mitigate any erosion during construction.

On-site storage of hazardous materials or toxic chemicals will be limited to what is necessary and will be off the ground, in enclosed or covered structures to prevent contact with stormwater runoff.

Street sweeping of construction areas and surrounding streets and sidewalks will be required throughout construction to control dust emissions and to remove sediments tracked off-site where they could be washed into surface waters, wetland resource areas, or the municipal stormwater management system. Permanent stabilization of exposed surfaces will be required at the completion of work in any given area.

Structural Practices

In addition to the non-structural controls discussed above, many construction-period structural BMPs will be required to prevent pollution from stormwater runoff. Appropriate perimeter controls such as silt socks, straw waddles, and compost berms will be installed to filter and slow stormwater runoff as it leaves the construction site. To prevent the import of invasive species and weed seeds, hay bales will not be used for erosion and sedimentation control on the Project. In accordance with the SWPPP, perimeter controls will be inspected every seven days. Sediment build-up behind perimeter controls will be removed when it reaches one-half the height of the controls. Controls will be repaired or replaced as needed.

To prevent the tracking of sediments beyond the construction site, stabilized construction exits of crushed stone will be installed. All construction traffic will be directed over these exits when leaving the site to remove soils from vehicle tires. Construction exits will be inspected weekly in accordance with the SWPPP and will be repaired or replaced as necessary when sediment builds up on the surface or crushed stone is displaced. Appropriately-sized concrete truck wash-out basins will be installed in locations to prevent contact with stormwater runoff. These basins will be cleaned as needed, and concrete materials will be disposed of in accordance with applicable local, state, and federal regulations.

New and existing inlets to stormwater management systems will be protected against sediment inflow. Catch basins will be fitted with filter inserts or will be surrounded by silt socks or other materials to filter incoming stormwater. The stormwater management systems will be constructed starting at the downstream end and no flows will be directed to permanent stormwater BMPs prior to their completion and upstream surface stabilization.

Where larger site disturbances are necessary to accommodate particular construction activities, various measures will be implemented to prevent sediment-laden runoff from leaving the Project Site. Where long, exposed slopes are required, temporary check dams will be constructed to reduce runoff velocities and promote less erosive sheet flow. Temporary sediment basins will be constructed where necessary to allow sediments to drop out of suspension prior to discharge and promote construction-period infiltration to groundwater. Disturbed surfaces will be temporarily graded toward basins or temporary diversion swales will be built to direct flows to these basins.

Basin outlets will be constructed to promote low-velocity sheet flow and will be directed toward existing vegetated areas for further treatment.

4. Construction Air Quality

Construction operations at the site, including earthwork, will generate dust. All demolition and construction work will be performed in accordance with applicable sections of the MassDEP Air Pollution Control Regulations, 310 CMR 7.02 and 310 CMR 7.09. All construction vehicles will meet Tier 3/Tier 4 emissions standards.

Specific air quality mitigation measures will be as follows:

- Use of appropriately designed construction entrances and wheel wash facilities at all construction exits by all vehicles that would otherwise track mud or dirt onto public roadways to prevent off-site migration of soils;
- Mechanical street sweeping of construction areas and surrounding streets and sidewalks;
- Encapsulation of demolition sites as necessary where hazardous materials such as asbestos or lead paint are identified;
- Removal of demolition and construction waste in covered or enclosed trailers;
- Wetting of exposed soils and stockpiles to prevent dust generation;
- Minimization of materials stockpiling on-site;
- Policy to turn off construction equipment when not in use and minimize idling times;
- Minimization of demolition and construction waste storage on-site; and
- Minimization of the duration that soils are left exposed.

Many of these measures are intended to minimize potential impacts of construction activities that may generate fugitive dust, which will result in localized increases in airborne particulate levels. Fugitive dust emissions from construction activities will depend on such factors as the properties of the emitting surfaces (e.g., moisture content and volume of spoils), meteorological variables, and construction practices employed.

Although fugitive dust may be generated during demolition and construction activities, the distance to off-site receptors makes it unlikely that the migration of dust will cause off-site impacts. Nonetheless, the contractor will implement dust control measures during active demolition and construction that will primarily consist of using wetting agents regularly to control and suppress dust that may come from the structure being demolished or from construction materials. The contractor will comply with the National Emission Standards for Hazardous Pollutants (NESHAP) throughout demolition and construction activities. At no time shall fugitive dust be allowed to migrate beyond the immediate work zone. Site preparations involving construction haul roads, soil stockpiles, and vehicles exiting the Project Site have the greatest potential to create fugitive dust. Soil excavation does not typically generate dust due to the natural moisture content of subsurface soils.

As necessary, haul roads will be routinely misted to suppress dust generation. Soil stockpiles can either be covered or vegetated, depending on how long the stockpile will remain. All construction dump trucks will be covered as they leave the construction site. Dust from

construction traffic exiting the Project Site onto public roads will be controlled with the use of vehicle tracking pads, which remove soil from the tires of construction vehicles. Paved construction entrances will also be routinely swept by street sweepers to remove accumulated soils. At no time will visible soils be permitted on public streets that could result in fugitive dust issues.

In addition, best construction practices will be used to mitigate dust and exhaust impacts from construction activities, including use of ultra-low sulfur diesel fuel and emissions control equipment retrofits on construction vehicles. The Proponent acknowledges the importance of emission controls and will encourage contractors to comply with MassDEP's Diesel Retrofit Program, formerly called the Clear Air Construction Initiative of the Clean Construction Equipment Initiative, which originated as an air quality mitigation measure for the Central Artery/Tunnel Project. The program encourages users of diesel construction equipment to install exhaust emission controls such as oxidation catalysts or particulate filters on their diesel engines. While MassDEP requires participation in the Diesel Retrofit Program by municipalities applying for funding under the State Revolving Fund for water and wastewater projects, there is no requirement for participation by other project developers.

Construction vehicles will be required to limit engine idling. The approved construction contractor(s) will be required to use equipment fitted with diesel oxidation catalysts (DOC) or diesel particulate filters (DPF) to reduce emissions. DOCs can reduce fine particulate matter (PM) by 25 percent, toxic carbon monoxide by 60 percent and smog-forming volatile organic compounds by 60 percent. DPFs can reduce fine PM by 85 percent or more, as well as smaller reductions in carbon monoxide and VOCs.

A construction air quality dust and emissions mitigation plan will be developed before construction begins and enforceable measures will be executed in the construction contracts. Indoor air quality will be evaluated and tested by the Proponent's environmental consultant, as appropriate, in buildings that may remain within the property. The need for protective measures such as vapor barriers will be determined during final design. The potential for methane migration (from organic deposits) will be assessed by the Project environmental consultant during final design.

5. <u>Construction Period Noise</u>

Predicted sound levels from construction within the Project Site are not anticipated to cause a significant noise impact and are expected to meet the relevant City of Revere and City of Boston daytime construction noise criteria at all noise-sensitive locations. All construction equipment will be OSHA noise compliant. Selective sheltering and temporary baffling will be provided as required.

The proposed construction process has been designed around site constraints and the exact pieces of equipment will be finalized after subcontractor selection is complete. As described above, typical construction hours will be from 7:00 a.m. to 7:00 p.m. in Boston and 7:00 a.m. to 6:00 p.m. in Revere., Monday through Saturday; in some instances, 2nd/3rd shifts and Sunday work may be required. When this becomes necessary, all required permits will be in place and noise-generating activities will be minimized.

Every reasonable effort will be made to minimize the noise impact of construction activities. Mitigation measures will be as follows:

- Schedule work during daytime hours. If night time or Sunday work is proposed, it will be coordinated with the City of Revere and/or City of Boston, as appropriate.
- Use appropriate mufflers on all equipment and providing on-going maintenance of intake and exhaust mufflers.
- Maintain muffler enclosures on continuously operating equipment, such as air compressors and welding generators.
- Replace specific construction operations by less noisy ones where feasible and practical.
- Select the quietest practicable equipment Select equipment operations to keep average noise levels low and synchronize the noisiest activities with times of highest ambient noise levels, maintaining relatively uniform noise levels.
- Turn off idle equipment.
- Secure any decking on roadways so that there is no rattling when traffic passes over.
- Use vehicles and equipment with either ambient-sensitive or manually adjustable back-up alarms.
- Utilize the proper sizing of impact equipment such as hoe rams, pile drivers and jackhammers; power only to the degree needed to perform the work.
- Install noise suppression enclosures on hoe rams.
- Place stationary noise producing equipment, such as pumps and generators, away from residential and sensitive receptor locations.
- Keep engine housing panels on all equipment closed and when not in use, shut off equipment.

6. Construction-Period Traffic Impacts

The number of workers required during construction will vary by period of construction and level of activity. Because the workforce will arrive and leave in off-peak traffic periods, these trips are not expected to impact traffic conditions. In addition, jobsite personnel will be encouraged to utilize public transportation. Personal vehicles will be allowed to park within designated areas at the construction site. No construction vehicle parking will be allowed in adjacent neighborhoods. Terms and conditions relating to workforce parking will be written into each subcontract and will be designed to maximize protection of the neighborhoods. These contractual terms will be reviewed with each worker during mandatory orientation.

Truck traffic will vary throughout the construction period, depending on the activities being performed. It is expected that truck traffic will average 15-20 trucks daily, spread evenly throughout the day. Peak traffic times of 7 a.m. to 9 a.m. and 4 p.m. to 6 p.m. will be avoided. The peak truck traffic will be during the first seven months of construction with excavation and structural work, reaching up to 40 trucks, and will level off from that point.

Figures 1 identifies the construction truck access to the Project Site. Trucks entering the construction site from the north will enter via Route 1A to Tomasello Drive. Truck routes from the south will be Interstate 93 and Interstate 90 to Route 1A, then to the job site via Tomasello. Due

to the left-turn restriction at the intersection of Route 1A and Tomasello Drive, all trucks will exit via Tomasello and turn right onto Route 1A northbound. Trucks destined to the south will reverse directions via the turnaround ramp at Winthrop Avenue. Specifics of the trucking routes will be reviewed with the City of Revere and City of Boston before final implementation. Construction contracts will include clauses restricting truck travel to City of Revere and City of Boston-approved routes. Anti-tracking stone pads, which will be at least 50 feet long and consist of a four-inch-thick layer of crushed stone placed over a non-woven filter fabric, will be placed at each access point to the work area. These pads will remain in place until the work area is paved or otherwise stabilized. Truck wheel wash systems will also be in place at each construction site entrance.

Off-site traffic improvements will require close coordination with the City of Revere, as well as certain state agencies. The contractor will develop a construction-period traffic management plan for review and approval by the City of Revere, City of Boston and Commonwealth of Massachusetts. Signage, traffic cones, drums, trench covers, Jackie's Law, police details and other traffic control measures will be employed during construction to provide positive guidance for traffic near the work zone.

MBTA Access

Access to the adjacent MBTA Blue Line Stations will be maintained during construction of Phase 1-Boston and Phase 1-Revere. Additionally, access to all surrounding off-site bus stops will be maintained. The on-site bus stop installed by the Proponent at the request of the City of Revere and the MBTA along the west side of Tomasello Drive will remain accessible/in operation during the first phases and then relocated during the realignment of Tomasello Drive which will likely be in a later phase.

Bicycle/Pedestrian Access

The Proponent will seek to keep bicycle and pedestrian access to key destinations, such as Suffolk Downs Station via Waldemar Avenue and Walley Street, Beachmont Station via Winthrop Avenue, the Orient Heights neighborhood via Tomasello Drive, and the adjacent shopping areas on Furlong Drive. The Proponent is also committed to incorporating interim on-site pedestrian and bicycle accommodations during construction, where feasible. It is intended that all temporary sidewalk and/or bike lane accommodations will be treated as a normal sidewalk and bike lane with regards to winter weather operations (clearing of snow and ice) and extreme rain events (prevent/resolve large puddles), to the extent feasible.

7. Dewatering and Groundwater

Should dewatering become necessary during demolition, installation of utilities, or construction of building foundations, appropriate BMPs will be implemented to prevent pollution of downstream receptors. Temporary construction dewatering will likely be required locally for various excavations; intermittent pumping will be used as needed to allow for construction in-the-dry. Effluent generated during temporary construction dewatering will be infiltrated into the ground where possible. Groundwater testing will be conducted during dewatering operations as appropriate to determine the type and degree of contamination present. An evaluation and implementation of appropriate measures to manage groundwater associated with Project

excavation and construction that adheres to the requirements of temporary construction dewatering permits will be enacted as required.

8. Material Handling

The Project includes the demolition of existing buildings, paved driveways, parking lots, sidewalks, and various utilities that will generate demolition debris and waste products. Based on available information, a portion of the demolition waste could include hazardous materials. In addition, due to the scale of the Project, general construction waste is expected. The sections below detail how hazardous and non-hazardous solid wastes will be handled during demolition and construction. The Proponent is targeting a 75% reduction in construction debris.

Solid Waste and Recycling

Proposed construction and demolition activities will generate solid waste, which may include certain regulated building waste streams (e.g., asbestos-containing materials, PCBs, and oil/hazardous materials). The contractor will take an active role in the processing and recycling of construction waste. The disposal contract will include specific requirements to ensure that procedures will comply with the goals of Massachusetts' Solid Waste Master Plan. These procedures will include the necessary segregation, reprocessing, reuse, and recycling of materials. For those materials that cannot be recycled, solid waste will be transported in covered trucks to an approved solid waste facility per MassDEP Regulations for Solid Waste Facilities, 310 CMR 16.00. Brick, concrete, gypsum wallboard, wood and metal will be segregated from other construction debris for recycling; other debris to be disposed of as non-banned construction waste in accordance with waste facility management regulations at 310 CMR 19.017.

Hazardous Materials and Waste

Releases of oil or hazardous material to the environment are managed under the Massachusetts Contingency Plan (MCP) (M.G.L. Chapter 21E and 310 CMR 40.0000) under the supervision of a LSP. The Project includes demolition and reconstruction as part of site redevelopment. An LSP will be engaged by the Proponent to provide environmental consulting services during Project design and construction. If contamination is identified in pre-construction sampling or during construction, an LSP will provide services consistent with the MCP as required for regulatory compliance and close-out. The Project environmental consultant will ensure that the Project conforms to MCP regulatory requirements for construction of buildings in contaminated areas, and that all required submittals will be provided to MassDEP.

There may be minor amounts of Polychlorinated biphenyls (PCB)-containing materials on the Project Site, specifically the caulking used to seal some of the windows. PCB-containing material is also common in items such as florescent light fixtures. An assessment of the existing buildings has been completed quantifying the demolition debris that requires special disposal conditions. Non-hazardous waste landfills in Massachusetts are permitted to accept PCB-containing materials where concentrations are less than 2 mg/kg; such disposal does not require approval from the EPA.

The Project Site is also regulated under asbestos abatement regulations (310 CMR 4.00) and asbestos-containing materials are known to exist on the Project Site. Asbestos is classified as a

"special waste" under MassDEP solid waste regulations, and asbestos and asbestos-containing material require special handling and transporting methods set out in MassDEP regulations. Asbestos-containing material surveys and abatement plans will be developed for each building prior to demolition. Asbestos may only be disposed of in landfills that have been approved to accept asbestos-containing waste materials. Any entity or individual engaged at the site for asbestos abatement or containment shall be licensed and certified under 453 CMR 6.00.

The Project involves the demolition of existing buildings, paved driveways, parking lots, sidewalks, and various utilities including portions of existing water mains and sewer mains. Based on available information, a minor portion of the demolition waste will include hazardous materials such as asbestos and lead-based paint. These materials are classified as "special waste" under MassDEP solid waste regulations. Accordingly, asbestos, asbestos-containing material, and materials with lead-based paint will be segregated and Project operations will proceed in accordance with the required special handling and transporting methods set out in MassDEP regulations.

Surveys for asbestos containing materials have been conducted of the Project Site buildings and have confirmed the presence of asbestos-containing materials in minor areas of the existing buildings. Prior to demolition, a comprehensive asbestos survey will be conducted in accordance with Massachusetts regulations 310 CMR 715 and 453 CMR 6.00 and asbestos containing materials will be properly abated prior to demolition, by a Massachusetts-licensed abatement contractor and will be inspected by a Massachusetts-licensed Project Monitor. Asbestos abatement will be conducted under DEP Bureau of Waste Prevention Asbestos Notification Form AQ004. Prior to demolition a Demolition notification form AQ06 will be submitted.

Construction operations at the site, including earthwork, will generate dust. As required on construction projects, the Contract Documents will specify the requirements for dust control and include the site-specific Contractor Health & Safety Plans to protect worker safety. If required, dust will be suppressed by spraying the site with water. Air quality will be measured with dust monitors.

Based on existing information, one active UST exists on site. The existing UST is a 7,000-gallon partitioned gasoline and fuel oil tank located near the northwest corner within the existing building. During construction, the existing UST will be removed. The Project LSP will ensure that tank removal and closeout is completed in accordance with the MCP and requirements for the City of Revere and City of Boston. In addition, any unexpected USTs encountered during construction will be managed similarly.

9. Draft Spill Response Plan

A draft spill response plan has been prepared and will be finalized as required. The response plan includes, but is not limited to, the flowing elements listed below.

Small quantities of hazardous materials or chemicals may be utilized on site, including petroleum/fuel products. Any such materials will be handled and stored in accordance with all applicable regulatory requirements. In the event of an unplanned release of petroleum/fuel products or other contaminants, the contractor and its subcontractors will utilize the following procedures:

- Notify Fire Department and contracted spill response contractor.
- Notify the U.S. Army Corps of Engineers.
- Mobile excavating equipment will be available at the spill/release area and if necessary, used to create berms, dig channels or cover affected area with soil to reduce spreading or migration.
- A spill kit containing absorbent materials will be positioned near fueling areas and utilized in the event of spill or release.
- Reduce the probability of a spill or release by having fuels delivered by truck to a designated fueling area rather than utilizing bulk storage and/or tanks of petroleum/fuel products or other contaminants.
- Fire extinguishers will be positioned adjacent to fueling areas.
- No hot work, smoking or potential ignition sources will be allowed in the fueling areas.
- Personnel involved with fueling or handling of any contaminant will be equipped with communication devices to sound an alarm in the event of spill or unplanned release.
- Only authorized personnel will be allowed in the spill release area.
- Provide assistance as necessary to the qualified spill response contractor and fire department.

10. Geotechnical Impacts and Monitoring

Excavation will be required for the deep foundations (precast piles and/or steel piles), proposed in the Project design. Means and methods for installing the deep foundation system will consider potential impacts to adjacent facilities near the property limits. It is not expected that vibrations will approach thresholds that could potentially impact existing facilities; nonetheless, vibration monitoring will be conducted during pile driving activities

11. Odor and Rodent Control

A formal Certified Pest Control Plan will be implemented in accordance with Boston and Revere requirements, including baiting at least four weeks in advance of demolition activities. The Proponent will work with the City of Revere and City of Boston as it commences its rodent control measures and will respond promptly to any abutter or community concerns. Other than potential emissions from construction equipment, we do not anticipate any odor issues during construction.

12. Protection of Utilities

New infrastructure for sewer, drainage, domestic water, fire protection water, telephone, gas, and electric services will be tied into existing infrastructure. Specific traffic management plans will be developed for the work required to perform these tie-ins. Connections to the existing services will be coordinated with the proper utilities and their respective contractors, as necessary. All shutdowns will be arranged, and proper notice will be given prior to any shutdowns. All work requiring a City of Revere or City of Boston Permit will be approved in writing by the contractor at

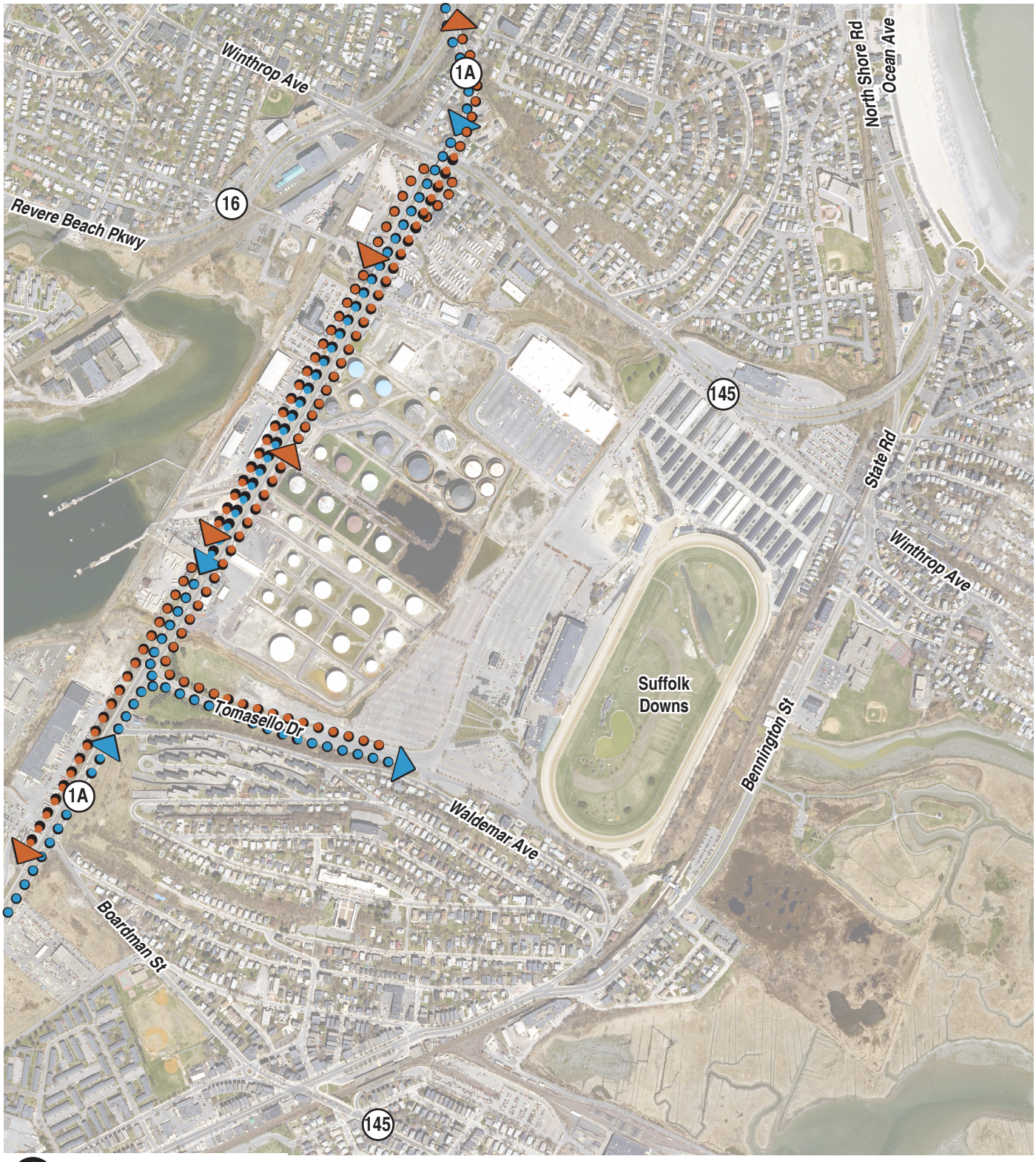
the time of permit application. The written approval of the contractor will be presented to the appropriate city by the contractor performing the work at the time of the application of the permit.

13. Damage to Public Property

The contractor will be responsible for repairing any damage to public streets, public sidewalks, or other public property resulting from its construction activities.

14. Emergency Contacts

A 24-hour emergency contact list will be distributed to all parties involved in the Project. This list shall contain at least three (3) representatives for the contractor. A complaint hotline telephone number shall be provided and will be visibly posted on Project Site signage. Logs of all complaints and how/when the complaints were resolved will be kept on-site.



Source: MassGIS Orthographic Aerial Imagery, Boston, Massachusetts

Arrivals

Departures

Figure 1

Proposed Construction Truck Routes

Suffolk Downs Redevelopment
Boston & Revere, Massachusetts

Appendix H: Infrastructure Supporting Documentation

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.

Appendix I: Abutters List

Note: Materials are provided on the enclosed CD-ROM due to large file size. Hard copies are available upon request.